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Legislative Council
Parliament House
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Australia

INNSBRUCK, 02/16/2018

Submission to the Inquiry into mechanisms for compensation for economic loss to farmers in Western Australia caused by contamination by genetically modified material

Dear Mr. Swinbourn,

I refer to your letter dated 21 December 2017 in which you ask for a submission to the ongoing inquiry on compensation mechanisms for economic loss incurred by non-GM farmers due to contamination with GM material. Unfortunately, due to other commitments incurred before, I am afraid I will not be able to provide a comprehensive analysis in time, which is why I have taken the liberty to attach two excerpts from previous publications of mine which shall complement my short statement below.

From 2006 to 2007, I was the leader of a study commissioned by DG Agriculture of the European Commission.[1] The task was similar to the inquiry you are conducting now: We were asked to analyse existing and potential liability and compensation schemes for damage resulting from the presence of GMOs in non-GM crops in all EU jurisdictions, with the ultimate goal of advising the European Commission whether and to what extent it may be necessary to intervene with a legislative proposal aiming at the approximation of liability regimes in this field. The study was also published in print in 2008.[2] One of the afore-mentioned attachments contains excerpts of said publication. I would like to draw your attention in particular to the executive summary (pp. 9 ff) and the "conclusions and recommendations" (pp. 653 ff). However, some aspects of the latter may not be relevant for your current inquiry since you are not facing the added complication of considering to harmonize a variety of legal regimes with quite different tort law systems in place, so you may not share the concerns about interfering with the diversity of existing legal regimes.

From 2008 to 2009, I directed a further study within the framework of a larger research network called Co-Extra.[3] The focus of this follow-up study was on other varieties of

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harm in addition to the economic loss covered by the first publication. The outcome of this further study was published in 2010.[4] The second attachment to this submission is the comparative report contained in said volume.

After the conclusion of these two studies, I have not been involved in any further in-depth study on this topic, which means the information I am relying on in this submission is mostly (though not exclusively) based on the findings of research conducted almost a decade ago. However, as far as a brief survey of selected jurisdictions in preparation of this submission has shown, little seems to have changed in Europe ever since, at least in legislation, which is presumably due to the fact that the political attitude in the Member States of the EU seems to have remained the same, whereas the position of the EU seems to have shifted to a somewhat more generous attitude towards those jurisdictions within the EU which at the time had been and continue to be sceptical or even hostile towards GM farming.

As you will see from my attachments, this political attitude is one of the prime drivers for shaping the legal landscape for dealing with such losses.

To begin with, all legal systems we have looked at provide for rules on how to compensate economic harm caused by GMOs. After all, traditional tort laws (more or less) clearly define under which circumstances economic losses in general are compensable and who shall be liable. In the context of GMOs, however, this might effectively often lead to a denial of liability, since many legal systems hesitate to compensate pure economic loss. But this is a solution, just not one the victims will appreciate. Adding more victim-friendly approaches in such specific cases to a given general liability regime effectively means to prefer some victims over others, and the question then arises whether there is sufficient and satisfactory basis for such a shift.

If we look at Europe, those jurisdictions which have retained classic tort law without modifications specifically for the GMO scenario tend to be those where the political attitude is favourable towards GM farming, whereas others which are opposing that technology have introduced very strict liability regimes.

The best example for the latter is my own country Austria, where citizens are predominantly anti-GM. A referendum against gene technology in 1997 was signed by more than 1.2 million citizens (or more than 20% of the eligible population), which made it the second most successful referendum in Austrian history. Our Gene Technology Act provides for a very harsh strict liability regime, effectively aiming to deter farmers from adopting such technology. However, in light of predominant consumers' choice in favour of non-GM products, there is no economic incentive at the moment for farmers in Austria to consider that technology anyhow.

Some jurisdictions which wanted to boost GM farming decided to provide for compensation funds or other alternative compensation regimes, even though it seems that this might not have been successful after all.

The same is true for the industry, which has also come up with some creative solutions, trying to boost trust in the technology by setting up voluntary compensation schemes in specific areas where they hoped to generate profits. However, one of the most

interesting concepts of that kind[5] was apparently stopped after a test phase, presumably due to the lack of success.

Further information and more details can be found in the attachments. I am happy to provide you with more input if you think I can be of further assistance in light of the caveats mentioned at the beginning.

With best regards,

Bernhard Koch

Footnotes:

1 The findings are published on the Commission's website at https://ec.europa.eu/agriculture/external-studies/liability-gmo_en.

2 Bernhard A. Koch (ed.), Economic Loss Caused by Genetically Modified Organisms: Liability and Redress for the Adventitious Presence of GMOs in Non-GM Crops (Tort and Insurance Law, vol. 24). Vienna 2008.

3 https://www.coextra.eu.

4 Bernhard A. Koch (ed.), Damage Caused by Genetically Modified Organisms (Tort and Insurance Law, vol. 27). Vienna: 2010.

5 The Märka project by Monsanto and Pioneer, described on (book) p. 634 of the first attachment.

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Bernhard A. Koch (ed.)

Economic Loss Caused by Genetically Modified Organisms

Liability and Redress for the Adventitious Presence of GMOs in Non-GM Crops

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Table of Contents

Introduction

The following study was produced at the initiative of the European Commission. The objectives of the study as defined by the Commission are reprinted below.[1] The conclusions, recommendations and opinions presented in this book reflect the opinion of the authors only, however, and do not necessarily reflect the opinion of the Commission. 1

In order to ascertain the status quo, country reports were produced by specialists in all jurisdictions covered by the end of August 2006. The reporters followed a uniform questionnaire[2] which had been put together in close cooperation with the Commission. The reports have been updated for this publication where necessary. 2

It was agreed upfront that not only the (at the time) 25 Member States of the European Union should be covered this way, but also Norway and Switzerland, due to their (not only geographic) proximity and their necessary involvement in loss scenarios at their borders to Member States. 3

Another questionnaire was sent out to the competent ministries in each Member State, but also to their counterparts in other EEA countries as well as in Acceding[3] and Candidate States. The focus of this second survey was more on legislative aspects (both present and future). While the responses to these questionnaires cannot be published as such, they have nevertheless been considered in the following report. 4

Apart from this assessment of the status quo (including upcoming changes to the extent already known), two more general reports were produced: One study offers an economic analysis of the various legal options to deal with the kind of losses covered by this study. Another report was produced by insurance experts and focuses on the insurability of such risks. 5

In order to avoid an overly complicated style, it will be necessary to use language that seems to oversimplify the matter or even reflect a certain bias with respect to the subject matter of this study. Unfortunately, this is not 6

[1] Infra 5 ff.
[2] Infra 53 ff.
[3] Bulgaria and Romania were not yet Members at the time this survey was conducted.

entirely avoidable. Please note, however, that the use of words like "contamination" or "victim" is entirely technical and has no pejorative undertone whatsoever.

7 The "GM farmer" in this report will obviously be the one who cultivates GMOs on her fields. Since she does not necessarily need to own the land used for such purposes, the landowner may be a different person. If so, there may be two (or more) addressees of a claim against the person in charge of the origin of GM seeds or pollen. This will only be addressed explicitly where needed; at other occasions, please bear this possible separation of persons in mind.

8 The "non-GM farmer" is meant to be the one who suffers a loss by GMO admixture, no matter whether she is a conventional or an organic farmer. This difference may be important, however, when it comes to determining the scope of the loss, as the damage resulting from gene flow may be more substantial for organic farmers.

Objectives of this Study*

I. Summary

The introduction of genetically modified organisms (GMOs) in EU agriculture may have economic implications that result from incomplete segregation of GM and traditional crop production. In particular, the presence of GMOs can not be ruled out in non-GM agricultural products. Due to requirements for labelling of GMOs and other purity criteria of non-GM products as well as market demand for non-GMO products, such presence may have negative economic implications for the operators concerned. The present study is aimed at analyzing aspects concerning the liability of GMO presence in traditional agricultural products.

II. Background

The cultivation of genetically modified (GM) crops in the EU may lead to cases in which traditional agricultural products contain detectable traces of GMOs. On the one hand, such admixture may result from inadequate application of segregation measures by farmers. On the other hand, as agriculture is an open process that does not allow the complete isolation of individual fields, a certain degree of admixture between neighbouring crops is unavoidable in practice. 2

The presence of GMOs in traditional products may lead to their devaluation, which would entail an economic damage to the producer of the traditional products. For instance, due to the presence of the GMO the traditional product may be required to be labelled as GM. 3

GMOs and products containing or produced from GMOs have to be labelled according to Community legislation, in particular Directive 2001/18/EC, Regulation (EC) No. 1829/2003, and Regulation (EC) No. 1830/2003. For the case of adventitious or technically unavoidable presence of GMOs in non-GM products, Regulation 1829/2003 provides for a threshold of 0.9% below which such presence in food or feed does not require labelling. For seeds, Directive 2001/18/EC provides for the possibility of adopting thresholds, below which the adventitious or technically unavoidable presence of GM seeds does not 4

* This text was drafted by the European Commission and is part of the Tender Specifications under which the following study was performed.

require the labelling of conventional seed lots. Such thresholds have not yet been adopted.

5 The presence of GMOs above the labelling threshold in a product also triggers the need for traceability of GM products according to Regulation 1830/2003, which may cause additional costs for the operators concerned.

6 In the EU, crops may only be commercially cultivated after having been authorized for the purpose of cultivation under Community legislation (i.e. Directive 2001/18 or Regulation 1829/2003). The labelling thresholds only apply for the presence of authorized GMOs. Products containing detectable traces of unauthorized events can not be legally marketed in the EU.

7 According to part B of Directive 2001/18, an individual Member State may grant authorization for a non-commercial release of a GMO, for instance for the purpose of experimental field testing. As a result of such experimental cultivation, GMOs not authorized under part C of Directive 2001/18 or under Regulation 1829/2003 may be present in traditional crops. This presence could cause economic damage as food and feed can not be marketed if it contains detectable traces of such GMOs.

8 The admixture of GMOs may also have specific implications for organic products. Regulation (EEC) No. 2092/91 on organic production of agricultural products specifies that GMOs may not be used in organic production, with the exception of certain veterinary products. Therefore, products that require labelling as GM can not be used in organic farming. This implies that GMO presence in organic input materials (such as seed or feed) could have implications beyond the necessity of labelling alone.

9 Further economic implications may result for farmers producing non-GM crops if specific requirements concerning GMO presence, which go beyond the provisions in Community legislation, are laid down in contracts with the retailers or other operators further down the food or feed production chain. Such conditions may also apply for products produced under quality schemes.

10 In addition to the economic implications resulting from the actual presence of a GMO in a traditional product, costs may also occur due to sampling and testing of products, either on a basis of routine controls or in cases where relevant GMO admixture may be suspected. In many cases, the presence of GMOs and their quantity can not be assessed without the use of laboratory analyses, which may cause significant costs.

11 Furthermore, economic implications for traditional producers that may relate to the presence of GM crop production in a region, and which could enlarge the risk of GMO admixture, can not be ruled out. For instance, food or feed producers may preferentially purchase crops from certain regions where no GM crop production may take place.

If the cultivation of GM crops becomes more widespread, the issue of liability in relation to GMO admixture could gain further importance in the EU. Compared to other cases of economic damage resulting from neighbouring activity, GMO admixture may pose specific difficulties because the admixture may initially remain undetected and become known at later stages of the food or feed production chain. Furthermore, the causal link between the damage and the operator responsible for it may not always be apparent as there may be different sources of admixture (e.g., seed impurities, out-crossing with neighbouring crops, volunteers from previous GM crop cultivation). 12

Liability in the case of economic damage that may result from the presence of GMOs in other crops is a case of civil law. Generally, civil law is in the responsibility of the Member States. In Recommendation 2003/556/EC on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming, the Commission states that: 13

> "The type of instruments [to achieve co-existence] adopted may have an impact on the application of national liability rules in the event of economic damage resulting from admixture. Member States are advised to examine their civil liability laws to find out whether the existing national laws offer sufficient and equal possibilities in this regard. Farmers, seed suppliers and other operators should be fully informed about the liability criteria that apply in their country in the case of damage caused by admixture.
>
> In this context, Member States may want to explore the feasibility and usefulness of adapting existing insurance schemes, or setting up new schemes."

Member States may develop national or regional approaches to ensure the co-existence of GM crops with conventional or organic agriculture. According to Article 26a of Directive 2001/18: 14

> "Member States may take appropriate measures to avoid the unintended presence of GMOs in other products."

In the context of national or regional co-existence legislation Member States may also adopt specific provisions for liability in cases of GMO admixture, and develop compensation schemes, such as insurance systems or compensation funds. 15

Liability has to be seen in the context of measures to segregate GM crop production from traditional non-GM production in order to achieve co-existence between these different forms of agriculture. The approach taken by the Member States to allocate the responsibility for developing and implementing these segregation measures among the operators concerned has significant implications on liability. 16

Executive Summary

Bernhard A. Koch

This study focuses on how to respond to losses incurred by conventional or organic farmers due to the presence of genetically modified organisms (GMOs) in their crops, primarily from a tort law perspective. It is assumed that the presence of these GMOs results either directly or indirectly from the commercial cultivation of GM crops which are approved for this purpose according to EU legislation. 1

Only economic losses such as a reduction of the market price or costs of testing crops are covered, whereas personal injury or damage to property as such (other than harm to the field itself or to the crops thereon) shall be disregarded. Damage to the environment in a narrower sense, for example the potentially detrimental impact on biodiversity, will equally not be addressed. 2

The losses under survey here need not be very significant – in a typical case, the conventional crops will not sell at a substantially higher price than their GM counterparts, otherwise the latters' cultivation would not be economically reasonable in the first place. The loss suffered by the farmer on whose field admixture occurred will therefore generally be based upon that price difference if her produce can still be sold on the GM market. Costs of testing or of entering that market (such as efforts to find a new buyer) will add thereto, however. More substantial damage is imaginable, for example, for organic farmers who may lose their organic certification, or with respect to consequential losses incurred further down the production or distribution chain. 3

In order to define the extent of liability, one crucial decision that all jurisdictions invariably have to make is whether claimants shall also recover those losses which are caused by admixture of food or feed production below the EU threshold for GMO labelling, which is set at 0.9%. Since the produce would not have to be labelled GM in such cases, there should typically be no difference in the price and hence no loss. However, the farmer may be under a contractual obligation to a third party, for example, to deliver crops with an even higher degree of purity. The question therefore is whether the legal system will indemnify such losses as well even if the general marketability of the crops is given. The answer to this question is not predetermined by the fundamentals 4

of tort law – it is the result of balancing the interests involved, and as with any weighing process, the outcome is not entirely predictable.

5 The typical cause of any such losses, whether admixture remains below or exceeds the threshold, will be gene flow from a field where GM crops are being cultivated. Alternatively, for example, the seeds used by the conventional farmer may have been impure, but there are other imaginable sources of admixture (e.g. during harvest, storage, transportation, out-crossing with feral crop populations, etc.).

6 In order to find out how the legal systems of all EU Member States currently deal with such cases and what solutions they offer to indemnify non-GM farmers, experts in all jurisdictions have been consulted who have authored country reports based on a standardized questionnaire. Norway and Switzerland were also included in the survey. Summaries of all country reports offer a first overview of the more comprehensive submissions. In addition to these academic evaluations, feedback from all concerned governments was collected, particularly with an eye to future plans. Furthermore, a paper analyzing these problems from a law and economics perspective was produced by experts in that field. Finally, insurance practitioners also presented the position of their industry.

7 On the basis of these materials, a general report was drafted which will not only provide a comparative analysis of the status quo throughout Europe, but will also address policy questions, in particular with an eye to whether the existing situation calls for efforts to harmonize the current laws.

8 The general report starts out by examining possible ways to allocate the risk. After an assessment of the kind of risks this study is concerned about, the report proceeds from the basic principle that losses may only be shifted onto someone else if law offers good reasons to do so. Initially and by definition inevitably, it will always be the immediate victim who is the first loss-bearer. Unless the legal system offers indemnification by way of tortious liability or on other grounds, or by granting awards under a compensation fund or other redress scheme, the immediate victim will also be left with her loss in the long run. That in itself does not suffice as a reason to award compensation, however – law is based upon a balancing of competing interests rather than an unconditional recognition of individual claims.

9 The report goes on to analyze tort law as the classic route on which all legal systems offer compensation subject to their specific requirements. Apart from the immediate neighbour who cultivates GM crops, possible defendants in a tort action include, for example, all other GM farmers in the area, seed producers or distributors, those in charge of farming equipment, as well as the authorities whose licenses or permits made the GM cultivation admissible. If the requirements of a tort claim against more than one of them are fulfilled, the victim can typically sue either one of them to recover her full damage.

It is then up to the defendant to seek contribution from the others by way of recourse.

However, these tort law requirements vary substantially throughout Europe, which may lead to different outcomes even in comparable fact settings. Some legal systems make a difference between economic loss which is a mere consequence of preceding damage to the person or to tangible property of the victim on the one hand and so-called "pure" economic loss which affects the victim's assets directly without any intermediary harm to her person or other property. This is for example true in Austria, Cyprus, England, Finland, Ireland, Norway, Poland, Portugal, Sweden, and Switzerland. However, others do not make such a distinction. This difference is therefore crucial, e.g., for determining whether a reduction of the market price is compensable if it is the result of customer fear that the crops may be GM, even if no actual admixture had occurred. It may also be relevant if one should conclude that GM crops growing in a non-GM field are no damage to the field or to its non-GM crops, but merely to the farmer's proceeds. 10

Even if the recognition of the loss should not pose a problem, the claimant may nevertheless fail due to difficulties in proving its cause. Jurisdictions are more or less generous in this respect, not only as far as procedural rules are concerned, but also when it comes to determining who should bear the consequences in case of doubt, be it with respect to a single event or to multiple possible causes. The standard of proof that claimants have to meet ranges from "more likely than not" (e.g. in Cyprus, England, Ireland, and Norway) to almost certainty (for example in Austria and Belgium). 11

Ultimately, jurisdictions will handle the claim either under traditional fault concepts by evaluating the defendant's conduct, under a strict liability regime which is irrespective of blameworthy behaviour attributable to the defendant, or under any hybrid basis of liability in between. Defences may or may not reduce or exclude liability, which further diversifies the range of possible outcomes in the European overview. 12

In all jurisdictions, special provisions addressing damage caused to neighbouring land may come into play as well. Since these are intended to find a compromise between two conflicting interests which per se are of the same value, they seem to be at least one model to consider for developing co-existence rules in the GMO case scenario. However, those rules also differ throughout Europe, even with respect to their theoretical basis. They are by and large in accord, however, that an interference with neighbouring land must be unusual and unreasonable in light of the area and other circumstances in order to provide for compensation. 13

While some countries have decided to maintain traditional tort law rules including their inherent uncertainties, other jurisdictions such as Austria, Germany, Poland or Switzerland, have introduced special strict liability regimes 14

which apply specifically (though maybe not exclusively) to the kind of problems under survey here. Typically, those countries who opted in favour of specific legislation did so in order to make access to compensation easier, or – in other words – to shift the economic risks of GM farming onto those who pursue it. In those countries, GM farmers are much more likely to be liable towards their non-GM neighbours than in other jurisdictions even though the facts of the case may be identical. One way of doing so is to assign such cases to the existing regime for neighbourhood conflicts coupled with defining certain requirements thereof as given. This was done in Germany, for example. Other countries such as Finland or Norway chose to shift these matters at least in part into their general environmental liability regimes, which invariably exceed the scope of the Environmental Liability Directive, above all by also addressing losses of individuals.

15 Whether or not any special tort law rules apply, fault liability nevertheless remains the default rule throughout Europe which claimants can resort to alternatively or even cumulatively (though not beyond their actual loss, of course). This multi-layer system will inevitably resist harmonization efforts on just one level since backdoors and detours will always lead to the other(s).

16 Leaving aside existing differences between European jurisdictions, tort law is certainly one possible basis for proceeding to a more harmonious solution for non-GM farmers whose crops were mixed with GMOs. However, certain limits will always have to be taken into account which are not inherent in tort law proper, but inseparably connected thereto. Tort claims are traditionally administered by regular courts of law, and the procedure to obtain compensation before them can be cumbersome, time-consuming and costly. Even if the plaintiffs succeed at the end of this process, they may still not be able to collect damages from the defendants if the latter do not hold sufficient funds to pay their dues.

17 Furthermore, before focusing on tort law as a compensation model for the damage under survey here, one should also bear in mind that the primary function of tort law is to compensate losses and not to prevent them. Even though the latter were desirable, other areas of the law offer better tools to achieve that. Differences in technical or administrative rules on co-existence which are designed inter alia to avoid harm will most likely have a greater impact on the feasibility to cultivate GM crops and the protection of non-GM farmers from GMO admixture than the existing differences in liability rules, which are all meant to step in once segregation measures have failed. Harmonization of liability would therefore only make sense after these ex ante aspects of co-existence are well-defined and uniform throughout Europe.

18 Even if all that were taken care of, a true harmonization of liability is far from guaranteed: European jurisdictions have each developed an individual claims culture and a distinct compensation culture. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put consid-

erable emphasis on a more individualistic approach. Imposing uniform rules for a comparatively narrow case scenario such as the one envisaged here may lead to a solution which may not be available under all existing tort laws, even though it will necessarily have to build upon and fit into at least the more fundamental concepts thereof. Tort law language may alone lead to complications, as the technical terms that unavoidably will have to be used are understood by the respective jurisdiction in the way it has evolved there, with all its distinct features and interactions with other aspects that the GMO scheme may not specifically address. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. Full harmonization cannot be achieved anyhow unless tort law is harmonized in a more general way which applies beyond singular case settings, and this does not seem to be an option for the time being.

19 The study also analyzes whether and to what extent the insurance market can contribute to improving co-existence between GM and non-GM farming by providing for cover against the losses under survey here.

20 One option could be via liability insurance, which could cushion in particular some practical problems of tort law by accelerating access to payments and, even more importantly, by absorbing the risk (to the extent of the policy limit) that the tortfeasor individually is unable to compensate the claimant. However, such third-party insurance awards will only be available if the insured is actually liable, i.e. if all substantive requirements of tort law are met, so that the complications and differences in that respect remain unresolved.

21 Alternatively, non-GM farmers would not have to resort to tort law at all if their losses were covered by their own farm (or other first-party) insurance. While this would require farmers to contribute to providing cover for their own damage (which they already do for various other risks), by expanding the risk pool the extent of the said contribution could be significantly reduced as compared to cases where the non-GM farmers may be left alone with their full loss. This may well be the case if there is no other way that leads to compensation, for example due to difficulties of proving one or more tort law requirements, or because the applicable national system denies liability for other reasons, in particular if the cultivation of GM crops was done in accordance with the applicable farming standards in force at the time.

22 First-party insurance has the additional advantage for the victim that her peculiar risk is taken care of: She should know best what losses she may suffer, and she can therefore (at least in theory) buy cover that is tailor-made to her situation. Payments can be even faster than under a liability insurance scheme with direct claims, because the insured risk focuses on the occurrence of the harm and (at least in general) not on its cause, even though certain risks may be excluded. This is not the only reason why this type of insurance may be the most cost-efficient regime.

23 Whether third- or first-party insurance, both allow the pooling of risks among a larger group of people exposed thereto, and it is even bigger if taking out such cover is made mandatory. The insurer can tailor its products according to the various aspects of the risk. At least in theory, for example, those who run a higher risk will typically pay higher premiums (though not necessarily so, and it is certainly not a linear correlation): In the case of liability insurance, for example, those who cultivate crops where mixing is more likely will rather pay more per area than those who plant crops less prone to mixing. Apart from more general geographic criteria, it may also be a price-determinant whether the farmer operates in a GM or non-GM environment.

24 Insurers may be lacking crucial information for properly assessing the risk. Premia may therefore be either too high (and thereby deter potential clients from buying such cover, or lead to an unjustified increase of production costs) or too low (which ultimately will have an impact on the insurers' balance sheets). The policies may include limitations of certain risks or other restrictions. The insured amount may not suffice to cover the full loss owing to manifold reasons and possibly leading to serious consequences. Those at risk may not be aware of it at all or have false assumptions of the extent of the risk: Conventional or organic farmers simply may not know that someone in their vicinity has started to cultivate GM crops. This may seduce them out of buying first-party insurance at all or only subject to unreasonable limitations. Such problems could be remedied by making insurance compulsory, which only makes sense if there is an adequate range of suitable insurance products on the market to meet the (artificially increased) demand, though.

25 At present, neither liability nor first-party insurance products covering GMO risks seem to be available on the markets under survey. Problems for insurers in this respect can be traced back to the standard criteria which would allow them to consider whether such risks are insurable: estimable frequency and severity of harm, the fortuitous nature of the loss, and the ability to spread it. Arguably, there is currently not enough data available to predict both likelihood and extent of possible losses, particularly in light of the broad range of plant varieties and their peculiar features that have a bearing on these aspects. Unless it is clear for insurers that losses below the legal threshold of admixture need not be covered, the fortuitous aspect of the risk may be lacking entirely, as complete segregation is impossible in a co-existence environment. The most important obstacle to offering liability insurance cover is a tort law regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation, or – probably even more problematic for insurers – a liability regime which does not allow for predictions of how an admixture case would be solved.

26 In order to avoid the shortcomings of the current insurance market, several countries have already taken steps to introduce a compensation fund which should lead to a better protection of the victims as compared to what tort law can offer so far. The models used vary, but the majority only come into play

when the admixture is purely accidental and not due to some misconduct, the latter cases being left to tort law. Contributions to the funds come primarily from GM farmers, but others are also included in some countries. In Denmark, for example, the State serves as short-term financer of losses exceeding the fund limit until contributions in the following year have been adjusted to enable the fund to reimburse the State for such interim payments. This redress scheme shall be operative for five years, based upon the hope that the insurance industry will be able to take over in the meantime.

27 Compensation funds are typically tailor-made to a particular risk scenario. The procedure to assess a claim and to make payments is often faster. Since the risk group is identified in advance, also the administration of the fund can be designed according to their specific needs. The range of those who pay into the fund may be broader than under other indemnification regimes – not only those immediately concerned will be involved, but also others with a more general interest, including – as could be seen from the example of Denmark – the State which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable). State aid rules will define the limits thereto, however. Other such redress schemes do not foresee or even exclude State participation. Compensation funds need not necessarily follow the restraints of actuarial mathematics and therefore can be introduced to fill a gap in the insurance market: Even if commercial insurers feel unable to offer cover, compensation funds may nevertheless (or even just for that reason) be installed in order to at least serve as a temporary solution until the market can take over.

28 Monies accumulated in compensation funds are typically limited, and depending upon the pooling arrangement, the funds may be dried out even before all claims have been settled unless someone backs up the regime by way of a guarantee as in the Danish case. Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. Risk differentiation may also be inadequate in comparison to alternative indemnification models: Those who contribute to the fund are not necessarily those who are in control of the risk that shall be covered, or at least their contribution may not reflect the actual weight of their influence.

29 One major argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways to obtain compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. This question can of course also be posed with respect to any other special solution, for example in the field of tort law.

30 Yet other risk spreading models have been developed in some Member States. In Germany, for example, a feed producer (with the support of seed producers) voluntarily offered to buy the crops of conventional farmers within a certain distance to a GM farmer at the regular price. In the Netherlands, all stakeholders have jointly come up with a contractual compensation scheme which also foresees a fund. These peculiar solutions have been developed on the basis of very specific market conditions, though, which do not necessarily translate well into other settings in different countries.

31 Any such measure to promote co-existence is likely to assist the insurance market to step in at some point. By enabling GM farmers to get started without concerns of unpredictable liability issues in the future, but at the same time without leaving their non-GM neighbours empty-handed in case a loss should indeed occur, data can be gathered over time which is essential for insurers to properly calculate the risk.

32 While it depends upon their statutes how compensation funds and similar redress schemes handle cross-border applications (which allow for tailor-made solutions such as bilateral arrangements), the transboundary loss case in tort law is governed by already uniform rules with respect to the jurisdiction of the court and will soon be falling under a harmonized conflict of laws regime. In essence, therefore, the victim will be able to sue both in her own jurisdiction as well as in the GM farmer's country, and the laws of the victim's jurisdiction will (most likely) apply. Hence, there is no imminent need for further action at Community level to harmonize just the cross-border matters. Apart from other flaws, a substantive solution such as a compensation fund applying to transboundary losses only would violate the principle of equality if these cases are handled differently from national ones.

33 As could be seen already in this overview, the current situation in Europe shows a wide range of solutions to address the issue of GMO admixture. Is such national diversity really desirable, or do we have to strive for harmonization in this field? Harmonization as such can never justify itself, though: The existence of differences between the Member States per se is no sufficient reason to interfere with their national legal systems.

34 This leads to the question whether such diversity has any negative influence on the internal market. The report is at least doubtful whether that is the case. Local market conditions (including in particular the regulatory framework of GM farming) will play a much more considerable role than redress schemes stepping in ex post. Even if one should come to the conclusion on the basis of further economic and sociological data (which cannot be provided by this report) that the internal market may be affected by the existing compensation rules and the diversity thereof, one would still need to pose the question whether a harmonized regime designed to replace existing national solutions would really improve the current situation in this respect.

If this question were answered in the affirmative, the necessary starting point would be the regulatory framework of GM farming which needs to be expanded towards a more precise definition of good farming practice. Clarifications with respect to the labelling thresholds and their impact on the liability issue are also desirable. Otherwise, the Member States will not be in a position to draw the borderlines foreseen by a compensation scheme, for example which losses are compensable, or whether or not the GM farmer is liable for fault. 35

Any choice to interfere with the existing national solutions in a strive to achieve at least some degree of harmonization will necessarily have to be based on a political opinion-forming. The legal perspective itself does not offer sufficient guidance to single out an optimal solution. After all, the tort laws and other compensation systems applicable to the cases under survey here only mirror the attitude of the respective jurisdiction towards GM farming, which is primarily marked by other rules and regulations. 36

The fundamental question whether and to what extent GM farming shall be advanced in Europe may have a bearing on the choice of the ideal liability or other redress scheme. It is important to note, however, that the promotion or limitation of GM farming can also be achieved by other, more direct means, and if the problem is rooted in the general public's fear of or mistrust in genetic engineering, tort law cannot offer any way to overcome that fear or to establish confidence. 37

There are various ways to respond to the risks on which this study is focusing, and so are the possible degrees of harmonizing the current national solutions. The choice behind any option will necessarily be dominated by the replies to the more elementary questions of how to promote co-existence, and how far to go in reaching that goal. 38

Apart from no action at all, the other extreme would be complete harmonization of all aspects of compensating losses arising from adventitious presence of GMOs in non-GM crops. It is hard to imagine how such an exclusive regime can be conceived, even if it were deemed desirable (which is highly doubtful). A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. This would inevitably lead to different treatment of similar cases in the Member States, though. A very mild form of harmonization (if at all) would be to offer a merely optional model without any need for the Member States to implement it. This will most likely not abolish the differences between the various regimes existing altogether, however, even though some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis, one may wonder whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system. 39

40 This has to be differentiated from setting a minimum standard that shall apply throughout Europe. The policy choice could be, for example, that non-GM farmers deserve compensation for at least the immediate harmful effects of GMO admixture, and that it should be more or less readily available to them. It should be noted, however, that all national jurisdictions already provide at least for a minimum level of protection via tort law. Further conditions or aspects going beyond this status quo could be included in defining that minimum standard. An alternative target that could be set would be to require Member States to achieve insurability of such risks by reducing the uncertainties created by imprecise legislation, but leave the tools to reach that goal up to them to choose.

41 The key concern of any steps taken towards harmonization – if that should be the political preference – must be on the interaction of any future uniform guidelines or rules with the existing legal systems in general and the tort law regimes in particular.

Summaries of the Country Reports

Vanessa Wilcox

1. Austria

(a) Special liability or compensation regime

The amended Gene Technology Act (GTG) regulates GMO liability for farmers (§ 79k to § 79m). Fault need not be proved and causation is presumed if the claimant can show that the defendant's actions/inactions were prone to cause interference. This presumption is rebutted if the farmer can show that it is probable that the interference was not caused by his action/inaction. In this case the burden of proof lies with the claimant. The loser pays principle applies in respect of costs incurred in establishing causation. The Act does not explicitly provide for any defences but those of the general tort law apply. In the case of multiple tortfeasors joint and several liability is imposed. There are no specific rules for recourse between such tortfeasors and therefore the rule of the general tort law (§ 896 General Civil Code) has to be applied. The Act does not differentiate between crop and seed production. The application of the Civil Code and other relevant provisions remains unaffected. Simultaneous or subsequent claims may be instigated. 1

Lost profits, damage to persons/property and costs incurred to remedy environmental damages are compensable. Injunctive relief and damages are available where GMO interference is above tolerance levels and where substantial impairment is caused. A farmer who suffers loss owing to consumer fear of contamination will face difficulty in establishing actual GMO interference. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Damages are subjectively reviewed and thus encompass increased overhead/indirect costs. In the case of a significant impairment to the environment the plaintiff may ask for payments in advance but is obliged to refund the amount exceeding the market value of the impaired good, if he does not restore the damaged good to its original condition within a reasonable amount of time. No financial limits to liability apply. As in the general tort law, the defendant is not obliged to take out advance cover. In respect of redress procedures, conciliation/mediation must precede litigation. No current/prospective compensation funds exist. 2

(b) General liability or other compensation schemes

3 Under the Civil Code, the claimant must prove unlawfulness, causation and fault. In the case of GMOs, unlawfulness particularly arises where the GTG provisions are breached. Where a protective law is breached (e.g. the GTG), *prima facie* evidence may suffice to establish causation and a reversed burden of proof in respect of fault arises. Joint and several liability applies in the case of multiple, alternative or cumulative causation. The courts, however, will first try to ascertain individual contributions. A right of recourse against contributing tortfeasors exists. Generally, with intervening causation the initial tortfeasor is wholly liable.

4 Where the defendant was negligent, actual damages may be claimed. To claim loss of profits, gross negligence must be established. The quantum of damage is the difference between the market value of a GM-free and GM-affected crop. In recompensing the claimant, his subjective circumstances will be considered. Pure economic loss is recoverable, *inter alia*, in the case of a violation of a protective law if the law is designed to protect such losses. Losses pertaining to customer fear of GMO contamination are unlikely compensable. Injunctive relief is granted for nuisances if specified conditions exist. If the impairment was caused by a licensed activity, compensation according to § 364a ABGB (neighbourhood liability) may be sought. No financial limits to liability apply though contributory negligence would reduce/extinguish the quantum of recoverable damages. The defendant is obliged to take out advance cover. Operators are under no obligation to obtain liability insurance.

(c) Sampling and testing

5 Costs associated with GMO sampling/testing are borne by the farmer where GM presence tests positive or in the case of an admission procedure.

(d) Cross-border issues

6 For tortious damages under the GTG, the law of the state where the damage occurred applies. Austrian law applies in the case of injunctive relief if the damaged farmland lies in Austria. For damages based on general tort law, the law of the state where the tortious conduct was performed applies.

2. Belgium

(a) Special liability or compensation regime

7 There is currently no special regime in force for GMO related liabilities though legislative provisions exist which could affect the determination of liability. For example, the Royal Decree of 21 February 2005 specifies conditions for GMO usage which, if contravened, result in the operator being deemed to be at fault. No specific compensation scheme exists as GMO admixture is

unlikely to qualify under a fund established to compensate damage caused by "waste".

There are no specific compensation schemes covering the losses resulting from the presence of GMOs in traditional crops at present. However discussions are underway in both the Flemish (in drafting phase) and the Walloon Parliaments (awaiting parliamentary assent). Economic loss and secondary fees (generally, in respect of primary products) will be compensable under the fund, provided all coexistence measures are adhered to. Agricultural enterprises and seed sellers are among some of the candidates under obligation to contribute to the fund. Farmers/operators are expected to be majority contributors making payments in ratio to the peril generated from GMO usage. Compensation payments will be modified to each crop's potential for dispersal and levies will be adapted annually based on compensation paid two years previously. Designated bodies will manage the fund and draft general rules for compensation and officials will carry out requisite sampling for GMO presence. 8

(b) General liability or other compensation schemes

Under the Civil Code, the burden of proof lies with the claimant to show that his damage is recoverable and to prove causation through a person's fault or the defect of a thing. I.e. but for the defendant farmer's actions/inactions his losses would not have arisen. Disregard of GMO legal/administrative prescriptions is insufficient to establish causality. Joint and several liability applies in the case of multiple tortfeasors. Recourse against contributing tortfeasors is permitted. *Force majeure* has to be the exclusive cause before the defendant can be exonerated. Contributory negligence would reduce/extinguish liability unless the defendant acted with intent. A defendant is deemed to be at fault where certain statutory obligations are infringed (freely/consciously) or at the court's discretion, where a general duty of care is breached. Invocable defences include necessity, cause for justification and invincible error. Where the damage was caused by "a thing", a presumption of liability exists against its keeper if the presence of the thing, e.g. a GMO crop, is abnormal in its environs. This strict liability regime would apply in the case of unauthorised or adventitious GMO presence. *Force majeure* or wrongful acts of third parties are possible defences. 9

A claim may exist against a "producer" under the Belgian Product Liability law but the provisions apply to defective products put into circulation and are thus unlikely invocable against a GMO farmer. Fault need not be demonstrated. Defences include third party/contributory negligence. A special strict liability regime imposes the theory of disorder of vicinities to limit compensation to that part of the damage which exceeds the limits of normal nuisances *in that* vicinity. 10

The quantum of damage is the price difference between a GMO affected crop and one without. Though more difficult to prove, economic losses are com- 11

pensable provided like other losses, the damage is certain and not previously indemnified, foreseeable (in some cases), personal and causation exists. Losses attributable to consumer fear of contamination or losses caused where contamination is confirmed though confined to one regional farmer are compensable though difficult to establish. Damages are fully compensable and cannot be punitive. The claimant must mitigate his losses though is under no obligation to obtain advance cover/liability insurance. No general compensation schemes would apply here.

(c) Sampling and testing

12 The Royal Decree of 21 February 2005 mandates monitoring, sampling and testing for GMO presence. Costs incurred in the course of legal proceedings are allocated to the "succumbing" party.

(d) Cross-border issues

13 No specific provisions aimed at resolving cross-border cases exist. Under the Brussels I Regulation, the courts of the place where the harmful event occurred have jurisdiction. For cases falling outside the Regulation, if the damage occurred in Belgium, Belgian courts have jurisdiction. The law of the country where both parties are resident, where the entire liability components of the wrongful act arose or the law with the closest relation applies.

3. Cyprus

(a) Special liability or compensation regime

14 There is no special liability or other compensation regime in force. The use of GM crops is currently prohibited.

(b) General liability or other compensation schemes

15 Actions exist under the Civil Wrongs Law, negligence and nuisance. Under the Civil Wrongs Law, a claim for GMO damage would be an action "on the case". An act/omission, fault (intention/negligence) and damage must be proved. Causation, based on the "but for" test must be established by the claimant, taking remoteness into account. Where specific conditions are met, *res ipsa loquitur* may apply such that the claimant need not prove causation or fault. There are no specific provisions regulating costs incurred in establishing the former. For multiple tortfeasors, joint and several liability applies. In respect of concurrent causes, the tortfeasors are liable to the extent of their contributions.

16 For negligent actions, either the reasonable person standard or the standard of a professional in the defendant's field is imposed to determine whether a breach of duty has arisen. Damage and causation must also be established. Public nuisance may give rise to a civil action where the claimant suffers *special*

damage. Unreasonable interference with the reasonable use or enjoyment of the claimant's land is actionable under private nuisance. Damage is a pre-requisite to compensation. Where strict liability applies, defences include inevitable accident and regulatory permit. The aim of damages is to place the claimant in the position he would have been in but for the tortious act. Physical damage to property and consequential losses are recoverable. Pure economic loss is not compensable thus losses caused by consumer fear of contamination are not compensable. There is no financial limit to liability. The claimant must mitigate his losses. No general compensation schemes are applicable here.

(c) Sampling and testing

No specific rules cover costs associated with sampling and testing for GMO presence. 17

(d) Cross-border issues

There are no special jurisdictional or conflict of law rules in force. Cypriot courts have jurisdiction, *inter alia*, where a writ is served on the defendant in the jurisdiction or where leave is granted to serve a writ outside the jurisdiction e.g. where land is situated in Cyprus. 18

4. Czech Republic

(a) Special liability or compensation regime

No legislative measures currently provide a special liability regime for GMO related damage. The laws concerning GMOs only provide for basic provisions dealing with the production of GMOs, which may indirectly influence such liability. 19

(b) General liability or other compensation schemes

Under the Civil Code, breach of duty/statutory provisions, causation, damage and often, fault must be established before liability exists. In civil cases, the theory of adequacy requires the claimant to prove that the wrongful act is a common result of the damage as objectively foreseeable and that no intervening act has broken the chain of causation. This theory also applies to multiple causes and multiple tortfeasors are jointly and severally liable. Alternative, potential or uncertain causation are dealt with circumstantially. 20

Liability of GMO farmers would qualify as a case of strict liability, namely damage caused by operational activities under sec. 420a Civil Code so that no fault is required. Defences under sec. 420a include contributory negligence or causation by an independent unavoidable event. Other general defences e.g. the fulfilment of a legal obligation or acquiescence by the claimant may also 21

be invoked. The Civil Code regulates ownership rights so that adventitious GMO presence may constitute an unreasonable annoyance or restrict the user of neighbouring land – both of which are actionable.

22 Damage is defined as any loss of property which can objectively be calculated in monetary value. It is subdivided into actual damage and loss of profits. The former covers costs incurred in the destruction of property or the reduction in property value together with consequential losses and the latter covers loss of an anticipated rise in property value. While independent, both are recoverable. Although uncertain, pure economic loss may fall under either damage category provided certain conditions are fulfilled. It is doubtful whether losses owing to consumer fear of GMO contamination would be compensable in the absence of actual admixture owing to the indirect nature of the damage. Foreseeability determines compensability of damage and such a loss would not qualify as foreseeable. In general, there are no financial limits to compensation though certain circumstances may warrant a reduction at the court's discretion provided the defendant did not act with intent. Compensation for non-pecuniary injuries is subject to certain limits set in the statutory instruments. However, the judge may use his discretionary power to increase the amount of compensation payable. Though elective, a GMO farmer may subscribe to an insurance scheme offered by commercial firms. No applicable compensation regime exists.

(c) Sampling and testing

23 Specific provisions require monitoring and by inference, the GMO farmer bears associated costs. The farmer must also compensate the state for any corrective measures taken.

(d) Cross-border issues

24 No special jurisdictional or conflict of law rules exist. Thus in the absence of a bilateral treaty, private international law and procedure law apply. For GMO related damage, at the court's discretion, either the laws of the place of the damage or the place where a fact establishing the claim for damages arose would apply – whichever is closest.

5. Denmark

(a) Special liability or compensation regime

25 The Coexistence Act establishes a special compensatory regime applicable to GMOs. For causation, proof of GMO presence and its proximity to a non-GM crop suffices. In the case of ecologically cultivated crops only GMO presence is required. Inferably, the burden of proof lies on the claimant and once established, causation is irrebuttable. It is not a liability regime as compensation is paid regardless of fault. However, compensation can be reduced if the claimant was negligent, wilful or acted in such a way as to inhibit recourse by the state

from the GMO cultivator. In general the same criteria apply to crop and seed production. The regime is not exclusive though double recovery is impermissible.

Liability is limited to consequential reductions in sale prices, sampling expenses and remedial costs (ecological). Actual admixture is required under the Act, thus general tort law rules regulate losses due to consumer fear of GMO contamination or losses caused where contamination is confirmed though confined to a single regional farmer. There are no financial limits to liability. GMO presence must be notified to the Plant Directorate within a specified timeframe. The latter manages the fund, hears claims and conducts sampling. Injunctions may be granted before/after admixture occurs. The regime is partly funded by the state and will be evaluated in 2007 (including matters of income and expenditure). The state has recourse to the GMO farmer insofar as the farmer would have been liable to the injured party under general rules of tort law. Insurance cover is not obligatory though mandatory annual contributions are made by GMO cultivators to the compensation fund. This regimen is comparable to four other compensation schemes. 26

(b) General liability or other compensation schemes

Alterative actions may be pursued under the Environmental Liability Act, judicially developed strict liability rules, negligence or rules on neighbourhood conflicts. The two latter options are more likely applicable in the case of GMO liability. The burden of proof is on the claimant to establish causation under the *conditio sine qua non* rule. Multiple tortfeasors are jointly and severally liable. In the case of fault-based liability, the claimant must prove breach of duty/negligence. The burden is reversed where statutory obligations are contravened. 27

Damage caused by nuisance over an acceptable threshold level (in *that* specific local) is compensable. Strict liability is not unlikely to apply here. The aim of damages is to put the injured party in the position he would have been in but for the wrongful act thus full compensation is awarded. Damages encompass devaluation of the crops and loss of profits. Pure economic losses are not handled differently. By analogy with neighbourhood conflicts, losses caused by consumer fear of GMO presence or losses caused where contamination is confirmed though suffered by a single regional farmer are not unlikely to be recoverable. There is no financial limit to liability. The claimant must mitigate his losses. 28

(c) Sampling and testing

Claimants under the compensation scheme must cover sampling and testing costs which will be reimbursed if GMO traces are found. No general monitoring is required. 29

(d) Cross-border issues

30 No special jurisdictional or conflict of law rules are in force and there are no specific provisions aimed at resolving cross-border cases. The defendant may be sued where he is resident or domiciled. The Brussels Convention applies for cross-border issues so that at the choice of the claimant, the defendant may be sued where he is domiciled or where the harmful act occurred. Generally, the *lex loci delicti* applies.

6. Estonia

(a) Special liability or compensation regime

31 Numerous provisions regulate the use of GMOs including an Act on the Deliberate Release into the Environment of Genetically Modified Organisms which directs compensatory claims to be dealt with under general civil liability rules. No special regimes are currently in force.

(b) General liability or other compensation schemes

32 Unless expressly stated, liability for tortious conduct (including delictual liability) is fault-based. The claimant must establish all elements of claim including causation. The ambit of the *conditio sine qua non* rule is narrowed through the use of elimination and substitution methods. The loser pays principle applies in respect of costs incurred to establish causation. Statutory construction dictates however that liability for GMO admixture is likely strict and more so if GMOs can be regarded as inherently/potentially dangerous. Broadly, if the defendant establishes *force majeure*, contributory negligence or that the item liable for the damage was used consistently with prescribed guidelines/statutes, he will be exonerated. Product liability provisions may also be invoked. Alternative remedies may be sought. Solidary liability applies in the case of multiple tortfeasors. Recourse between contributing tortfeasors is permissible. Environmental clean up provisions exist where the polluter falls short. These are unlikely to compensate GMO victims. In respect of applicable criteria, seed and crop production are undifferentiated.

33 Damages are widely defined as their aim is to restore the injured party to the position he would have been in but for the tortious act/omission. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. The award is reduced if the loss arose out of an obligation not specified by a statutory provision, if full compensation would be grossly unfair, the claimant failed to mitigate his loss or to the extent of contributory negligence. Losses relating to customer fear of GMO contamination and losses arising from contamination that is confirmed though confined to one regional farmer's crops are technically recoverable though causation in the former case must be proved.

Advance cover/liability insurance is not obligatory. Injunctions may be granted against a defendant's intolerable actions. No compensation funds exist. The abatement of neighbourhood nuisance is only actionable if the nuisance is material or contrary to environmental provisions. 34

(c) Sampling and testing

There are no special regulations concerning the costs of testing and sampling of GMOs. If government bodies sample products, the costs will be passed to the operator where GMO traces are found. 35

(d) Cross-border issues

There are no special jurisdiction or conflict of law rules concerning civil liability for GMOs, nor are there any other specific provisions aimed at resolving cross-border cases. At the claimant's preference, applicable law is either the law of the state where the tortious act was performed or where its consequences arose. Alternatively, the laws of a state as agreed between the parties or the closest relation laws apply. The courts of the state where the defendant resides have jurisdiction. 36

7. Finland

(a) Special liability or compensation regime

Statutory provisions implementing a special regime for GMO related damage are in force. Under the Environmental Damage Compensation Act (EDCA), the claimant must prove damage and adequate causation though probable causation may suffice. Unforeseeable consequences are not compensable. Joint and several liability applies in the case of multiple causes. Recourse to contributory tortfeasors is permitted. The costs of establishing causation are likely compensable. The regime imposes strict liability though *force majeure* and wrongful acts of third parties are possible defences. Intolerable disturbances taking, *inter alia*, regulatory consents and the local into account may be compensable. Damages may be reduced due to contributory negligence or failure to mitigate losses. 37

The same criteria apply to crop and seed production. The regime is supplemented by general tortious liability rules. Pure economic losses are compensable though recovery of loss caused by the fear of GMO contamination is doubtful except where actual admixture or damage to the environment occurred. The requirement to establish adequate causation may restrict recovery of losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer. Consequential economic losses and indirect costs are compensable. There is no financial ceiling to liability though damages may be reduced where the financial impact would be too onerous on the defendant. It appears liability insurance is optional. Redress is sought in accordance to civil law procedural rules. In certain circumstanc- 38

es, injunctive relief may be granted. There are no current/intended compensation funds.

(b) General liability or other compensation schemes

39 General tort law provisions impose a fault-based liability regime. The burden of proving all elements of fault rests with the claimant though a reversal may arise in some cases. Multiple tortfeasors are jointly and severally liable. Recourse to contributing tortfeasors is permissible. Strict liability applies where certain nuisances are committed. Liability may also exist under the Product Liability Act.

(c) Sampling and testing

40 Mandatory sampling and testing costs are likely borne by the GMO farmer.

(d) Cross-border issues

41 At the claimant's choice, either the state where the wrongful act took place or where damage arose have jurisdiction. There are no generally applicable statutory provisions on the choice of law in cross-border cases. At the claimant's preference, either the law of the state where the wrongful act took place or where the damage arose applies.

8. France

(a) Special liability or compensation regime

42 A special compensation regime for economic loss as a result of GMO contamination is pending debate by the National Assembly. Following presidential and parliamentary elections in 2007, however, proposals resulting from a subsequent consultation will presumably replace some provisions of the aforesaid bill. Under the original bill, claims are to be reported to a designated body which has recourse to a defaulting farmer/his insurance cover. A farmer seeking compensation must establish that compulsory labelling under EU/national rules *now* applies to his crops owing to the proximate farming (as defined) of GM crops in the same cultivating season. Matters of causation/multiple causes are irrelevant for compensation claims under the regime. While the insurance market in this field develops, trade organisations and farmers must contribute towards a guarantee fund which operates like liability insurance. Thus GMO farmers are strictly though indirectly liable. Only the difference in value between GM and non-GM crops is compensable. The regime does not prevent alternative courses of action being brought thus claims for other losses can be brought under general liability provisions. Contributory negligence has a reductive effect on awardable compensation. The regime is silent on the possibility of obtaining injunctive relief. Comparable special liability regimen/compensation funds exist though each is particular to its own liability sphere.

Many of the proposals arising out of the consultation are in line with this initial bill however, the basis of liability in the proposals, which is yet to be clarified, may mark a significant divergence from the former. Liability may now be founded on a presumption of fault rather than on strict liability.

(b) General liability or other compensation schemes

43 Depending on whether the defendant is a private or a public entity, liability for GMO damage is governed by general civil or administrative liability principles respectively. The claimant is burdened with establishing causation and loss. The courts deal with causation flexibly which in some instances is presumed and in others no strict proof is necessary. It is always possible that the latter approach could be used where a GMO farmer breaches his administrative/statutory obligations. Joint and several liability applies in the case of multiple causes. Recourse against contributing tortfeasors is foreseen.

44 For fault-based liability, fault is presumed against unauthorised farmers or where non-compliance with licence/statutory provisions is apparent. Theoretically, a claim against a GM farmer may also exist under Article 1384-1 Civil Code for liability for harm caused by inanimate objects provided control of the object, causation and damage are established. Claims may be brought against recurring and unreasonable levels of nuisance. No fault need be established. Though doubtful, product liability rules may be relevant where the GM plant/its genes were defective.

45 Damages aim to place the victim in the position he would have been in if the act giving rise to the damage had not taken place. The quantum of damage is the price differentiation between a GMO affected crop and one without. Direct/indirect losses (if sufficiently certain) and consequential increases in overhead costs are recoverable. It would be difficult for a farmer claiming compensation for losses caused by consumer fear of GMO contamination to prove requisite elements of his case. Liability insurance is discretionary.

(c) Sampling and testing

46 No specific rules deal with sampling and testing costs. Where liability and causation exist, a non-GM farmer may claim sampling and testing costs from the GM crop producer.

(d) Cross-border issues

47 There are no special jurisdictional or conflict of law rules in force or planned. In respect of applicable law, *lex loci delicti* applies. Where the tortious act and damage occur in different places the closest relation applies. At the claimant's choice, either the jurisdiction of the defendant's place of residence or the jurisdiction where the harm took place applies.

9. Germany

(a) Special liability or compensation regime

48 A special regime for GMOs establishes a strict form of delictual liability but only has a limited and largely interpretive application to GMO liability which remains regulated under the Civil Code. It does not regulate losses resulting from actual/feared GMO admixture unless contamination arose through research and development schemes or instances where there is limited/no circulatory permission. The claimant must establish damage and causation in line with the *conditio sine qua non* rule. Though rebuttable, it will then be presumed that damage was caused by the crop's modified characteristics. There is no reversal of the burden of proof and the regime leaves the regulation of alternative, potential or uncertain causation to the Civil Code. Joint and several liability applies in the case of multiple tortfeasors. Recourse to contributing tortfeasors is permissible. Contributory negligence and failure to mitigate will reduce damages. Wrongful acts/omissions of third parties are explicitly excluded as defences. Crop and seed production are undistinguished. Generally, other claims may be pursued simultaneously, thus the regime is not exclusive. It defers compensatory matters to the Civil Code.

49 Damages include the price difference between contaminated and non-contaminated crops, indirect costs, remedial costs and loss of future profits (if foreseeable). Proof of actual admixture is necessary, thus losses owing to consumer fear of contamination are unrecoverable. Liability is limited to € 85 million. Injunctive relief is available under property law. The possibility of a mandatory compensation fund, to be state and operator funded, is under review. No recourse will be had to farmers who adhered to requisite safety standards. Marginally comparable regimes exist.

(b) General liability or other compensation schemes

50 Farmers growing GM seeds authorised for general circulation are subject to the rules of the Civil Code. For compensation to arise, infringement of property rights, fault, damage and causation must be established. Joint and several liability applies in the case of multiple causation unless respective contributions can be identified in which case liability is apportioned. Nuisances must be substantial (taking customary use into account) and abatement measures must be economically reasonable before an injunction/damages will be awarded. The scope and recoverability of damages are parallel to the special regime discussed above. There are no financial limits to liability. Liability insurance/advance cover are not mandatory. No applicable compensation scheme exists. A claim may exist under product liability provisions.

(c) Sampling and testing

There are no specific rules which cover costs associated with sampling and testing. Food producers bear monitoring costs. Sampling/testing costs are recoverable as part of the compensation claim if actual GMO presence exists. 51

(d) Cross-border issues

There are no special jurisdiction or conflict of law rules in force or planned. Applicable jurisdiction for cross-border contamination is either Germany or the country where the damage arose, at the claimant's choice. *Lex rei sitae* i.e. the law where the property is situated applies. 52

10. Greece

(a) Special liability or compensation regime

No special liability regime completely regulates GMO liability. For the time being the relevant matters are dealt with under Law 1650/1986 on the protection of the environment, which imposes a type of risk liability on damage caused to a legally protected good or interest of the plaintiff through the impairment of the environment and gives the defendant the defences of act of God or of malicious act of a stranger as the only defences in order to be discharged of liability. There are no financial limits to liability. No compensatory funds exist though an environmental fund is currently being considered by some scholars. 53

(b) General liability or other compensation schemes

Claims may be brought under tort law, neighbourhood law or under consumer protection provisions. Ordinarily, for tortious liability to arise, an unlawful and culpable act/omission (civil delict), damage and adequate causation must be established by the claimant. For environmental cases an effort is being made to reverse the burden of proof so that culpability and causation are presumed. The claimant need only prove minimum causality. Generally, joint and several liability applies in respect of multiple tortfeasors. Normally the discharge of statutory or administrative obligations acts as a defence but this should not be available to GMO operators. Damages encompass depreciation in property value, future and indirect losses and lost profits if foreseeable. A farmer who suffers loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to a single regional farmer are likely unrecoverable. There are no financial limits to liability though contributory negligence will likely reduce compensation. Insurance/advance cover is optional. Nuisances, though in principle actionable if substantial interference by an unconventional use of the land results, are also actionable if they arise from emissions which, albeit common and ordinary for the area, contravene the constitutional principle of preserving a viable vital area and infringe the neighbour's right to use his property. 54

(c) Sampling and testing

55 Specific rules which cover costs associated with sampling and testing are found in the Joint Ministerial Decision No. 332657/2001 and require seed enterprises to bear the cost of re-examination of certain kinds of seeds (sugar beet, rape, maize, soybean, cotton, and certain varieties of tomato) if the results of the first examination are challenged. For the farmer who has sustained damage from the release of GMOs, general tort rules would apply and costs associated with sampling and testing for GMO presence borne by him are recoverable as part of a claim if the tests prove actual GMO presence.

(d) Cross-border issues

56 There are no special jurisdiction or conflict of law rules in force or planned. Generally, the courts where an immovable property lies have jurisdiction. The Brussels Convention applies with respect to contracting states so that at the claimant's choice, either the courts of the state where the tortious conduct took place or the courts of the state where the harm arose have jurisdiction. The law of the state where the tortious act was committed applies.

11. Hungary

(a) Special liability or compensation regime

57 The Genetic Technology Act refers cases of admixture to the general strict liability rules for dangerous activities (§§ 345–346 Hungarian Civil Code). Liability is fault-based, however, if the claimant had consented to the neighbour's GM farming in advance.

(b) General liability or other compensation schemes

58 Under the Civil Code, the claimant must establish damage and causation while unlawfulness of damage and accountability of the tortfeasor (fault) are presumed. The burden of proof concept is not rigid and a reversal is possible at the court's discretion so e.g. damage may be presumed in certain circumstances. The defendant will be exonerated where he exercised the expected standard of conduct or acted in accordance with statutory prescriptions. Causation is a complex though flexible element of claim. The "but for" test and other limiting considerations apply. There are no specific rules allocating the cost of causation.

59 The Civil Code provides a strict liability regime for dangerous activities which may apply if GMOs can be categorised as such. Causation must be proven by the claimant. If the damage fell outside the scope of the dangerous activity and was unavoidable e.g. acts of God, a defence exists. Contributory negligence will reduce the defendant's liability. A claim may exist under the Product Liability Act.

There are no special rules on alternative, potential or uncertain causation. Joint and several liability applies in respect of multiple tortfeasors. Recourse to contributing tortfeasors is permitted. Established statutory rules defining the required conduct for GMO agriculture would only be instructive where the provision expressly states that adherence to it excludes liability. General tortious remedies are available where an act causes unnecessary disadvantage to neighbours. Depreciation in the value of property, pecuniary/non-pecuniary losses and remediation costs are recoverable. A claim by a farmer who suffers loss as a result of consumer fear of GMO admixture or losses caused where contamination is confirmed though limited to a single regional farmer would be difficult to establish as causation is indirect. Recovery of pure economic losses is limited through causative concepts. There are no financial limits to liability. The court may theoretically mitigate the tortfeasor's liability, but this is rarely ever used in practice. Insurance/advance cover is required where activities likely to cause environmental damage are undertaken. No general compensation schemes exist. 60

(c) Sampling and testing

There are no special rules on costs relating to monitoring or sampling/testing for GMO presence. Generally, such costs are borne by the party carrying out the sampling/testing. The possibility of cost recovery if GMO presence is found is uncertain. 61

(d) Cross-border issues

There are no special jurisdiction or conflict of law rules in force. At the victim's discretion, either the law where the tortious conduct was committed or where the harm occurred applies. If both parties are resident in the same state, the law of that state applies. 62

12. Ireland

(a) Special liability or compensation regime

There is currently no special liability or other compensation regime with respect to GMOs in force, and neither is one planned. 63

(b) General liability or other compensation schemes

GMO actions may be pursued under the heads of nuisance, negligence or the rule in *Rylands v Fletcher*. It rests with the claimant (in respect of all three heads) to establish both factual causation i.e. the "but for" test and legal causation. Legal causation is dependent on proximity of harm and cause. Generally, the defendant would be liable for all reasonably foreseeable damage arising from his actions. Where specific conditions are met, *res ipsa loquitur* may (at the court's discretion) apply in negligence actions such that the claimant need not prove negli- 64

gence and possibly causation. The defence of deliberate act of third parties may be invoked. In the case of potential causes, if the cause materially increased the peril of harm, legal causation exists albeit factual causation remains unproven. Joint and several liability applies in the case of multiple tortfeasors.

65 *Public nuisance* is actionable where damage in excess of that suffered by the public exists. Broadly, under *private nuisance*, the claimant must establish an interest in the land and unreasonable interference with his use/enjoyment of it. It is no defence that the defendant took all reasonable steps to reduce his effects or that the nuisance arose out of matters beyond his control. Thus nuisance is comparable to strict liability. The nature of the locality and utility of the defendant's conduct are instructive in determining reasonability. Abnormally sensitive activities are disregarded. *Force majeure*, consent and statutory authority are possible defences.

66 The rule in *Rylands v Fletcher* imposes strict liability where a person uses his land in a non-natural way to collect/keep anything likely to do mischief if it escapes. The likelihood of its application to GMO damage is questionable as the rule is often invoked in respect of one-off damages, the GMO crop must constitute a non-natural thing and this depends on the local of its cultivation, the harm must have been unforeseeable and the rule in itself is infrequently applied. Defences include unforeseeable third party negligence, *force majeure* and statutory authority/licence to keep the object on the defendant's land (provided the defendant operates within the prescribed provisions and was not negligent). For negligence, duty of care, breach of duty and damage must be established. In determining whether a duty exists, foreseeability of harm, proximity of relationship and policy issues are taken into consideration. Nuisance actions are *sui generis* thus whether a GMO farmer owes a duty of care requires inferences to be drawn from accepted cases. To establish breach, the conduct of the GMO farmer must have fallen below the standard of like farmers. The observance of administrative/statutory rules though inconclusive is indicative of compliance with duty of care.

67 Except under nuisance actions where an inference arises, actual harm must be proved. The aim of damages is to restore the claimant to the position he would have been in but for the defendant's conduct thus depreciation in property value and consequential costs, *inter alia*, are recoverable. The claimant must mitigate his losses. For nuisance actions, loss of enjoyment/use of land is compensable. Where there is no physical harm, pure economic loss is not compensable. No financial limits to liability exist. Insurance/advance cover is not mandatory. An injunction may be sought for nuisance actions, is seldom granted in negligence actions and is an unsuitable remedy for a *Rylands* action.

(c) Sampling and testing

68 Sampling costs are recoverable under a successful legal action.

(d) Cross-border issues

Irish courts have jurisdiction over tortious acts committed in the jurisdiction or where summons are served on the defendant who is temporarily resident in Ireland except where the Brussels Convention applies. The law where the tort occurred applies. 69

13. Italy

(a) Special liability or compensation regime

A special liability and compensation regime regulates economic damage resulting from adventitious GMO admixture, however, certain necessary implementation and specification measures at regional and local level have not yet been taken. These were necessary to enable the cultivation of GMOs. Certain provisions of the special regime have been declared unconstitutional. For liability to arise, fault, causation, damage and capacity of the tortfeasor must exist. Though rebuttable, fault is presumed where obligations prescribed in regional coexistence/mandatory business management plans are breached. It is unclear whether general provisions apply so as to require the claimant to prove causation or if damage is presumed where a defendant contravenes coexistence measures. The regime does not regulate causation or multiple causes. 70

Other sources of compensation exist and the regime recommends the establishment of regional/provincial funds. The existing National Solidary Fund is exclusively state funded. Like criteria apply to crop and seed production. It is unclear whether the regime is exclusive or whether it overlaps with the general liability regime. The latter is likely the case. Pending determination, the scope of compensable damages is regulated under the Civil Code. The regime does not regulate loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to one regional farmer. It is silent on injunctive relief. No financial limits to liability apply. The regime is comparable to provisions for liability for dangerous activities under the Civil Code. 71

(b) General liability or other compensation schemes

Damages encompass actual loss and the loss of profits (economic detriment). Injunctions may be sought against the excessive emission of substances (including GMOs) from neighbouring property. Joint and several liability is applicable in the case of concurrent causes. The cultivation of GM crops may be categorised as a “dangerous activity” so that a quasi-strict liability regime applies. It appears that only losses deriving from actual admixture would be recoverable. Thus loss owing to consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though confined to one regional farmer are unlikely compensable. Compliance to statutory rules defining required conduct does not guarantee exoneration. 72

(c) Sampling and testing

73 There are no specific rules which cover costs associated with sampling and testing for GMO presence as the cultivation of GM crops is prohibited.

(d) Cross-border issues

74 There are no special jurisdiction, conflict of law rules or other specific provisions aimed at resolving cross-border cases of admixture. At the claimant's preference, either the law of the state where the wrongful act took place or where the damage occurred applies. Under the Brussels Convention persons domiciled in a Contracting State shall be sued in the courts of that State or in the courts of the State where the harmful event occurred.

14. Latvia

(a) Special liability or compensation regime

75 At present, there are no special liability or other compensation regimes which specifically address liability for GMOs. Liability arising from GMO admixture and damage will continue to be regulated under general tort law. There are no existing specific compensation funds set up to contend with the consequences of GM crop admixture.

(b) General liability or other compensation schemes

76 The claimant ordinarily bears the burden of proving damage but this is reversed in certain circumstances e.g. where the defendant failed to apply proper segregation/legal measures. Joint and several liability applies where ascertainment of the extent of each tortfeasor's actions is unfeasible. Where strict liability is imposed *force majeure*, wrongful acts/omissions of third parties or contributory negligence are possible defences. No special rules apply to cases of nuisance.

77 Damage is defined as "any deprivation which can be assessed financially". The aim of damages is *restitutio in integrum*. Only actual damage, including lost profits is compensable. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Losses resulting from consumer fear of GMO contamination, *force majeure* related damage and avertable losses (except where the defendant acted maliciously) are not compensable. If a direct/indispensable causal link between contamination of a farmer's crops and losses suffered by other farmers in the same region exists, the latter's losses could be recoverable.

78 Liability insurance/advance cover is not obligatory. No financial limits to liability exist. There are no general applicable compensation schemes in force.

(c) Sampling and testing

No specific rules cover costs associated with the sampling and testing for GMO presence. Ultimately, the loser pays principle applies in respect of such and other costs. If the court appoints an expert, related costs are recoverable if tests prove GMO presence. 79

(d) Cross-border issues

No current or prospective special jurisdictional or conflict of law rules exist, nor are there any other specific provisions aimed at resolving cross-border cases. The law of the place where the wrongful act was committed applies. Actions against a defendant shall be heard by the courts of his place of residence/location. 80

15. Lithuania

(a) Special liability or compensation regime

At present, there are no special liability or other compensation regimes which specifically address liability for GMOs. In accordance with Commission Recommendation 2003/556/EC, the Rules on the Coexistence of Genetically Modified, Conventional and Organic Crops are currently undergoing legislative drafting. Notwithstanding the prospective approval of these Rules, liability arising from GMO admixture and damages will continue to be regulated under general provisions of the Lithuanian Civil Code. There are no existing specific compensation funds set up to contend with the consequences of GM crop admixture. 81

(b) General liability or other compensation schemes

In the case of an alleged GMO contamination, general liability provisions under the Civil Code apply which require the claimant to establish causation and damage. Wrongful act and fault are presumed. The causative burden is irreversible. Joint collective liability applies in the case of multiple causes though the defendant may rebut this liability by proving lack of causation. Strict liability may also apply as GM farming may qualify as a "hazardous activity" within the meaning of Art. 6.270 Civil Code. *Force majeure*, wrongful acts of the claimant or gross contributory negligence of the claimant would be available defences. Lithuanian jurisprudence does not provide for special GMO rules applicable to cases of nuisance or similar neighbourhood problems. 82

All losses are compensable as the aim of damages is to put the claimant in the position he would have been in had the tort not occurred. Damages are extensively defined and encompass direct losses (meaning harm to property and/or expenses suffered), loss of future profits, reasonable sums expended in mitigation and costs incurred in assessing the extent of the damage including 83

expert fees. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Pure economic loss is handled on a general basis. Compensation may be awarded where fear of GMO presence in non-GM crops exists or where losses arise when contamination is confirmed though confined to one regional farmer on the proviso that the aforementioned elements i.e. a wrongful act, causation, damage and fault are established.

84 Damages may be mitigated at the defendant's request or at the court's discretion. However, the court would take into account the nature of the liability, the parties' relationship and their respective financial positions. Reductions cannot exceed the amount which the debtor has or ought to have obtained under compulsory insurance. Unless specified by law, liability insurance/advance cover is voluntary.

(c) Sampling and testing

85 There are no specific rules which cover the costs associated with general monitoring, sampling or testing for GMO presence. These are initiated by state bodies and are financed by the state. A petitioner's claim for damages would encompass reasonable costs incurred in the sampling and testing for GMO presence.

(d) Cross-border issues

86 There are no existing or proposed special jurisdictional or conflict of law rules or any other specific provisions aimed at resolving cross-border cases. At the choice of the claimant, either the law of the state where the wrongful act took place or where the damage arose will apply. Alternatively the closest relation counts. If both parties are domiciled in the same state, the law of that state is applicable.

16. Luxembourg

(a) Special liability or compensation regime

87 A Coexistence Law will regulate conditions for GM crops and cultivation, but will not include special rules on liability, which will continue to be governed by general civil law. However, farmers will possibly be required to take out liability insurance.

(b) General liability or other compensation schemes

88 The Civil Code provides that the burden of proof rests on the plaintiff who must establish fault (i.e. the defendant failed to exercise due care and skill as is expected of a reasonable practitioner in his field), damage and causation. Multiple causes are assessed under the principle of *causalité adéquate* under

which the court will identify the most likely cause. The defendant can escape liability by invoking a number of defences including necessity and more appropriately, in respect of GMO admixture, legitimate authority, contributory negligence, acquiesce by the plaintiff or third party liability.

89 The Civil Code recognises the concept of strict liability, applicable where property in a person's custody occasions damage. This regime would be appropriate in the case of GMO admixture though defences may be relied upon by the defendant. If nuisance exceeding normal neighborhood inconveniences can be established, liability can be imposed on the basis of neighborhood disruption. Presumably, this could be relied upon by a petitioner suffering GMO related consequences. An added merit to the claimant in this case is that, third party liability or *force majeure* will not suffice to relieve the defendant of liability.

90 To be compensated, damage must be personal, certain and direct. Luxembourg courts also recognise the concept of "loss of chance" provided the damage is proven. Potential damage e.g. the fear of GMO presence by a farmer's customers cannot be compensated owing to lack of sufficient "degree of present certainty". Pure economic losses are not differentiated from other types of losses.

91 In respect of quantum, damages are reparatory rather than punitive or exemplary. No financial limits to liability or obligations on the plaintiff to mitigate losses exist. A candidate seeking authorisation for the intentional dissemination of GMOs will be accountable financially for authorisation costs, insurance liability premiums and reimbursements for clean up costs expended by public authorities to reverse any damage caused by GMO presence.

(c) Sampling and testing

92 No specific rules cover costs associated with the sampling and testing for GMO presence in non-GM products however, the Draft Coexistence Law delegates to regulations the task of setting out fees payable by seed and plant producers that subject their crops to inspection. The financial outlay on insurance and authorisation as well as sampling and testing costs are capped at prescribed levels. In the case of justified suspicion, costs are recoverable.

(d) Cross-border issues

93 There are no existing or proposed special jurisdictional or conflict of law rules. Luxembourg courts take jurisdiction of any tort committed within the state or outside Luxembourg if dictated by rules on private international law. The law of the state where the damage occurred or the state most closely linked to the damage will apply.

17. Malta

(a) Special liability or compensation regime

94 No legislative measures currently prescribe special liability or other compensation regimes for GMO related liability. This lacuna will be reviewed in due course.

(b) General liability or other compensation schemes

95 In cases of GMO contamination, fault-based liability under the Civil Code or provisions under the Environment Protection Act could apply.

96 For causation, the claimant must prove that the tortious act was an immediate and direct cause of the damage though if the tortious act was the only indirect proximate cause, this may suffice. The loser pays principle usually applies in respect of costs incurred in establishing causation. Negligence (not causation) may be presumed where the defendant breaches his legal obligations. Generally, joint and several liability is imposed on multiple tortfeasors. Recourse to a contributing tortfeasor is permissible.

97 The claimant must prove that the defendant fell below the "reasonable person" standard. Failure to meet e.g. GMO statutorily regulated skills/conduct would automatically render the defendant liable though damage and causation would still have to be established. *Force majeure* is an available defence. Contributory negligence would reduce awardable damages. Although strict liability applies under the Consumer Affairs Act, its product liability provisions only relate to defective products.

98 Damages encompass actual loss pertaining to the act, consequential expenses and loss of actual/future earnings – the objective being *restitutio in integrum*. Prospective damage is compensable provided it is certain. There are no financial ceilings on liability. Liability insurance/advance cover is not mandatory. There are no general compensation schemes available under Maltese law. A non-GMO farmer may require a neighbouring GMO-user to take steps to prevent any impending damage or provide security for the same.

(c) Sampling and testing

99 No specific rules govern the costs associated with sampling and testing for GMO presence. Inferably, the GMO farmer is likely to bear such costs in the case of justified suspicion.

(d) Cross-border issues

100 There are no special jurisdictional or conflict of law rules or any specific provisions aimed at resolving cross-border cases. Provisions under Regulation

44/2001 apply where the defendant is domiciled in an EC Member State. Otherwise, Maltese courts have jurisdiction (*inter alia*) where the defendant is domiciled, resident or present in Malta. *Lex loci delicti commissi* applies.

18. Netherlands

(a) Special liability or compensation regime

There are no specific rules on liability or compensation for GMO related damage. However, a special covenant between the stakeholders provides for compensation in cases of involuntary admixture. 101

(b) General liability or other compensation schemes

For fault-based liability, four conditions must be met: a wrongful act, which is imputable to the actor, causation and damage. The burden of proof rests with the claimant to prove the existence of a wrongful act (i.e. an infringement of a subjective right, breach of statutory duty or conduct below that seemly in society) except where reasonability, equity or statutory provisions dictate otherwise. *Force majeure*, self-defence or the adherence to statutory prescriptions are possible defences. Imputability is often presumed when an unlawful act is established. The claimant must prove causation under which the "but for" test precedes the "reasonable imputability" test. The former does not apply in the case of alternative or concurrent causes. Causation may be presumed when an act known to be risky causes damage. Joint and several liability applies in the cases of multiple uncertain and concurrent causes. Strict liability applies, *inter alia*, to defective movable objects and to proven hazardous objects used/kept in a trade. It is unlikely that a GMO would be considered a hazardous substance. Defences include intentional wrongful conduct of third parties and *force majeure*. 102

Damage includes patrimonial (actual loss suffered and lost profits) and non-patrimonial damage (if specified conditions are met). Loss as a result of consumer fear of GMO contamination is unlikely compensable though an omission to inform neighbouring farmers of GMO activities may result in the recoverability of such and other losses. Causation would be difficult to establish for losses suffered by farmers where contamination is confirmed though restricted to a single regional farmer. Pure economic losses are not handled differently and are recoverable. GMO admixture may amount to actionable nuisance depending, *inter alia*, on the reasonability of precautionary costs. Compensation is payable in full though specified factors e.g. contributory negligence may result in a reduced award. Except where required by a local authority, liability insurance/bank guarantees are not mandatory. 103

(c) Sampling and testing

There are no specific rules concerning sampling and testing costs. These are recoverable as part of damages. In certain instances, costs are recoverable even 104

in cases of unjustified suspicion provided the GMO farmer is found liable e.g. for breach of statutory provisions.

(d) Cross-border issues

105 There are no special jurisdictional or conflict of law rules in force or planned. Under the Brussels I Regulation the courts of the country where the respondent is domiciled have jurisdiction. *Lex loci delicti* applies in respect of applicable law.

19. Norway

(a) Special liability or compensation regime

106 There is no special liability or compensation regime that applies to GMO liability though the Norwegian Act on Genetic Technology contains a general liability clause imposing strict liability for resulting damage. Multiple and potential tortfeasors are regulated under the Pollution Act under which joint and several liability applies. Liability is established if the defendant *may* have caused damage unless he proves lack of causation. No defences are invocable. The same criteria apply to crop and seed production. A simultaneous claim under general tort law provisions may be pursued though double recovery is barred. Pure economic loss is not handled differently. No compensation funds exist. This regime is comparable to product and environmental liability provisions.

(b) General liability or other compensation schemes

107 The *conditio sine qua non* test precedes a comparative analysis of the tortfeasor's conduct to other causal factors before adequate causation is considered. The burden rests with the claimant to prove damage though this may be reversed at the court's discretion. Joint and several liability applies in the case of multiple cooperating tortfeasors. In respect of alternative causation, it must be proved that it is more probable than not that the defendant is the cause of the damage otherwise each causer escapes liability. The concept of uncertain causation is not recognised. Statutory/administrative provisions establishing required conduct are useful in establishing fault. Although unlikely applicable to GMO damage, a strict liability regime is applicable where damage results from "continuous, typical and extraordinary risks".

108 The Neighbour Act will likely apply in respect of GMO nuisances. The quantum of damages includes the price difference between traditional/organic and a GMO contaminated crop. Pure economic losses, unlike damage to property/persons must pass a normative threshold before they are regarded as compensable. Losses owing to consumer fear of GMO contamination and those suffered by other farmers where contamination is confirmed though limited to a single regional farmer are purely economic and lack adequate causal connec-

tion. There are no financial limits to liability though the defendant's financial standing may result in a reduction in damages. There is no general obligation to obtain liability insurance. No general compensation schemes are in operation.

(c) Sampling and testing

109 There are currently no specific rules which cover costs associated with sampling, testing or the general monitoring of GM crops. Sampling and testing costs are recoverable as part of damages where the defendant is liable.

(d) Cross-border issues

110 Under the Pollution Act, the question of compensation shall be decided in the courts of the country where the polluting activity took place. The courts where the direct effect of the damaging activity occurred have jurisdiction. *Lex loci delicti* applies.

20. Poland

(a) Special liability or compensation regime

111 A legislative provision due to be amended regulates liability for GMO damage. Liability is strict though defences exist: *force majeure* and where exclusive, contributory negligence and wrongful acts of third parties. Compliance with established legislative rules is no defence. Causation is regulated under the Civil Code though under the current regime the defendant may, at his expense, be required to adduce evidence to ascertain the extent of his liability. The same criteria apply to crop and seed production. The regime is not exclusive. It overlaps with provisions under the Environmental Protection Law. The scope of recoverable damage is delegated to the Civil Code. Where legislated, security for potential damage in the form of a deposit, bank guarantee or insurance policy would be mandatory. The regime is comparable to other regimes.

(b) General liability or other compensation schemes

112 For liability to arise, fault, causation and damage must exist. To establish fault, the GMO farmer must have fallen below the standard expected of a person in his profession. Alternatively, liability is established through the failure to comply with statutory rules defining conduct. The burden rests with the claimant to prove the *conditio sine qua non* rule in respect of causation and that the damage was a normal consequence of the cause. Joint and several liability applies in the case of multiple tortfeasors. Alternative, potential or uncertain causation are addressed by the requirement to establish adequate causation. Damage to persons, property, pecuniary and non-pecuniary losses are compensable. Full compensation is awarded though damages may be mitigated. The depreciated value of the non-GMO product and indirect costs are covered. Pure economic

loss is not compensable unless, *inter alia*, it comes within the ambit of lost profits. Proof of actual damage is required hence loss of profits owing to fear of GMO admixture or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are compensable if adequate causation is proved. There are no financial limits to compensation. Injunctive relief is available. Excessive interference is actionable under property law. There is no obligation to obtain insurance/advance cover. No general applicable compensation schemes exist.

(c) Sampling and testing

113 Testing, sampling and monitoring costs are to be borne by the GMO operator. Such costs if incurred to mitigate damages are recoverable. They are also recoverable where no admixture exists e.g. if the traditional/organic farmer suffers economic loss as a result of price drops pertaining to confirmed regional GMO presence.

(d) Cross-border issues

114 There are no special jurisdictional or conflict of law rules in force/planned. The law of the state where the tort occurred applies.

21. Portugal

(a) Special liability or compensation regime

115 There is currently no special liability regime yet in force however several possible provisions may be invoked including those under the Frame Law on Environmental Protection which impose strict liability for damage caused to a thing through the impairment of the environment. Causation and damage must be established. Act of God and contributory negligence (if gross/intentional and exclusive) serve as defences. Compliance with administrative/statutory requirements will not exonerate a defendant though licences may serve to justify his behaviour. The same criteria apply in respect of crop and seed production. Unless expressly regulated, pure economic loss is not recoverable. Actual admixture is required thus fear is only compensable if there is an imminent threat to the environment. The requirement to establish causation may hinder recovery of losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer. Injunctive relief is available.

116 Provisions requiring a compensation fund to be set up for economic damage arising from GMO contamination were pending approval at the time of drafting these summaries. A fund covering adventitious contamination above the 0.9% threshold has now been set up. No governmental funding is available. Recourse from those responsible for the damage is possible. The regime is not exclusive thus claims may also be brought under general tort provisions.

(b) General liability or other compensation schemes

For liability to exist, an unlawful act, causation and damage must be established. Breach of statutory duty or failure to meet an objectively conceived standard might be sufficient to establish fault. The latter is presumed where breach arises out of failure to adhere to statutory provisions which expressly define required conduct. The burden lies on the claimant to prove adequate causation. If legislative provisions are aimed at protecting specified interests, causation is easier to establish. The Code is silent on costs incurred in establishing causation. Multiple tortfeasors are jointly liable. Alternative, potential or uncertain causation are not statutorily regulated though a potential tortfeasor is likely to be exonerated. 117

Damage includes actual positive damage, loss of profit and future loss (if foreseeable). Fear of GMO contamination is not actual damage thus resulting losses are unlikely compensable. Insurance cover is mandatory for certain specified (high risk) activities. There are no financial limits to compensation though contributory negligence and the defendant's financial status (at the court's discretion) may warrant mitigation of damages. A GMO farmer may seek an abatement order and compensation for nuisance for, *inter alia*, a substantial impairment to the use of land. Fault need not be established. 118

(c) Sampling and testing

There are no specific rules on sampling and testing which under draft rules are to be borne by the claimant. These are likely recoverable if actual GMO presence is proved. The GMO farmer must bear monitoring costs. 119

(d) Cross-border issues

There are no special conflict of law rules. Portuguese courts have jurisdiction, *inter alia*, over immovables in Portugal, if the claimant resides or if the tortious act was committed in the jurisdiction. The law of the state where the main conduct that caused the damage or where the effects of the damage occurred applies. Where the claimant and defendant are resident in the same country, the law of that country is applicable. 120

22. Slovakia

(a) Special liability or compensation regime

A 2006 Act on genetically modified agricultural production refers liability issues to tort provisions of the Civil Code and the Commercial Code. No special compensation regime for GMO liability is in force. In the case of GMOs, where damage resulting from the defendant's business operations (as defined) and causation are established, strict liability is imposed. Fault is presumed. The wrongful act of third parties is a possible defence. The same criteria are appli- 121

cable to crop and seed production. The regime is not exclusive. Other statutory provisions also exist which regulate the obligations of GMO operators.

(b) General liability or other compensation schemes

122 Breach of duty, damage and causation must be established. Fault is presumed. *Conditio sine qua non* is one of the tests used to establish causation. Joint and several liability applies in the case of multiple tortfeasors. Damages encompass lost profits, remedial costs and the difference in value between a GMO admixed crop and a traditional/organic crop. A farmer's losses due to fear of GMO contamination are likely compensable. Losses suffered by other farmers where contamination is confirmed though limited to a single regional farmer are recoverable if causation can be proved. To be relieved, the defendant must establish that the damage was caused by an unavoidable event not generated by the operation of his business or by contributory negligence. Excessive nuisances are actionable. There are no financial limits to liability. Insurance/advance cover is not mandatory. No applicable compensation funds exist.

(c) Sampling and testing

123 There are no specific rules which cover costs incurred in the sampling and testing for GMO presence in other products. Such costs including costs associated with mandatory monitoring are presumed to be borne by the GMO operator.

(d) Cross-border issues

124 No specific provisions aimed at resolving cross-border cases exist. Tort claims are governed by the law of the place where the damage occurred or the place where any circumstances establishing the right for compensation arose.

23. Slovenia

(a) Special liability or compensation regime

125 A fault-based liability regime regulates the use of GMOs though liability issues are delegated to the Civil Code. Causation may be established due to failure to comply with administrative obligations. There are no financial limits to liability. Insurance is not mandatory. No compensation funds exist. Injunctive relief is available. The criteria for crop and seed production are undifferentiated. The state is responsible for drafting measures to minimise/prevent damage caused by GMO activities. If it fails to meet its obligations, then it could be held subsidiarily liable. Recourse would then be taken against the responsible tortfeasors.

(b) General liability or other compensation schemes

126 The claimant must prove an illegal act, damage and causation. Fault is presumed if damage was caused intentionally or negligently. The defendant must

then demonstrate that he satisfied the requisite standard of care including those prescribing conduct expected of a GM farmer. The main test for causation is *conditio sine qua non*. Joint liability applies in the case of multiple tortfeasors.

The Civil Code also provides a strict liability regime for hazardous activities where causation is presumed though damage must be proved. *Force majeure*, wrongful acts of third parties and contributory negligence are possible defences. Excessive nuisances including GMO admixture (taking account the local) are actionable. The value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Pure economic losses are not handled differently. Actual damage must exist, thus losses caused by consumer fear of GMO contamination and losses suffered by other farmers where contamination is confirmed though restricted to one regional farmer are not actionable though the farmer may seek compensation for his "tarnished reputation". There are no financial ceilings to liability. Insurance is not mandated by law. A claim may also exist under product liability provisions. Injunctive relief is available. 127

(c) Sampling and testing

There are no special rules on costs associated with sampling and testing for GMO presence. Such costs would be borne by the requisitioning party though are likely recoverable in the case of justified suspicion. 128

(d) Cross-border issues

Either the law of the state where the act was committed or the law of the state where the damage occurred is applicable – whichever is most favourable to the defendant. 129

24. Spain

(a) Special liability or compensation regime

There is no special liability or compensation regime in force which address liability for GMOs. 130

(b) General liability or other compensation schemes

The claimant must prove fault (the consequences of which must have been foreseeable) and causation – both factual (under the equivalence theory) and legal (usually according to the theory of adequate causation). In proving fault, the existence of provisions establishing statutory conduct is inconclusive. In theory, the burden may be shifted in circumstances where it is easier for the defendant to disprove causation. Joint and several liability apply in respect of multiple tortfeasors and concurrent causes. In the case of damage caused by 131

an undefined member of a group, all potential tortfeasors may be held liable provided that it is proved that one of them caused damage. Strict liability provisions e.g. under the Product Liability Act may be invoked however, these are unlikely to apply in respect of GMO admixture.

132 Specific legal rules apply in certain regions. According to Catalan law, repeated nuisances are actionable if arising out of abnormal uses of land, are substantial and out of line with local customs and regulations. Abatement measures, if financially onerous, may prevent the granting of injunctive relief or compensation. Under the general Spanish tort law regime, damages aim to restore the claimant to the position they would have been in but for the tortious conduct. It includes mitigation costs and loss of earnings. The concept of pure economic loss is not recognised as a separate head of damages. Losses caused by GMO fear of contamination are unlikely compensable. There are no financial limits to liability. Farmers are under no obligation to obtain liability insurance/advance cover. There are no existing general compensation schemes.

(c) Sampling and testing

133 There are no specific rules on the costs of sampling and testing. Such costs are unrecoverable notwithstanding actual GMO presence is detected though they may be compensable if categorised as mitigation expenses.

(d) Cross-border issues

134 There are no specific provisions concerning cross-border issues. The law of the place where the tortious act took place applies.

25. Sweden

(a) Special liability or compensation regime

135 There is no special liability or compensation regime in force. The possibility of such regulation is currently being considered.

(b) General liability or other compensation schemes

136 GMO damage could be actionable under the Environmental Code (strict liability) or under a strict liability regime formulated by the courts. Under the former, *force majeure* is unlikely to avail the defendant. General liability rules can also be invoked under which the claimant must prove negligence and causation. Though inconclusive, violations of statutory or other duties point towards negligence. Causation is not statutorily regulated thus the courts take a pragmatic approach to it. The *conditio sine qua non rule* applies in certain instances. The burden of proof is rarely shifted though the threshold for causative proof could be lowered e.g. in the case of multiple causes. Alternative, potential or uncertain causation are unregulated. Joint and several liability applies in the case

of multiple tortfeasors. Pure economic loss is treated differently from other losses. Losses of a farmer whose customers fear GMO contamination or losses caused where contamination is confirmed though restricted to a single regional farmer are compensable if the other conditions for liability exist. The price difference between contaminated and non-contaminated crops, future losses and testing costs are compensable. There are no financial caps on liability though damages may be mitigated if overly burdensome on the defendant.

(c) Sampling and testing

No specific rules cover costs associated with sampling and testing for GMO presence in other products. Ultimately, such costs are borne by GMO users. 137

(d) Cross-border issues

No special conflict of law rules are in force or planned. The court where the harm was caused or where it occurred has jurisdiction. *Lex loci delicti* applies in respect of applicable law. 138

26. Switzerland

(a) Special liability or compensation regime

Statutory provisions impose strict liability on authorised persons for damage caused through the modification of genetic material. Damage is presumed without taking fault/negligence into consideration. Authorised persons have recourse against the GMO operator. 139

The claimant must prove causation. Multiple causes and the recovery of costs incurred in establishing causation are not expressly regulated under the regime. Act of God, gross misconduct of third parties or the injured party serve as defences. There is no reversed burden of proof. The same criteria apply in respect of crop and seed production. Damage includes actual loss of property and personal and environmental injury. Though at the court's discretion, the value of the entire product is covered where unmarketable and where marketable albeit discounted in price, such depreciation is covered. Loss caused by consumer fear of GMO presence or losses caused where contamination is confirmed though restricted to a single regional farmer are pure economic losses and thus unrecoverable. There are no financial limits to liability though contributory negligence and the defendant's financial state may result in a reduced award. A guarantee/security to cover GMO damage is compulsory. No compensation funds exist. The claimant must mitigate his losses. Injunctive relief is available. Defective products are also actionable under the regime. *Lex specialis* provisions are exclusive so that they prevail over general provisions. The regime is comparable to other schemes. 140

(b) General liability or other compensation schemes

141 The general liability provision for illicit acts assumes an illicit act/omission, damage and fault/negligence. Causation must be established. Alternative causality is handled under proportionate or joint and several liability. The latter applies in respect of cumulative causality or multiple independent causes. The possibility of recourse against contributing tortfeasors lies at the judge's discretion. Damages and injunctions may be sought against unreasonable conduct by residents of neighbouring property. Liability for defective products may exist under the Product Liability Act and the Environmental Protection Law.

(c) Sampling and testing

142 There are no specific rules that cover costs associated with sampling and testing for GMO presence. The claimant bears the costs which are recoverable if tests prove positive.

(d) Cross-border issues

143 There are no special jurisdictional or conflict of law rules in force. The provisions of the Lugano Treaty on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters apply. For non-contracting states, private international law provisions grant Swiss courts jurisdiction if the defendant is domiciled or habitually resident in Switzerland. The law of the country whose courts have jurisdiction applies where the parties agree. If the parties are resident in the same country, the laws of that country apply otherwise, the law of the country where the wrongful act was committed or where the damage arose applies.

27. United Kingdom: England & Wales

(a) Special liability or compensation regime

144 In England, a public consultation proposing a statutory redress scheme in respect of economic damage resulting from adventitious GMO presence is underway. Other GMO liability claims may be brought under existing legal principles. No specific civil liability or other compensation regimes are in force. For a claim to succeed, the claimant must demonstrate GMO presence in excess of 0.9% through no fault of his own. Economic losses relating to regulatory as opposed to market requirements are compensable. It is not a fault-based or strict liability scheme. Establishment of the GMO source is unnecessary thus multiple causes are of no consequence. The scheme applies exclusively to crop production. As actual GMO presence is required, losses resulting from consumer fear of contamination or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are not compensable. In essence, the difference in value between the GM and traditional/organic crop represents the compensation ceiling. Funding from the government or

non-GM farmers is unlikely. It is expected that redress is to be sought through an adjudication/arbitration procedure. Injunctive relief is not available. Unless contractually stipulated, recourse to defaulting farmers is unlikely. It bears no exact correlation to other existing schemes.

(b) General liability or other compensation schemes

145 Claims under general tort law include negligence, private and public nuisance and the rule in *Rylands v Fletcher.* For negligence, duty of care, breach of duty and causation must be established. The first two conditions will likely pose difficulty for GMO claims. General defences apply e.g. contributory negligence. Though doubtful in the case of GMO presence, public nuisance may give rise to a civil action where the claimant suffers *special damage*. Unreasonable interference with the claimant's use or enjoyment of land is actionable under private nuisance. The defendant will not be exonerated even if he takes all reasonable steps to ease the effects of such interference. Damage need not be established. An injunction may also be sought. The rule in *Rylands v Fletcher* imposes strict liability where a person uses his land in an extraordinary/unusual way to collect/keep anything likely to do mischief if it escapes. Success under this head is doubtful in the case of GMO admixture. Damage caused must be suffered outside as opposed to on the land. Defences include contributory negligence, *vis major* and act of God. An action may exist under the Consumer Protection Act 1987.

146 To establish causation, the claimant must show that but for the tortious act, damage would not have occurred. Damage must have been reasonably foreseeable. For multiple causes the defendant is liable to the extent of his contribution, if assessable. To establish fault, the reasonable person standard applies. Statutory requirements/authorisations may disaffirm fault.

147 Unlike public/private nuisance actions, physical injury to persons/property must be established under negligence. Losses as a consequence of consumer fear of GMO presence or losses suffered by other farmers where contamination is confirmed though restricted to a single regional farmer are likely unrecoverable under negligence or the rule in *Rylands v Fletcher*. The position under public/private nuisance is tentative. Damage is calculated as the difference between the market value of an unaffected and contaminated crop. The award of pure economic loss is restricted in the case of negligence though more easily recoverable under public/private nuisance. There are no financial limits to liability, no duty to obtain liability insurance/advance cover and no general compensation schemes are applicable here. The claimant must mitigate his losses.

(c) Sampling and testing

148 There are no special rules regulating testing/sampling costs. Although uncertain, these may however be recoverable under the proposed redress scheme. Under general tort law, only if GMO traces exist will such costs be recoverable.

(d) Cross-border issues

149 No special jurisdictional or conflict of law rules are in force/planned. The Brussels Convention applies in respect of jurisdiction. If the defendant is not domiciled in a participating state, applicable jurisdiction is based on the proper service of a claim form on the defendant in the jurisdiction or abroad (where damage was sustained in the jurisdiction or results from an act committed within the jurisdiction). Generally, the law of the country in which the tort occurred applies.

QUESTIONNAIRE

I. Objective of the study

1. Summary

The introduction of genetically modified organisms (GMOs) in EU agriculture may have economic implications that result from incomplete segregation of GM and traditional crop production. In particular, the presence of GMOs can not be ruled out in non-GM agricultural products. Due to requirements for labelling of GMOs and other purity criteria of non-GM products as well as market demand for non-GMO products, such presence – and even reasonable fear thereof already – may have negative economic implications for the operators concerned. The present study is aimed at analyzing aspects concerning the liability of GMO presence in traditional agricultural products.

2. Background

The cultivation of genetically modified (GM) crops in the EU may lead to cases in which traditional agricultural products contain detectable traces of GMOs. On the one hand, such admixture may result from *inadequate application of segregation measures* by farmers. On the other hand, as agriculture is an open process that does not allow the complete isolation of individual fields, a *certain degree of admixture between neighbouring crops is unavoidable* in practice.

The presence of GMOs in traditional products *may lead to their devaluation*, which would entail an *economic damage to the producer* of the traditional products. For instance, due to the presence of the GMO the traditional product may be required to be labelled as GM.

GMOs and products containing or produced from GMOs have to be labelled according to Community legislation, in particular Directive 2001/18/EC, Regulation (EC) No. 1829/2003, and Regulation (EC) No. 1830/2003. For the case of adventitious or technically unavoidable presence of GMOs in non-GM products, Regulation 1829/2003 provides for a threshold of 0.9% below which such presence in food or feed does not require labelling. For seeds, Directive 2001/18/EC provides for the possibility of adopting thresholds, below which the adventitious or technically unavoidable presence of GM seeds does not

require the labelling of conventional seed lots. Such thresholds have not yet been adopted.

The presence of GMOs above the labelling threshold in a product also triggers the need for traceability of GM products according to Regulation 1830/2003, which may cause additional costs for the operators concerned.

In the EU, crops may only be commercially cultivated after having been authorized for the purpose of cultivation under Community legislation (i.e. Directive 2001/18 or Regulation 1829/2003). The labelling thresholds only apply for the presence of authorized GMOs. *Products containing detectable traces of unauthorized events can not be legally marketed in the EU*.

According to part B of Directive 2001/18, an individual Member State may grant authorization for a non-commercial release of a GMO, for instance for the purpose of experimental field testing. As a result of such experimental cultivation, GMOs not authorized under part C of Directive 2001/18 or under Regulation 1829/2003 may be present in traditional crops. *This presence could cause economic damage as food and feed can not be marketed if it contains detectable traces of such GMOs*.

The admixture of GMOs may also have *specific implications for organic products*. Regulation (EEC) No. 2092/91 on organic production of agricultural products specifies that GMOs may not be used in organic production, with the exception of certain veterinary products. Therefore, products that require labelling as GM could not be used in organic farming. This implies that GMO presence in organic input materials (such as seed or feed) could have implications beyond the necessity of labelling alone.

Further economic implications may result for farmers producing non-GM crops if specific requirements concerning GMO presence, which go beyond the provisions in Community legislation, are laid down in *contracts with the retailers* or other operators further down the food or feed production chain. Such conditions may also apply for products produced under quality schemes.

In addition to the economic implications resulting from the actual presence of a GMO in a traditional product, costs may also occur due to *sampling and testing of products*, either on a basis of routine controls or in cases, where relevant GMO admixture may be suspected. In many cases, the presence of GMOs and their quantity can not be assessed without the use of *laboratory analyses*, which may cause *significant costs*.

Furthermore, economic implications for traditional producers that may relate to the presence of GM crop production in a *region*, and which could enlarge the risk of GMO admixture, can not be ruled out. For instance, food or feed producers may *preferentially purchase crops from certain regions*, where no GM crop production may take place.

If the cultivation of GM crops becomes more widespread, the *issue of liability in relation to GMO admixture* could gain further importance in the EU. Compared to other cases of economic damage resulting from neighbouring activity, GMO admixture may pose specific difficulties because the admixture *may initially remain undetected* and become known at later stages of the food or feed production chain. Furthermore, the *causal link* between the damage and the operator responsible for it may not always be apparent as there may be different sources of admixture (e.g., seed impurities, out-crossing with neighbouring crops, volunteers from previous GM crop cultivation).

Liability in the case of economic damage that may result from the presence of GMOs in other crops is a case of civil law. Generally, civil law is in the responsibility of the Member States. In Recommendation 2003/556/EC on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming, the Commission states that:

> "The type of instruments [to achieve co-existence] adopted may have an impact on the application of national liability rules in the event of economic damage resulting from admixture. Member States are advised to examine their civil liability laws to find out whether the existing national laws offer sufficient and equal possibilities in this regard. Farmers, seed suppliers and other operators should be fully informed about the liability criteria that apply in their country in the case of damage caused by admixture.
>
> In this context, Member States may want to explore the feasibility and usefulness of adapting existing insurance schemes, or setting up new schemes."

Member States may develop national or regional approaches to ensure the co-existence of GM crops with conventional or organic agriculture. According to Article 26a of Directive 2001/18:

> "Member States may take appropriate measures to avoid the unintended presence of GMOs in other products."

In the context of national or regional co-existence legislation Member States may also adopt specific provisions for liability in cases of GMO admixture, and develop compensation schemes, such as insurance systems or compensation funds.

Liability has to be seen in the context of measures to segregate GM crop production from traditional non-GM production in order to achieve co-existence between these different forms of agriculture. The approach taken by the Member States to allocate the responsibility for developing and implementing these segregation measures among the operators concerned has significant implications on liability.

II. Questions

I. Special Liability or Compensation Regimes

1. Introduction

Is there any **special liability or other compensation regime** already in force or at least under discussion in your country which specifically addresses or otherwise applies to liability for GMOs (though not necessarily exclusively), and does it also cover the risks described in the introduction to this questionnaire, i.e. economic damage resulting from actual or feared GMO presence in non-GM crops? If so, please explain this system in as much detail as possible (or – in the case of more than one applicable system – all these systems and to what extent these overlap), focusing in particular on the following aspects, to the extent these are addressed by your country's legislation:

2. Causation

(a) Which criteria apply with respect to the **establishment of the causal link** between the alleged damage and the presence of the GM crop concerned? Are there rules allocating the costs of testing or of other means to establish causation?

(b) How is the **burden of proof** distributed? Is there a reversed burden of proof, in the sense that the damage is presumed to be the consequence of the presence of a certain GM crop? How are the different sources of adventitious presence of GMOs (e.g. seed impurities, out-crossing with neighbouring crops, volunteers, transport, storage) being taken into account, if at all?

(c) How are problems of **multiple causes** handled by the regime? Does it include special rules on alternative, potential or uncertain causation? Is liability channelled to a particular person, and if so, how? Is joint and several or other collective liability foreseen, and under which conditions? Are there any specific rules for **recourse** between those liable?

3. Type of regime

Is the liability regime (if it is one) **fault-based, strict or absolute**?

(a) If fault-based, what are the parameters for determining fault, and how is the burden of proof distributed?

(b) If strict, is there still a set of **defences** available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, contributory negligence etc.)?

(c) If it is not a liability regime as such, but any other variety of compensation mechanism (including, but not limited to, administrative law measures, private and/or state funding), please describe its nature and functioning.

(d) Do different criteria apply with regard to, on the one hand, crop production and, on the other, seed production?

(e) Is the liability regime **exclusive**, or does it overlap or coincide with any other specific or general liability regime in your country? In particular, can claims based on general tort law still be brought either simultaneously or subsequently?

4. Damage and remedies

(a) How is **damage defined and measured** under the system(s) you described? In what way is pure economic loss handled differently to other types of losses, if at all?

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

(c) Where does the scheme draw the line between compensable and non-compensable losses? Are, for example, the losses of farmers in a region covered where the crops of only one of them have been contaminated, but where consumers fear that the entire region is affected?

(d) What are the criteria for **determining the amount of compensation**? For instance: Is the value of the whole product covered or only the depreciation? How is depreciation calculated, based on standards laid down in legislation or, for instance, in private contractual agreements? Are indirect costs, such as increased overhead costs due to the need to find a new market for products, or to regain a certain producer status, taken into account?

(e) Is there a **financial limit** to liability?

(f) Is there any requirement for operators to provide for some sort of advance cover for potential losses (such as **compulsory** liability **insurance**), and/or are farmers required to take out first-party insurance which would cover such losses?

(g) Which **procedures** apply to obtain redress?

(h) Do these systems also include possibilities to obtain **injunctive relief**, either before or after admixture has happened?

5. Compensation funds

If you have not addressed this earlier, are there any **compensation funds** already set up or planned in your country, whether public or private or a combination of both, that would provide for at least some compensation of losses of

the kind covered by this study? If so, please describe them in detail, thereby focusing in particular on the following aspects:

(a) How are these funds **financed** (e.g. in the form of a levy on sown or harvested GM crops, or a levy on the sale of GM seeds, or a levy on fees to organic certification bodies)? Which operator groups are the main contributors to the fund (e.g. GM crop growers, traditional farmers, seed importers or developers, biotech industry)?

(b) Is there any contribution granted by the national or regional authorities?

(c) Is the contribution to the fund **mandatory or voluntary**?

(d) Is a balance established between the money paid into the fund and expenses of the fund? If so, at which time intervals are levies adapted to the actual expenses?

(e) How are the funds **operated**? Which body is in charge of managing the fund and of deciding about justified claims? Which procedures apply to obtain compensation of loss?

(f) Are there any provisions for **recourse** against those responsible for the actual cause of the loss?

6. Comparison to other specific liability or compensation regimes

To what extent is the specific liability or compensation regime that you have described comparable to other such schemes in your country, e.g. to product or environmental liability? Does it fit into a more broader system, or is it rather to be regarded as exceptional?

II. General Liability or other Compensation Schemes

1. Introduction

If there is no specific liability or other compensation regime applicable in your country (thereby disregarding for the time being possible future systems that you may already have described above), or if such specific regimes do not (entirely) exclude the applicability of other (in particular more general) regimes, please describe how the **general liability rules** (would) apply to cases of economic damage resulting from GMO presence in traditional crops. Please focus in particular on the following aspects which correspond to the catalogue already listed for the special regimes:

2. Causation

(a) Which criteria apply with respect to the establishment of the **causal link** between the alleged damage and the presence of the GM crop concerned?

(b) How is the **burden of proof** distributed? Is there a possibility for a reversal of the burden of proof, in the sense that the damage under certain conditions may be presumed to be the consequence of the presence of a certain GM crop, e.g. if it is established that the GMO farmer failed to apply proper segregation measures?

(c) How are problems of **multiple causes** handled by the general regime? Does it include special rules on alternative, potential or uncertain causation? Is liability channelled to a particular person, and if so, how? Is joint and several or other collective liability foreseen, and under which conditions?

3. Standard of liability

(a) In the case of **fault-based** liability, what are the parameters for determining fault and how is the burden of proof distributed? Does it make any difference if there are clearly established statutory rules defining the required conduct for GMO agriculture?

(b) To the extent a general **strict** liability regime (or a specific strict liability regime, either due to its broad scope or by analogy) may be applicable, please describe its requirements for establishing liability. Is there still a set of defences available to the actor (for instance 'acts of God', wrongful acts or omissions of third parties, etc.)?

(c) Does your jurisdiction provide for special rules applicable to cases of **nuisance** or similar neighbourhood problems? Would these rules apply to cases of the kind covered by this study?

4. Damage and remedies

(a) How is **damage defined and measured**? In what way is pure economic loss handled differently to other types of losses, if at all?

(b) Is the loss of a farmer whose customers only fear that his products are no longer GMO free (e.g. because of GMO cultivation in his vicinity) also recognized as compensable, or is proof of actual admixture required?

(c) Where does your legal system draw the line between compensable and non-compensable losses? Are, for example, the losses of farmers in a region covered where the crops of only one of them have been contaminated, but where consumers fear that the entire region is affected?

(d) What are the criteria for **determining the amount of compensation** in general, and how would this apply to the kind of cases covered by this study? For instance: Would the value of the whole product be covered or only the depreciation? How is depreciation calculated, based on standards laid down in legislation or, for instance, in private contractual agreements?

(e) Is there a **financial limit** to liability, or is there any rule to **mitigate damages** once liability is established?

(f) Are operators under any general or specific **duty to obtain** liability **insurance** or to provide for other advance cover for potential liability?

(g) Which **procedures** apply to obtain redress in such cases?

(h) Are there any **general compensation schemes** that may be applicable in such cases, and how do they operate?

III. Sampling and Testing Costs

1. Are there any specific rules in your jurisdiction which cover **costs associated with sampling and testing for GMO presence** in other products, either in the case of justified suspicion of GMO presence or in the case of general monitoring?

2. If there are no specific provisions, are there industry-based rules? Or do general rules apply (and if so, who would have to bear these costs)?

3. Are such costs recoverable only if the tests prove actual GMO presence, or even without such outcome?

IV. Cross-border Issues

1. Are there any **special jurisdictional** or **conflict of laws rules** in force or planned in your jurisdiction which apply to harm of the kind described in the introduction to this questionnaire, or are there any other specific provisions aimed at resolving cross-border cases?

2. If there are no such specific rules, how would the **general rules of jurisdiction and choice of law** apply to cases of such kind in your country?

Comparative Report

Bernhard A. Koch

I. Possible ways to allocate the risk

1. What risks are at stake?

(a) Potentially harmful causes

For the purpose of this study, the only harmful events that will be considered are the economic consequences of the involuntary admixture of GM crops with non-GM crops. This may occur in a variety of ways, from the very first stages of seed production to the delivery of the ultimate produce to the consumer. The seeds sold may already be impure, they may have commingled during production, processing, transportation or storage. So-called volunteer seeds may have survived on a field previously used for GM cultivation and sprout in the next season. GM and non-GM crops may have been mixed during planting, harvesting, drying, or on the way to storage or vendors, or while at one of those places along the chain of distribution. Pollen may have dispersed from a GM to a non-GM field, be it by wind, by insects or other animals. Contamination may have occurred at one point only or at several stages of the production.[1] Its likelihood "depends on several variables: the specific crop, its location, the presence of outcrossing wild relatives/sexually compatible crops, the competitive nature (advantages and disadvantages) of the introduced trait, and the environmental consequences of neutral traits."[2] 1

Human intervention may play a role, but not necessarily so. It is more likely, for example, during seed or crop handling, whereas transfer by natural forces or animals is typically not triggered by human conduct (if one disregards the 2

[1] Commission Recommendation of 23 July 2003 on guidelines for the development of national strategies and best practices to ensure the co-existence of genetically modified crops with conventional and organic farming (http://ec.europa.eu/agriculture/publi/reports/coexistence2/guide_en.pdf) no. 2.2.2. See also *A. Nelson*, Legal Liability in the Wake of Starlink™: Who Pays in the End? 7 [2002] Drake Journal of Agricultural Law 241, 251 ff., on the various possibilities of crop contamination.

[2] *H. Daniell*, Molecular strategies for gene containment in transgenic crops, 20 [2002] Nature Biotechnology 581 (available at http://www.nature.com/nbt/journal/v20/n6/pdf/nbt0602-581.pdf).

farmer's choice to proceed with GM cultivation in the first place, of course). Nevertheless, omissions may at least have contributed also to the latter phenomena, for example if the GM farmer has disobeyed certain segregation measures. Even if human conduct was involved, however, it may or may not be considered improper according to recognized farming standards of the time.

3 As far as the cause is concerned, any intentional violation of segregation rules, in particular by way of sabotage, will be disregarded in the report. In such cases, all legal systems will provide for mechanisms in tort law to cover the ensuing losses, and these will typically be more victim-friendly than in cases of damage caused unintentionally.

4 Unproblematic from a tort law policy perspective are furthermore cases where someone along the GMO production chain has acted in violation of mandatory rules, e.g. by disobeying segregation requirements or by growing genetically modified species which have not (yet) been authorized for cultivation.[3] While such cases will still be considered in the report, it is clear from the outset that – again – traditional tort law rules will typically provide tools for victims who seek compensation: Most legal systems offer special protection to victims of a violation of some legal norm whose purpose (inter alia) it was to protect someone from harm, for example by reversing the burden of proving fault.[4] Nevertheless, one might wonder whether the position of the claimant in such cases could and should be improved by, say, lowering the standard of proof, or by reversing the burden of proving certain requirements of the claim.

(b) What losses are imaginable?

5 This study disregards personal injury resulting from GMOs as well as direct property damage such as harm to the crops as such. The latter may, however, be a precondition for the ensuing economic losses that are under survey here, in particular for their market value, which some jurisdictions consider to be damage to the crops themselves in an objective assessment of the overall loss. The focus of this study is therefore on the indirect consequences of involuntary admixture only, which affect the financial value (such as the marketability) of agricultural products. Further excluded is environmental harm as such, i.e. damage to biodiversity or any other losses that do not affect individuals, but society at large.

6 It is important to note, therefore, that potential losses in the core cases envisaged here are not as difficult to predict since there is less insecurity about the type or the extent of the possible harm. While harmful effects of genetically modified food, for example, should be ruled out for products that have under-

[3] Cf. Ireland no. 2: "[A]lthough the existence of the regulatory framework for GMOs does not provide a framework for liability, it is also clear that where these regulations have not been complied with, both the government agency and the originator of the GMO may be liable for breach of statutory duty."

[4] See infra no. 55.

gone the risk assessment as part of the EU authorization procedure, the market values of GM and conventional agricultural products are both quantifiable data for any given point in time, and so the potential loss sufferable is the difference between the two, even though the former may be influenced by public opinion about GM products, which in turn is based upon an immeasurable assessment of the risks they may bring about to consumers. This may lead to a market value of zero (and therefore to a loss equalling the sales value of the conventional product)[5] in a case where a certain variety is not marketable if genetically modified, but that figure zero is a certainty for the particular product under the market conditions of the time. Furthermore, if one farmer starts to grow GM crops, the size of the neighbouring fields and their potential yield as well as their distance from the GM farmer are equally given facts. The only uncertainty with respect to the immediate economic losses of the neighbouring farmers remaining is the likelihood of admixture, but even there some data is already available with respect to certain crop varieties.

In such a narrow case scenario, the loss of the non-GM farmer may not be excessively high. After all, if her harvest needs to be labelled as genetically modified (which is the immediate consequence of admixture), she may still be able to sell it on the market for GM products. The assumption that there is such a market is not far-fetched:[6] After all, the farmer to whose fields the admixture can be traced back will not have started to grow GM crops unless it is (1) permitted to commercially cultivate them and (2) economically profitable for her, which not only presupposes that there is a market where she can sell these products, but also that the price is high enough to cover her (at least initially) higher production costs. Examples from Spain show that the price for GM and non-GM products may even be the same, so that part of the victim's damage may be close to or equalling nil. This does not mean that she has not suffered any loss since at least the costs of identifying the admixture as well as her efforts to re-label or re-market her now genetically modified products have to be taken into account in addition to the actual price difference (if any).[7] 7

However, the damage may be significant in other scenarios, not only for organic farmers whose losses are obviously not limited to the price difference in one given year.[8] Imagine that a feed producer is sued by all her customers for her failure 8

[5] See, e.g., United Kingdom no. 18. Cf. Art. 5 Sect. 1 2nd paragraph of the Walloon Draft Decree (infra 668 ff.): "If the harvest cannot be placed on the market because of admixture with genetically modified plants, the financial losses shall be taken as the market value of a similar harvest not labelled as containing GMOs, from which shall be deducted, where applicable, any type of benefit gained from this harvest, including use within the farm."

[6] DEFRA Consultation Paper (infra Annex 720 ff.) no. 139. But see *ibid.* no. 141: "[T]here may be circumstances in which there is no market for the GM equivalent (e.g. the non-GM farmer may be growing sweetcorn maize while GM maize is only being grown as a forage crop and there is no market in which it is traded). The loss in this case would be the whole of the non-GM or organic price that has to be foregone, as there is no GM market to sell into to mitigate the loss."

[7] DEFRA Consultation Paper (infra Annex 720 ff.) no. 146.

[8] Cf. *Ex parte Watson*, 10.7.1998, [1999] Env. L.R. 310, 315 (CA): "If cross-pollination occurs, it will have a devastating effect upon the applicant's business, reputation and livelihood."

to provide GM-free products, which in turn has had a detrimental effect on the marketability of their own products. Or: A food producer may not discover the GM qualities of the raw materials until the final production stage, when the produce of all her suppliers has already been processed. The food producer suffers a substantial loss with respect to that particular lot of her total production, and she seeks recourse from the non-GM farmer whose crops were contaminated.[9] The latter in turn claims compensation from her neighbouring GM farmer, which will most likely be a lot more than in the standard case mentioned earlier.

9 Without prejudicing the outcome of the following scenario, a GM farmer (or whoever will be sued for the harmful consequences of unintended admixture) may face an even more substantial claim if an entire region suffers economic losses due to an impairment of its previous reputation as a GM-free zone. A single case of admixture on a single field within that region may lead to customer mistrust in the other farmers' claims of cultivating conventionally, even if their own fields have not been contaminated at all in reality.

10 An important issue will therefore be where to draw the line between compensable and non-compensable losses. Unlimited indemnification of each and every imaginable loss of even the remotest third party is unthinkable.

11 This also relates to an important separate category of losses: the costs of identifying a loss in the first place. While this may be unproblematic in cases where admixture has actually occurred, shall a conventional farmer whose customers suspect that her production was contaminated by pollen from her neighbouring GM farmer be left with the entire (and often quite substantial) costs of testing her crops if the customer fear (which may deter them from buying before their suspicion is refuted) turns out to be unsubstantiated?

2. Who shall bear the loss?

(a) Starting point

12 Once admixture has occurred, the farmer whose fields are concerned is the first to suffer a loss under the conditions just mentioned. The key question is, of course, whether she shall be left with that loss, or whether she will be able to recover at least part of it from someone else. This is not just a rhetorical question: After all, the basic norm underlying all compensation schemes (though unfortunately mostly forgotten today) is that the loss at least initially lies where it falls. It is only shifted to someone else if there is a good reason to do so. The occurrence of the loss as such is never sufficient justification in itself.

[9] Cf. the "Terra Prima" case, a producer of organic tortilla chips that had to destroy 87,000 packages thereof when it turned out that the maize field of its supplier had been contaminated by cross-pollination from a nearby Bt maize field. As stated by a Terra Prima executive, this had been "a financial disaster" for the company (see the minutes of a U.S. Food and Drug Administration's hearing at http://www.fda.gov/ohrms/dockets/dockets/99n4282/99n-4282-tr00003.rtf). The chips producer chose not to sue the farmer, however.

(b) The immediate victim as the ultimate loss-bearer

A very simple response to the cases under survey here may therefore be a complete denial of compensation to the victim. This sounds harsh and contrary to that farmer's free choice to grow conventional or organic crops. 13

One should also consider that GMO admixture is certainly not the only real-life scenario imaginable where a farmer may suffer the same or even more damage without being able to pass it on to someone else, for example in the course of natural catastrophes[10] or, seemingly less dramatic, but certainly just as detrimental, changes in customer preferences. 14

The immediate victim may not be able to shift her losses despite the fact even that some special compensation regime may apply: Its prerequisites simply may not be fulfilled or may be impossible for the victim to prove. This is of course more likely if traditional tort law applies, but there is by definition no indemnification scheme imaginable which pays out monies without any further concern of the applicant's position. 15

One therefore needs to bear in mind that under any option presented in the report, at least some victims may not collect compensation at the end of the day. 16

(c) Minimum standards for any loss allocation scheme

Any loss allocation scheme will have to fulfil certain minimum standards. Only the most important ones shall be listed in the following bullet points: 17

- The ultimate goal of any regime is a fair distribution of risk – advantages and disadvantages of producer behaviour have to be taken into account as well as other aspects of a more general nature. If co-existence is the political goal, it can only be put into action if both GM and conventional farmers have an even chance to choose between their alternative ways of cultivation. This cannot mean, however, that one may produce at the expense of the other. Where the balance lies has to be defined by policy-makers. Law can only implement such choices by offering the proper tools. 18

- No matter what kind of regime one chooses, it has to be easy to handle. The more complicated the requirements for finding a solution, the less likely the regime will survive in practice. As a minimum, all elements of a potential claim have to be clearly defined. 19

- Access to the scheme is of paramount importance. Claims should not be denied (or discouraged) merely because they are too complicated to apply. The procedure to obtain compensation must be apt to handle the volume of potential claims in the best possible way, but at the same time allow for 20

[10] See also infra no. 151–152.

a thorough analysis of the matter: The decision-making process should be time-efficient, but not a quick shot.

21 • A connected matter is costs of the scheme: This is not about the amounts actually paid out in compensation, but rather the administrative costs of the regime – attorneys, judges, civil servants in the administration handling claims and the like. The more complicated and/or time-consuming the set-up of the system is, the more costly it will be to administer. The higher the costs, the more likely potential applicants will be deterred from filing their claims.

22 • Even if a scheme theoretically allows a claim for compensation, the victim ultimately may not collect money on that basis, for example because the defendant in a tort suit is bankrupt, or if a compensation fund is empty. This needs to be kept in mind at least when setting up a suitable regime. One way to address the problem would be to require advance cover for future losses, or – in the case of funds – consider backup guarantees of whatever kind.

3. The classic route: tort law

(a) General considerations

23 The classic way to award compensation for detriments of the kind envisaged here is tort law. It is undoubtedly a concept generally accepted in society, not only in light of its strong roots in history, but also since it corresponds to very basic notions of corrective justice, at least in its core.[11] It is essential, however, to keep in mind the functions of this body of the law, which determines its potential to solve the kinds of cases under survey here.

24 Tort law offers a response to unwanted consequences of certain events, its primary function is therefore not to prevent them.[12] This is predominantly left to other areas of the law, for example to administrative law, which regulates and pre-defines, for example, the conduct expected from all members of society. While it is clear that the threat of having to compensate losses one may cause might influence the behaviour of an individual and therefore contribute to the prevention of unwanted conduct, this is more of an effect of tort law than a dominant factor in shaping its rules.[13]

25 Nevertheless, a particularly harsh regime of liability linked to certain activities may deter individuals altogether, particularly if these activities are based upon an advance economic assessment of their pros and cons, as is typically (or at

[11] On these theoretical foundations, see e.g. *G. Schwartz*, Mixed Theories of Tort Law: Affirming Both Deterrence and Corrective Justice, 75 (1997) Texas Law Review 1801.

[12] *P. Widmer*, How Tort Law Deals With Apprenticeship in Sorcery, in: *MunichRe* (ed.), 5th International Liability Forum Munich (2001) 90, 92, who rightly emphasizes that "in respect of the damaging event, tort law always comes too late".

[13] See also Art. 10:101 PETL. But see the approach taken by the economic analysis of law, whose starting point is the preventive effect of liability rules: *M. Faure/A. Wibisana*, Economic Analysis (supra 532, 536 ff.) no. 4, 12 ff.

least should be) the case in any business activity. A very rigid and unlimited duty to compensate all and any losses resulting from GM farming, for example, may lead those potentially interested in this technology not to further consider pursuing it. Needless to say, this may have often been in the back of the heads of the legislators and illustrates their attitude towards regulating GM agriculture altogether. In the absence of further legitimate and recognized reasons, however, it is rather an abuse of tort law's concepts to turn mere effects into functions, as it evidences flaws in regulating behaviour in its proper legislative place.

Before looking at some of the key aspects of the various options tort law may offer claimants, it is important to note from the outset that this study can only offer just that – it is by no means a comprehensive overview of tort law in Europe, but focuses on those aspects which either seem to be dealt with differently in the jurisdictions under survey, or which should be of particular concern for an imaginary legislator who wants to redesign liability for GMOs. The focus will be primarily on claims against a neighbouring GM farmer at first; other possible defendants will be addressed in a separate sub-section (infra (i)). 26

(b) Requirements for tort law claims in general

Tort law, at least in its historic core, is assumed to be a predictable route to compensation. This is only true, however, if and to the extent the requirements for a particular claim are well-defined. The broader the terms used, the more open the inherent concepts are, the less likely will one be able to really predict the outcome of an individual case, at least as long as court practice is missing.[14] Defining the requirements for compensation is therefore a crucial task for tort law legislators. Despite (or maybe because of) that, tort law tends to define the conditions for awarding compensation narrower than other regimes. 27

Before addressing the most basic elements of a tort claim with an eye to how they may be applied in the cases envisaged by this study, it is important to keep in mind that procedural law and practice place further obstacles in tort claimants' path to indemnification. Civil procedure can be cumbersome and time-consuming, which in turn tends to trigger fairly substantial costs for litigants along the way to collect their claims. Even if these should be awarded to successful claimants in the end, they may not receive any payments at all if the defendant holds insufficient funds to pay her dues, so the insolvency risk mentioned above[15] is not addressed at all by tort law. 28

(c) Damage

Already, the first problem is the loss itself as seen through the eyes of tort law: Is the detriment that the non-GM farmer has suffered really compensable, or, 29

[14] Cf., e.g., the rather disillusioned statement in the DEFRA Consultation Paper (infra Annex 720 ff.) no. 137: "The application of the common law of negligence or private nuisance to GM cross-pollination is untested and uncertain."

[15] Supra no. 22.

in other words, is the loss which undisputedly has occurred recognized as a violation of an interest that tort law shall protect?

30 The question in itself already indicates that tort law does not indemnify all interferences with a claimant's sphere:[16] This might otherwise lead to excessive claims, not only of the immediate victim, but also of merely remotely affected third parties. "Obviously, liability has to stop at some point."[17] If we take a standard case of our study, unlimited recognition of all detriments arising from GMO admixture may not only provide compensation to the farmer for her economic loss, but also, say, for the sentimental value of her crops, for her emotional distress experienced throughout the duration of the case, for the time she may have spent in explaining the problem to her family, and the like. Neighbours may be allowed to sue for the loss of enjoyment of looking at a GM-free field. Customers of the farmer may bring actions not only for the latter's failure to deliver products as contracted for, but also for the anger about the (temporary) loss of a previously reliable farmer, and so on. Needless to say, while these may be actual problems, tort law cannot take note of such concerns: "The law of delict would ruin itself, the people governed by it, and consequently the legal system assigned to it."[18]

31 Where to draw the line is of course a crucial question, and there is certainly no self-evident reply thereto. As a rule of thumb, one may say that the higher the value of an affected interest as defined by the legal system as a whole, the more likely also that tort law will offer tools to victims who seek compensation, but the reverse is equally true.[19]

32 It is undisputed in any jurisdiction that human physical integrity is of the highest value, so that bodily injury will typically qualify as a compensable loss under the further conditions of a tort claim (though not without exception, as certain minimal interferences such as stepping on somebody's toes will most often not lead to a tort claim). At the other end of the range of legally protected interests are, for example, pure economic interests, and many jurisdictions are reluctant to award compensation in tort law[20] for the mere reduction of an economic value as such.

33 "There is no consensus on the exact content of the phenomenon of 'pure economic loss'".[21] However, it is common understanding in many,[22] but certainly

[16] E.g. Cyprus no. 73–74.
[17] Finland no. 33.
[18] *Ch. von Bar*, The Common European Law of Torts II (2000) no. 1.
[19] *H. Koziol* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 2:102 no. 1 ff.
[20] Other parts of the law may offer claims, however, in particular contract law.
[21] *W. van Boom*, Pure Economic Loss – A Comparative Perspective, in: *W. van Boom/H. Koziol/Ch. Witting* (eds.), Pure Economic Loss (2004) 1 (no. 5).
[22] Austria no. 43; Cyprus no. 92 ff., 98; Finland no. 23; Ireland no. 53; Norway no. 36–38; Poland no. 33; Portugal no. 54; Sweden no. 29 ff.; Switzerland no. 44, 49; United Kingdom no. 54.

not all jurisdictions[23] that this is an additional category to be separated from the immediate consequences of bodily injury or damage to tangible things, even though this demarcation is imperfect inasmuch as indirect financial consequences triggered by such direct losses may also fall under the notion of "pure" economic loss, at least if they are experienced by third parties separate from the immediate victim (such as the loss of revenues of an opera house whose star singer is injured in a car accident).

34 The difference between pure economic loss and consequential loss linked to other (directly caused) harm such as personal injury or property damage is sometimes hard to tell.[24] It is often in itself rather a grey area than a clear-cut dividing line. With respect to the kinds of losses under survey here, one may argue that the economic loss of the conventional farmer was but an addition to the harm caused to her crops or land and therefore to be included in the calculation of the overall loss to that property. On the other hand, that in itself may be disputed as the admixture as such may not be considered to qualify as a "damage" to the field or to its fruits,[25] particularly if the economic performance of the genetically modified variety is better than its conventional counterpart. Some jurisdictions, however, use the test of whether an object has been physically changed (for better or worse) before the economic loss ensued, in which case the latter is considered to be a mere consequence of the former rather than a "pure" economic loss.[26]

35 A legal system may decide to award damages only if GM crops were actually mixed with conventional ones, but not for the mere fear thereof. The farmer whose suspicious customers no longer believe her GM-free label despite the fact that it is indeed true indisputably suffers an economic loss because her sales will drop. Is mere fear of admixture also recognized as a basis for a tort claim? Such loss would typically be deemed purely economic (and already for that reason be considered with the corresponding degree of reluctance by some jurisdictions), as it was not triggered by any actual harm to property. One could argue, though, that any reduction of the market price (even if caused by unreasonable consumer fears) already constitutes damage to the crops themselves if their value is to be assessed objectively. Some countries at least would not exclude compensating such a

[23] Pure economic loss is not seen as a separate category with an impact on recoverability, for example, in Belgium no. 38; Denmark no. 45; France no. 31; Hungary no. 30; Lithuania no. 20; Luxembourg no. 43; the Netherlands no. 6, 36; Slovenia no. 40; and Spain no. 27–28.

[24] *Ch. von Bar* (fn. 18) no. 25 ff. See in particular the discussion of the Canadian case *Hoffmann v. Monsanto*, which held the loss in question to be purely economic, in United Kingdom no. 36.

[25] Cf. *M. Brülhart*, Gentechnik und Haftpflicht (2003) 162 fn. 612; Portugal no. 2.

[26] Cf. *Ch. von Bar* (fn. 18) no. 32. See also the German case cited there (at fn. 175): A fish farmer could not sell his trout for a certain period of time because the feed that he had used was enriched with broad-range antibiotics, of which he was unaware. The German Federal Supreme Court acknowledged the claimant's losses as damage to property despite the fact that the fish were not actually harmed from a veterinarian point of view – he simply could not sell them and derive profits therefrom (BGH 25.10.1998 BGHZ 105, 346).

loss, for example,[27] whereas a claim based on mere fear by customers would most likely fail in others.[28]

36 Some jurisdictions refuse to acknowledge a certain smaller loss as compensable by pointing at the traditional principle that *de minimis non curat praetor*.[29] This may come into play if, say, only a handful of GM seeds find their way to the borderlines of the adjoining property of which even fewer self-sow there without mixing with the crops that are used for commercial cultivation.

(d) Causation

(i) The need for a factual link between the loss and the defendant

37 If a damage is deemed compensable under tort law, a defendant will only have to indemnify it if something happened within her sphere that caused the loss or at least contributed thereto in a legally recognized way.

38 Causation therefore links the loss of the claimant to the actual defendant, which is a necessary requirement before proceeding to consider further requirements of the tort claim. A GM farmer consequently goes free if the admixture was the result of impurities of the seeds that the claimant herself had bought, or if it was caused by shared harvesting machinery that had not been cleaned properly.[30] If that was the duty of the GM farmer herself who happened to have used that equipment just before her neighbour, she may be held liable for not cleaning the machinery as required, but not for growing GM crops as such, which in the normal course of events would not have spread to her neighbour's fields (because they were too far away, for example).

(ii) Conditio sine qua non and exceptions thereto

39 The most basic test is asking whether the damage would still have occurred if the activity or event to which the defendant can be linked had not taken place (the so-called *conditio sine qua non* or "but-for" test).[31]

[27] Denmark no. 46; Estonia no. 32; Hungary no. 37–38 (but probably too remote); Lithuania no. 21; the Netherlands no. 37; Poland no. 37 ff.; Slovakia no. 33; Sweden no. 35.

[28] Austria no. 15; Cyprus no. 97; the Czech Republic no. 61–63; England no. 37, 57; Finland no. 26 ff.; France no. 32; Germany no. 19; Italy no. 23; Latvia no. 12; Luxembourg no. 44; Norway no. 40; Portugal no. 57, 60; Switzerland no. 48–50. See also Belgium no. 41 ff.; Spain no. 70: recovery at least doubtful. Cf. DEFRA Consultation Paper (infra Annex 720 ff.) no. 148.

[29] Cf. *Ch. von Bar* (fn. 18) no. 12. See, e.g., Cyprus no. 74; Finland no. 22; Sweden no. 33 (generally uncommon, but part of the liability regime under the Environmental Code with respect to pure economic loss).

[30] Cf. http://www.pioneer.com/CMRoot/Pioneer/biotech/images/genetic_purity.pdf.

[31] E.g. Belgium no. 11; Cyprus no. 20; Czech Republic no. 19 ff.; Denmark no. 37; Estonia no. 9; France no. 15; Hungary no. 10; Ireland no. 3; the Netherlands no. 7, 22; Norway no. 23; Poland no. 13; Slovakia no. 9; Slovenia no. 29; Spain no. 48; United Kingdom no. 46. But see Sweden no. 8 on the absence of a general concept corresponding to *conditio sine qua non*: "The approach of the Swedish courts could probably best be described as pragmatic and the courts seem not to have felt any need for a general theory of causation."

All jurisdictions allow for deviations from that rule in certain special fact settings, for example in cases of multiple possible causes. If the conventional farmer whose crops were contaminated was surrounded by GM farmers who all grew the variant in question, the latter are not off the hook just by claiming that it may have been seeds or pollen from any other GM farmer rather than their own which were transferred to the conventional farmer's field. This may be a case of alternative causation, if it is clear that the GMOs came from only one field, but it cannot be specified which one of several neighbours owned the actual source. More likely in the GMO scenario are cases of concurrent causation, where pollen or seed from all surrounding GM fields were spread onto the conventional farmer's land, but the admixture would have occurred if there had been only one – and no matter which – neighbour who cultivated GM crops. 40

The majority of European legal systems, but not all,[32] provide for joint and several liability of all those GM farmers from whom the admixture may have originated in a way which would trigger liability.[33] In such cases, they are, however, only liable for "hypothetical causation" as their actual share – if any – in bringing about the loss remains uncertain.[34] 41

These cases get more complicated if the GM farmers are only held liable if they have to account for faulty behaviour within their sphere. In contrast to strict liability cases, where it makes no difference why the GM pollen spread from the defendant's onto the conventional farmer's field (though maybe subject to defences),[35] the cause in a fault case that needs to be looked at is the conduct that violates the required standard of care, not the admixture as such, which is only a starting point for establishing causation. 42

If there are additional factors that at least may have contributed to the admixture, but which no-one is to blame for (such as the forces of nature, unusual weather conditions or seed translocation by wild animals), this conflict of possible causes may lead to a different outcome: In most jurisdictions, hazards and other events that cannot be causally linked to someone else who might be liable have to be clearly ruled out as an alternative cause.[36] This all-or-nothing 43

[32] United Kingdom no. 49: If liability at all, it will only be proportionate to the extent of each defendant's contribution to the risk. See also Czech Republic no. 34; Estonia no. 14 (proportional to the probability of causation); Norway no. 26 ff.; Portugal no. 37; Switzerland no. 24 (traditionally no liability, modern doctrine in favour of either proportionate or joint and several liability).

[33] E.g. Austria no. 8–9, 35; Belgium no. 16; Cyprus no. 32; Denmark no. 39; Finland no.13; France no. 20 (though subject to reservations); Germany no. 10; Greece no. 56 ff.; Hungary no. 18–19; Ireland no. 17; Latvia no. 7; Lithuania no. 10; the Netherlands no. 16; Norway no. 9; Slovenia no. 29; Spain no. 53; Switzerland no. 24–25 (for cases of cumulative causation, see also fn. 32). See generally *H. Koziol*, Comparative Report, in: *B. Winiger/H. Koziol/R. Zimmermann/B.A. Koch* (eds.), Digest of European Tort Law I: Essential Cases on Natural Causation (2007, in the following: Digest I) 6a/29 no. 1 ff.; *B.A. Koch*, Comparative Report, Digest I, 7/29 no. 4–5.

[34] See also *J. Spier*, Comparative Conclusions on Causation, in: *J. Spier* (ed.), Unification of Tort Law: Causation (2000) 127.

[35] See infra no. 57 ff.

[36] *H. Koziol*, Comparative Report, in: Digest I (supra fn. 33) 6b/29 no. 3.

approach negates liability of a potential tortfeasor if the likelihood that the cause originated within her sphere is below the required degree of probability.[37] Some jurisdictions are open towards a more balanced approach, however, at least under certain conditions.[38]

44 Even more disagreement can be found in cases of successive events where each would have sufficed to cause the whole loss at stake. If, for example, farmer A starts with GM cultivation before farmer B and admixture occurs while only pollen from field A are spread, jurisdictions are divided whether to proceed only with the case against farmer A, or whether the pollen which originated from field B, though at a later point in time, should also be taken into account, which may lead to joint and several liability of A and B.[39]

(iii) Proof of causation

45 The more complicated cases get, the more crucial it is to determine who has to prove causation. Again, it is generally the claimant who needs to convince the court that all requirements of her claim are met.[40] Nevertheless, there may be exceptions to that standard rule, as can often be seen in the area of environmental liability, for example, and in allowing or denying such exceptions, or by lowering or raising the level of certainty that the claimant's proof has to reach, jurisdictions may significantly influence the outcome of the case, in particular in scenarios such as the ones under survey here.

46 Some jurisdictions require that the evidence brought forward by the claimant needs to establish with almost certainty that her assertions are true.[41] Others are content with a "more likely than not" approach,[42] so if the judge is convinced there is a 51% probability that the facts speak for the claimant, the latter will succeed on the causation issue. These two extremes are not always spelled out in the fact-finder's wording, as evaluating the evidence is in her hands, which leaves a certain degree of flexibility in allotting percentages to the likelihood of the claimant's factual allegations. Some jurisdictions also generally lower the standard of proof in certain cases, for example if the defendant has acted with a qualified degree of fault such as gross negligence or even intent.[43]

47 There are some tools that judges may use in order to effectively help the claimant on the way to prove her case. In cases where the evidence is entirely in

[37] See infra no. 45 ff.
[38] *H. Koziol*, Comparative Report, in: Digest I (fn. 33) 6b/29 no. 4 ff.
[39] *B.A. Koch*, Comparative Report, in: Digest I (fn. 33) 8a/29 no. 2 ff.
[40] E.g. Czech Republic no. 27; Denmark no. 38.
[41] Cf. Austria no. 6; Belgium no. 15 ("very high degree of likelihood"); France no. 16–19 (flexible approach – from certainty to high probability).
[42] Cyprus no. 19; Ireland no. 10; Norway no. 11; United Kingdom no. 49. Cf. Finland no. 11 ("clearly over 50 percent"); Switzerland no. 19. Cf. Sweden no. 11 ("higher than the 'more likely than not' standard, but lower than the 'beyond a reasonable doubt' standard").
[43] E.g. Denmark no. 38. See also Sweden no. 12 (two or more possible causes).

the defendant's hands, for example, some jurisdictions conclude that the latter should bring it forward.[44]

A typical tool to alleviate the burden of proving causation is to acknowledge *prima facie* evidence, which may be the case if some given facts are typically the result of a certain course of events: Even if the latter cannot be proven in all detail, the mere presence of the characteristic result indicates that these events probably have taken place.[45] The defendant can hold against that if she sufficiently raises doubts against that assumption by bringing forward evidence which suggest that another set of facts may also have triggered the same result (though she need not prove that this was in fact the case). *Prima facie* evidence is often acknowledged if a statutory rule has been violated which was designed to prevent a certain loss: If such a loss has indeed occurred and the defendant's conduct was in violation of that provision, the causal link between the one and the other is presumed. 48

If causation is presumed, however, the claimant only needs to prove the requirements for that presumption, which can be rebutted by the defendant if she indeed proves the contrary, whereas raising doubts does not suffice.[46] 49

If the burden of proving causation is shifted entirely onto the defendant, the claimant need not submit any evidence in support of her allegations other than the starting point, i.e. the occurrence of her loss. It is then up to the defendant to prove the absence of a causal link leading into her sphere.[47] 50

(iv) Adequate causation

Even if the claimant has proven that the neighbouring farmer has set a *conditio sine qua non* for the admixture, the latter may still not be liable in tort if the causal connection from a normative perspective is so weak that it could only be established under highly extraordinary circumstances and was not to be reasonably expected. There are various ways to formulate this concept which cushions the most extreme results of the but-for test (remoteness, unforeseeability, indirectness, adequacy, …),[48] but at the end of the day, almost all European jurisdictions (with the exception of Belgium[49]) allow for some limits to avoid unduly harsh results brought about by the affirmative answer to the *conditio sine qua non* test (so-called "legal" or "adequate" causation).[50] 51

[44] See, e.g., the Netherlands no. 13; Spain no. 52.

[45] Austria no. 35; Cyprus no. 24; Germany no. 9, 44; Portugal no. 33. Cf. Greece no. 54; Hungary no. 14; Ireland no. 11.

[46] Austria no. 7, 29; Latvia no 7; the Netherlands no. 14; Poland no. 19; Spain no. 18, 52.

[47] E.g. Norway no. 25 (discretion of the judge). Maltese law "does not envisage any circumstances where there might be a reversal of the burden of proof", however: Malta no. 9.

[48] Cf. *Ch. von Bar* (fn. 18) no. 448 ff.

[49] Belgium no. 11, but see no. 12–13, 32, 45 ff.

[50] *J. Spier* (fn. 34) 130 ff. See, e.g., Cyprus no. 20; Czech Republic no. 22; Estonia no. 9; Finland no. 10; Hungary no. 10 ff.; Ireland no. 5–9; Luxembourg no. 13; the Netherlands no. 8 ff.; Norway no. 24; Poland no. 12 ff.; Portugal no. 28; Spain no. 50. Cf. Sweden no. 8–9 ("necessary and sufficient conditions").

52 If cross-pollination, for example, was completely unusual in a particular case and not to be expected in the eyes of science looking at the actual circumstances, e.g. because of an extraordinary distance between the fields concerned, the owner of the GM field from where the pollen undoubtedly came may be able to avoid liability in tort for lack of "legal" causation, even though she has set a cause in fact. Mere lack of certainty, however, does not suffice per se to successfully escape liability under this heading.

(e) Bases of liability

53 If it is clearly established that a farmer has suffered a compensable loss caused by GM crops that spread from the adjoining land, do we really see enough reason to hold that neighbour liable simply for the fact that she is in charge of the cause? Or do we require some sort of wrongdoing on her side, for example failure to observe mandatory segregation measures? The core of this problem concerns the classic choice between fault and no-fault liability.[51]

(i) Fault

54 Traditional tort law is built upon the notion of remedying a harm that was caused by legally unacceptable behaviour committed by someone who could have adhered to the required standard of conduct, but failed to do so. However, this classic notion of fault is moving away from the ancient perception of individual blameworthiness towards a more objective view which focuses on the average rather than the actual person under the circumstances of the case, though one often has the impression that even an ordinary person could not have come up to the standard that is imposed upon her ex post by the judge. This development is at least supported by the fact that technology has long expanded the individual capabilities of each person to act beyond one's own personal faculties.[52]

55 This is just one indication of a general shift throughout Europe from fault liability towards a more objective duty to compensate the unwanted consequences of one's conduct.[53] The next step along that trail would be a reversal of the burden of proving fault, and many European jurisdictions have already followed that route, some only in cases of professional misconduct, others irrespective of such a limitation.[54] Depending on how far a jurisdiction has already

[51] In the following, the element of wrongfulness will be disregarded even though many European jurisdictions regard this as one additional (and separate) requirement of a tort claim. See generally the overview by *H. Koziol* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Introduction to Chapter 2, no. 2 ff.; and *id*., Conclusions, in: *H. Koziol* (ed.), Unification of Tort Law: Wrongfulness (1998) 129.

[52] Cf. *M. Brülhart* (supra fn. 25) 120.

[53] *P. Widmer* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Introduction to Chapter 4, no. 3. See, e.g., the Dutch report, explaining that "tortious liability is incurred not only in a case of subjective fault, but also in a case of objective 'answerability'" (Netherlands no. 4). See also Spain no. 59; Portugal no. 98.

[54] Bulgaria, Czech Republic no. 12; Estonia no. 11, 17; Finland no. 54; Hungary no. 20; Latvia no. 8; Lithuania no. 11; Slovenia no. 28, 31, 34; Spain no. 59.

moved on that path, it is more or less likely that the claimant will succeed in establishing this essential element of her claim.

56 Almost all countries are in accord, however, that if they have prescribed a certain conduct specifically by law in order to avoid the infliction of harm, any violation thereof will generally per se be considered to be faulty unless the defendant can prove that no reasonable person could have adhered to that standard under the circumstances.[55] Any prescription of certain farming practice with respect to GMOs will be considered to fall under this category of "protective norms" inasmuch as they serve to prevent the adventitious presence of GMOs in conventional crops. So if a GM farmer does not abide by the distance limits or fails to observe other measures foreseen by law, it is up to her to prove that she was not thereby at fault.

(ii) Strict liability

• Strict liability in general

57 In contrast to its fault-centred counterpart that is historically rooted in the idea of personal blameworthiness (though it has long departed from there in the meantime), strict liability overcomes the need to search for an individual behaviour as the trigger for liability. Instead, it is based upon the idea "that responsibility has to be assumed as a counterpart of the privilege to create (and maintain) a situation of increased risk."[56] Strict liability attaches to risks which are triggered by certain objects or activities whose use or pursuance is permitted by law even though their potential for harm is at least presumed. Should the risk materialize, the person who takes advantage of the dangerous object or activity must in exchange for it being admissible compensate any losses that it causes (*cuius commodum, eius et incommoda*).

58 Apart from unavoidable diversity with respect to details, differences within Europe as regards fault liability primarily concern its readiness for deviations from its historic core, without negating the latter as such. When it comes to strict liability, however, even its fundamental acceptance varies throughout Europe. While England, for example, tries to avoid it to the extent possible, foreseeing only rare instances thereof in rather narrow case settings,[57] continental European jurisdictions are much more willing to introduce instances of liability without fault. However, they thereby rely on a piece-meal technique

[55] E.g., Austria no. 39; Belgium no. 6, 21; Denmark no. 40; Luxembourg no. 28; Malta no. 14; Norway no. 31; Portugal no. 22, 101. But see Sweden no. 22–23: The violation of a rule of conduct per se may not be regarded as negligent, but there would be a "very strong case for negligence" if "clearly established statutory rules defining the required conduct for GMO agriculture" had been infringed.

[56] *P. Widmer* (fn. 53) Art. 4:101 no. 2. See *M. Faure/A. Wibisana*, Economic Analysis (supra 538 ff.) no. 17 ff., on economic arguments applying to strict liability.

[57] The same is true for Cyprus: "In the twentieth century the emphasis has been on fault-based liability and strict liability has been generally frowned on by the judiciary." Cyprus no. 42.

of legislating, stumbling from one singular statutory act to the next, rarely ever with any obvious road-map that might support their trail.[58] Very few countries are bold enough to fill the gaps thereby opened:[59] Austrian courts at least cautiously apply existing strict liability statutes by analogy, for example, which is denied by the German or the Swiss courts, despite their affiliation to the same legal family.

59 While some countries already have a more or less general clause of strict liability in their statutes, such as the Italian Art. 2050 Codice civile,[60] France seems to be the only jurisdiction that allows liability irrespective of the defendant's behaviour in a general and generous way via Art. 1384 Code civil, which would also extend to the cases that are of concern in this study.[61] Depending on the wording and interpretation of the respective "default" rule of strict liability in those jurisdictions which have enacted one, it remains to be seen whether courts are willing to consider GM farming as a dangerous activity within the meaning of these provisions so that it would trigger strict liability.[62] This is yet another indication that even in civil law countries judges in fact have quite considerable power to shape the practice of tort law, which is often underrated in the discussion about GMO liability that so far seems to focus on legislative acts primarily.

60 Not only do the kinds of risks covered by strict liabilities in Europe vary from country to country, the regimes as such are also framed quite differently: Some allow defences rather generously, others are quite restrictive. Some traditionally limit the amount of damages available under strict liability, other jurisdictions avoid such caps.[63]

61 While fault liability is the default rule in all tort laws, strict liabilities are always the exception thereto.[64] When comparing the legal systems, the question

[58] A comparative overview of existing strict liabilities is given by *B.A. Koch/H. Koziol*, Comparative Conclusions, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 395.

[59] See, e.g., Sweden no. 4: "[I]n Swedish tort law there has been a considerable reluctance to establish strict liability regimes in the absence of legislation."

[60] See also Hungary no. 26 ff. and the debate in the Czech Republic no. 15.

[61] France no. 24, but see Belgium no. 27–29 (where the same wording of the Code leads to the opposite outcome since Belgian courts did not follow their French peers in their broad interpretation of Art. 1384).

[62] See, e.g., Estonia no. 20; Hungary no. 26–28; Italy no. 20; Luxembourg no. 31; Slovenia no. 10. Cf. Portugal no. 11, 15.
This only applies to countries which either have a broader concept of strict liability embodied in their legislation (such as a general clause) or are at least more open towards expansion by analogy. Others will be more reluctant (to say the least) to allow an inclusion of GMO risks if these are not addressed specifically by express legislation. Consequently, for example, "it seems unlikely that a Swedish court would establish a strict liability regime for GMOs without any clear guidelines from the legislator" (Sweden no. 4).

[63] See *B.A. Koch/H. Koziol* (fn. 58) no. 109 ff. and infra no. 87.

[64] This does not mean, however, that the two bases of liability are of different weight: Cf. *P. Widmer* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 4:101 no. 6.

can therefore be reduced to whether or not a jurisdiction has introduced such a special compensation regime covering the risks under survey.[65]

- Strict product liability in particular

A special branch of tort law which may be considered in this context is product liability. However, the various solutions to implement Directive 85/374/EEC[66] into the Member States' laws as such do not cover the kinds of cases that are of concern to this study.[67] 62

To begin with, seeds or pollen flying around are not "defects" of the GM crops – this is simply a natural feature thereof which has nothing to do with the special genetically modified quality.[68] Therefore, the only imaginable varieties of "defects" within the meaning of the Directive may be inadequate instructions or warnings by the seed producer, e.g. about the GM qualities or the necessary precautions when using the seeds. 63

However, even if all the other requirements of the Directive were met, the narrow definition of what kind of losses are compensable under its regime clearly preclude liability thereunder: Apart from the fact that pure economic loss is not recoverable at all, even consequential losses following property damage are not covered unless they are sustained by a consumer.[69] Art. 9 of the Directive defines damage other than personal injury as: 64

> "(b) damage to, or destruction of, any item of property other than the defective product itself, with a lower threshold of 500 ECU, provided that the item of property:
> (i) is of a type ordinarily intended for private use or consumption, and
> (ii) was used by the injured person mainly for his own private use or consumption. …"

This narrows the scope of the laws implementing the Directive to fields cultivated by individuals for non-commercial use and to the loss of those private landowners, which is beyond the scope of this study. 65

[65] See infra II.2. Turkey is also considering to introduce a strict liability regime in its Law on Biosafety.

[66] Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, [1985] OJ L 210/29, as amended by Directive 1999/34/EC, [1999] OJ L 141/20.

[67] Cf. Belgium no. 26. See also *Ch. von Bar* (fn. 18) no. 276. On the scope of product liability in other GMO scenarios, see *I. Wildhaber*, Produkthaftung im Gentechnikrecht (2000), in particular 167 ff. on the German statute implementing the Directive.

[68] Once gene-containment techniques have progressed so far that gene flow is under full control in a new generation of GM crops (e.g. the so-called "terminator genes"), the occurrence of cross-pollination despite such intended features would of course indicate a defect in the particular seed within the meaning of the Directive's regime. On the various techniques see *H. Daniell* (fn. 2) 581.

[69] Belgium no. 39.

66 One may of course argue that national legislators could have expanded the scope of product liability beyond the boundaries of the Directive to include also losses caused to producers such as farmers. However, in light of recent ECJ case law,[70] one is inclined to think that such extensions are not permissible, since the Court emphasised not only the desire of the Directive to protect consumers, but the intended side effect to equally clarify the scope of product liability for producers, who should fall under a uniform standard of product liability throughout the market, and that goal would be clearly shattered if they were liable for business losses in one Member State but not the other.[71] If the prime concerns of the ECJ are consumer claims only, however, which would correspond to the genesis of the Directive, more stringent rules with respect to losses might not be ruled out by the said case law. If so, the existing product liability practice throughout Europe which presently has no problems to award compensation also in a B2B setting could survive the scrutiny of the ECJ.[72]

(iii) Nuisance, trespass and its civil law counterparts

67 Almost all legal systems[73] seem particularly concerned about possible disputes between neighbours, inasmuch as all offer at least some form of special remedy irrespective of fault in cases where some harmful influence originated on the adjoining land. Instead of reproach for some wrongdoing, the underlying motive is rather to find a compromise between two conflicting interests which per se are of the same value: Both landowners have the identical right to enjoy their property, but exercising that right particularly along boundaries may infringe upon the corresponding right of the neighbour (who typically need not be on a contiguous piece of land, but at least within reach of the interference[74]). At least with respect to this theoretical basis, the solutions found to solve neighbourhood conflicts seem to be an ideal starting point to develop co-existence rules in other, more specific areas, such as the problems we are concerned with here. However, the common grounds shall not obscure the fact that the rules developed by the Member States to govern neighbourhood conflicts show quite some differences, not only in detail.[75]

68 Already the theories under which such problems are tackled vary: For the majority of European jurisdictions, this belongs to (or at least originated within

[70] *González Sánchez v. Medicina Asturiana SA*, ECJ 25 April 2002, C-183/00, [2002] ECR I-3901.

[71] *H. Fitz/A. Grau/P. Reindl*, Produkthaftungsgesetz (2nd ed. 2004) § 2 no. 2.

[72] This may be supported by the Court's ruling in *EC Commission v. French Republic*, ECJ 25.4.2002 C-52/00, [2002] ECR I-3827: France had implemented Art. 9(b) in Art. 1386-2 *Code civil* by providing that product liability shall only extend to "damage resulting from injury to persons or property other than the defective product itself", thereby disregarding both the private use or consumption requirement and the threshold of € 500. Only the latter was disapproved of by the ECJ, whereas the former was not addressed at all. This impression is supported by the Court's emphasis on consumer protection (rather than a more general reference to victims of product defects) in par. 17.

[73] But see Latvia no. 10; Lithuania no. 15.

[74] See, e.g., Austria no. 27; Belgium no. 32; Greece no. 67; Poland no. 89; Switzerland no. 15.

[75] See, e.g., *Ch. von Bar*, The Common European Law of Torts I (1998) no. 535 ff., 545 ff.

the realm of) property law, as the focus is on the bilateral conflict of exercising real property rights, while common law offers special torts for cases of such kind, thereby focusing on the violation of the victim's rights.[76]

69 One key aspect common to all jurisdictions in such cases, however, is that they tend not to focus so much on the question whether the behaviour of which the neighbour complains is faulty,[77] but whether it is unusual in the area (even though it may be common in other places), which is a highly objective standard, of course. Producing substantial noise, for example, may be abnormal in a quiet residential neighbourhood, but not so in a zone with heavy industry.[78] This test overlaps with the question whether the defendant's behaviour was unreasonable as between neighbours under the circumstances, which also includes a duty to tolerate minor disturbances.[79] It will therefore be of considerable influence on the outcome of GMO cases whether this technology is still entirely new and rarely practiced (which is currently true for almost all European countries)[80] or whether it has turned into a widespread agricultural practice, with conventional and GM farming occupying comparable fractions of the land.[81] If GM crops should ever exceed their conventional predecessors in any given area, tables may even turn and the GM farmer might then have a claim against the conventional farmer if the former's yield is reduced due to admixture with traditional crops that lack the special resistance or other qualities of the GM variant.[82]

70 Another decisive factor may be whether the neighbour aimed something onto the neighbouring ground,[83] or whether it either spread there accidentally (though maybe unavoidably) or did not pass the borderline at all, but still had a negative influence on the enjoyment of the adjoining land.[84] In the GMO scenario, the former would be true if the GM farmer poured a packet of seeds onto neighbouring grounds, whereas the latter is the case if admixture occurs by natural seed or pollen drift.

[76] *Ch. von Bar* (fn. 75) no. 533, 536. As to private nuisance, see Cyprus no. 57 ff.; United Kingdom no. 41–42. In Finland, the idea of liability for nuisances has obviously been shifted into the more general concept of environmental liability; see Finland no. 56 and infra II.2(b).

[77] E.g. Austria no. 28; Belgium no. 30 ("does not require the existence of fault"); France no. 25; Luxembourg no. 34; Portugal no. 17, 106. Cf. *W.V.H. Rogers*, England, in: *B.A. Koch/H. Koziol* (eds.), Unification of Tort Law: Strict Liability (2002) 101 (no. 29): "Nuisance is the law of give and take … and the issue is 'reasonableness' rather than 'reasonable care'." However see the Netherlands no. 32, where liability depends upon a wrongful act by the neighbour.

[78] See, e.g., Belgium no. 33; Ireland no. 26 ff.

[79] *Ch. von Bar* (fn. 75) no. 534. Cf. Estonia no. 53; Finland no. 17; Germany no. 4, 36 ff.; Ireland no. 30; Luxembourg no. 34; Norway no. 34; Slovenia no. 37–38; Spain no. 62 ff. (on the various systems in the Spanish autonomous regions); Switzerland no. 15.

[80] Cf. Ireland no. 28.

[81] Cf. e.g. Austria no. 4; Denmark no. 44.

[82] Cf. Spain no. 66: Conventional farmers already may have a hard time pursuing all claims based upon nuisance in light of the widespread GMO cultivation.

[83] Cf. § 906 par. 3 BGB (infra 685); Estonia no. 53.

[84] Under common law, the former would qualify as trespass to land, if the defendant did so intentionally, whereas the latter varieties could only be actionable as a nuisance. United Kingdom no. 56.

71 Not only can neighbours claim compensation under these concepts,[85] but they may also ask for an injunction on the contested conduct or other disturbance on adjoining land subject to further (more restrictive) conditions, including in particular a significant likelihood that the inconvenience will be prolonged or repeated.[86]

72 A special variety of these problems arises if the defendant's activity on or other use of her land was in some way specifically authorized. Even though the right to an injunction may be excluded, compensation may still be due, in particular if the concerns of the affected neighbours were not considered adequately when the permit was issued.[87] While statutory authority "is of major significance in connection with nuisance and related areas,"[88] its impact is from a slightly different angle: Whereas authorized activities on land will typically exclude liability of the landowner, the latter will still have to compensate her neighbours either if the statute explicitly leaves the question of nuisance open or if a permit or other authorization does not amount to statutory authority.[89]

(f) Defences

73 Even if the requirements of a claim in tort law are fulfilled, the claimant may still be left empty-handed or face a reduction of the amount of damages that she would otherwise be awarded if and to the extent that one or more of the legally acknowledged defences come into play in her case.

(i) Human intervention

74 The classic defences are linked to the range of identified causes and consider whether and to what extent another event than the one traced to the defendant played a role in bringing about the loss. The behaviour of third parties is as equally relevant as the conduct of the claimant herself, as is some outside influence such as the forces of nature.[90]

- Third-party conduct

75 Unless superseding the cause within the defendant's sphere, the behaviour of third parties has no influence on a fault-based action from the claimant's perspective as long as all (then) multiple tortfeasors are jointly and severally

[85] One exception is Hungary (no. 29) where the concept is not coupled with compensation rules, so that damage can only be claimed on the basis of general tort law.
[86] See, e.g., Austria no. 23; Estonia no. 53; Ireland no. 57–59; Italy no. 29; Portugal no. 104; United Kingdom no. 41.
[87] Austria no. 28; Denmark no. 44; France no. 25; Germany no. 37 and § 906 par. 1 and 2 BGB (infra 685).
[88] *W.V.H. Rogers* (fn. 77) no. 50.
[89] *W.V.H. Rogers* (fn. 77) no. 50–51. Cf. Ireland no. 34.
[90] United Kingdom no. 51. On the notion of an "unavoidable event" in the Czech Republic see Czech Republic no. 45.

liable: The defendant as one of them will still have to indemnify the claimant to the extent she is liable, even though she may be able to seek recourse from these third parties. If the claim against the defendant is not based upon fault, but rather on strict liability, however, faulty behaviour of third parties may reduce or exclude the defendant's liability: The lower the risk or the less characteristic the harm caused is for the dangerous object or activity, the more likely third-party influence will be considered in favour of the defendant as at least a buffer against her strict liability.

- Contributory causes within the claimant's sphere

76 This is equally true for contributory causes within the claimant's own sphere, in particular for her personal behaviour that played a significant role in bringing about her own loss.[91] A non-GM farmer will typically not be able to shift her loss onto neighbouring GM farmers if it was herself who caused the admixture, e.g. by the improper handling of seeds, but also if these are impure (which may lead to a successful claim against the seed distributor or producer, though). However, not all jurisdictions are equally ready to exculpate a defendant if the blame falling upon the claimant herself does not reach a certain minimum gravity.[92]

77 Along the same lines, all jurisdictions require the claimant to mitigate her loss to the extent reasonable, so she may, for example, not proceed with destroying her crops upon discovering admixture if she could have sold them on the GM market.[93] Also, the contaminated crop may still be used as feed on her own farm without an ensuing need to label the animal products as GM, which may reduce her actual loss.[94]

78 Another universally accepted[95] argument that can reduce or even eliminate the defendant's liability is the claimant's assumption of the risk. If the latter knew or should have known of the potential harm originating from the defendant's sphere, but nevertheless actively exposed herself to it, she can not subsequently build her claim upon the fact that this risk materialized. However, this defence will probably not affect the claim of a farmer who starts to grow non-GM crops which are subsequently contaminated, even if she knew from the start that all her neighbours have opted for GM cultivation: The latter will either only be liable for failure to abide by the applicable co-existence rules, which – even if adhered to – can certainly not eliminate the free choice by neighbours, or they will be strictly liable, in which case their neighbour's decision to start

[91] E.g. Austria no. 48; Belgium no. 38.
[92] *Ch. von Bar* (fn. 18) no. 521 ff., also pointing to other European exceptions from the general rule that contributory conduct is to be considered. See, e.g., Poland no. 3 (only exclusive fault of the victim accepted as valid defence); Portugal no. 40.
[93] See, e.g., Cyprus no. 100; Denmark no. 49; Finland no. 18; Ireland no. 51, 56; Switzerland no. 52; United Kingdom no. 61.
[94] DEFRA Consultation Paper (infra 720 ff.) no. 144.
[95] *Ch. von Bar* (fn. 18) no. 512.

with conventional farming will even less likely be considered as a voluntary exposure to the risk of cross-pollination or the like. This outcome may alter, however, if the GM cultivation was preceded by some contractual arrangement between the owners of adjoining land, if the segregation rules vary depending upon the type of land use in the vicinity, or if the claimant had previously grown GM crops herself.[96]

(ii) Force majeure

79 Force majeure or "acts of God"[97] are commonly cited as standard defences in cases of strict liability and come into play even in high-risk scenarios (though not undisputedly, at least with respect to core risks for which the liability regime was designed)[98]. It is at least doubtful, however, whether the forces of nature such as the wind should invariably trigger this defence in GMO cases: If a jurisdiction should decide to award compensation to a neighbouring farmer to whose fields GM seeds were blown, it seems less convincing to reduce her claim simply because it was the wind that transported the seeds, which lies in their very nature. If the wind was so strong, however, that it transferred the seed beyond a distance to be expected under normal weather conditions, the concerns just mentioned may be less compelling, so that the defence may come into play again.

(iii) Lawful authority

80 The defendant's behaviour may be justified if she can prove that she has acted within the scope of some lawful authority or statutory permission.[99] While jurisdictions are not in full accord as to the scope of that defence,[100] it may operate either as such or will at least be considered when defining the appropriate standard of care that the defendant should have adhered to.[101] Unless a coun-

[96] Depending upon the crop, she may have a hard time, however, proving that the contamination on her field was not caused by volunteer seeds remaining in her soil; cf. supra no. 1.

[97] Note the differences in terminology: *B.A. Koch/H. Koziol* (fn. 58) no. 109. See also *Ch. von Bar* (fn. 18) no. 318 ff. Cf. Finland no. 16 and Sweden no. 27 (these defences are probably not applicable in the context of strict liability under the Environmental Code). See further *M. Faure/A. Wibisana*, Economic Analysis (supra 542) no. 26 ff., on an economic assessment of this defence.

[98] Cf. *B.A. Koch* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 7:102 no. 1, 5–6. They are of course equally considered in fault cases, though rather as part of the evaluation of the defendant's conduct. But see e.g. Belgium no. 17–18 (force majeure is only a defence if it was the exclusive cause).

[99] *B.A. Koch* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 7:101 no. 17 with further references. See, e.g., Malta no. 16; Portugal no. 41 ff.; Sweden no. 27 (though not a defence but rather a limitation of liability); United Kingdom no. 31. This defence is not acknowledged in Hungary (Hungary no. 24) and Poland (Poland no. 3, 20). See also the doubts raised by the economic analysis by *M. Faure/A. Wibisana*, Economic Analysis (supra 551 ff.) no. 53–54.

[100] See section 3.2.4 on grounds of justification in *W. van Gerven et al.* (eds.), Tort Law (2000), this section available online at http://www.casebooks.eu/download/tort/heading3.2.4.A.pdf (352/3 ff.).

[101] Cf. United Kingdom no. 38. See also DEFRA Consultation Paper (infra 720 ff.) no. 159, where the approval of GMOs is seen as a possible hindrance already with respect to recognizing

try has not coupled its provisions on ascertaining co-existence with duties to compensate losses even irrespective of fault, a farmer therefore has a strong argument against liability if she fully adhered to all the formalities and requirements prescribed by such rules.[102]

(iv) Development risk

Another defence primarily cited in the context of strict liability (in particular strict product liability[103]), but in essence originating within the realm of fault liability,[104] is the development risk (or state-of-the-art) defence.[105] It is built upon the state of scientific and technical knowledge at the time of the activity which is subsequently evaluated as possibly giving rise to liability. 81

The core of the defence merely argues that science and technology did not offer appropriate means to discover, let alone avoid a certain risk at the time of the conduct under scrutiny which later turned out to be harmful. The defence is often expanded (whether permissibly or not) to the broader claim that the risk was unknown or unheard of (even though this is not synonymous with the objective possibility of discovering it, since this may well be feasible, but due to lack of imagination or concern at the time, no-one takes care to investigate it). 82

The precautionary principle[106] goes the other way and effectively speaks against admitting this defence:[107] If precaution shall be taken as soon as there 83

admixture as compensable harm: "A GM crop will only be grown commercially if it passes the legal risk assessment process, so it may be a contradiction to treat as a form of damage the presence of a legally-approved GMO."

[102] This is in line with the Opinion of the European Economic and Social Committee (EESC) on the 'Co-existence between genetically modified crops, and conventional and organic crops', [2005] OJ C 157/29, 3.6.3: "The fact that a GMO is authorised for release within the Community will, generally speaking, rule out the conditions for negligence or intent, unless specific conditions for release were breached." Cf. Art. 8 par. 4 lit. a of the Environmental Liability Directive. But see e.g. Belgium no. 23: "[A] licence to cultivate GMO would not exempt its holder from his duty of care nor from his duty to comply with the legal and administrative rules, as well as from his duty not to inflict on others a disorder that exceeds the extent of the normal disadvantages of vicinity …".

[103] See Art. 7 lit. e of the Product Liability Directive (85/374/EEC): Belgium no. 26; Estonia no. 21; Greece no. 13; Malta no. 20; Portugal no. 21.

[104] Cf., e.g., the *Cambridge Water* case cited by the English report (United Kingdom no. 31).

[105] See the economic perspective on this defence by *M. Faure/A. Wibisana*, Economic Analysis (supra 542 ff.) no. 29 ff.

[106] For anecdotal reference, please note the definition of the precautionary principle used by the U.S. government (http://www.usembassy.at/en/us/glossary.htm): "A term used in Europe (by the EU member states, the Commission, and governments aspiring to join the EU) which has been rejected by virtually *[sic]* all other governments. While many governments apply precautionary approaches in a variety of contexts (e.g. food safety, animal and plant health, the environment, etc.), the EU's precautionary principle provides that politicians can over-rule science-based decisions of regulators. …" For a more serious approach, see the Communication from the Commission on the Precautionary Principle, COM (2000) 1 (http://ec.europa.eu/environment/docum/20001_en.htm).

[107] Greece no. 18.

are reasonable grounds for concern of future harm connected to a certain activity, even though this fear can neither be verified nor falsified with the scientific evidence available at the time, conducting that activity nevertheless will always be considered in violation of that principle despite contemporary scientific or technological inability to detect the risk or to prevent ensuing harm, though obviously only if its prevention corresponds to the chosen level of protection.[108]

84 Interestingly,[109] the Environmental Liability Directive allows the Member States to deny liability of the operator if the latter successfully raises the development risk defence (Art. 8 par. 4 lit. b). In current legislation dealing with the risks of GMOs, however, the defence is often expressly excluded.[110]

(v) Time limitation

85 An important bar to recovery is the expiration of a certain time period between the occurrence of the loss and the filing of an action. While it may be the "morally weakest defence,"[111] it is generally accepted throughout Europe without exceptions. Jurisdictions are, however, divided with respect to the length of that period,[112] as well as to its starting point (focusing either on the occurrence of the damaging event or on its harmful effects, whether or not coupled with actual or imputed knowledge thereof by the victim).[113] Further differences include the additional qualification of whether there is any overall limit irrespective of such subjective elements as knowledge of the damage or of the tortfeasor.

(g) Remedies

(i) Damages

86 Generally speaking, all jurisdictions subscribe to the overall aim of full compensation.[114] However, this has to be seen in the light of the initial question of what these systems consider to be compensable in the first place: To the extent they recognize a certain interest as worthy of indemnification, its full (ascertainable) value will be added to the tortfeasor's ultimate bill. However, losses that are excluded from the start will never make it to the remedies stage.[115]

[108] There is an obvious link to the previous defence (no. 80): If the statutory authority backing up the activity at the time was based upon a risk assessment which in itself applied the precautionary principle, the defence may be valid.
[109] On the critical responses to this legislative choice, see only Spain no. 13 (at fn. 30).
[110] Germany no. 7; Switzerland no. 33.
[111] *Ch. von Bar* (fn. 18) no. 545.
[112] See the overview by *Ch. von Bar* (fn. 18) no. 547.
[113] *Ch. von Bar* (fn. 18) no. 549 ff.
[114] E.g. Cyprus no. 80; Czech Republic no. 68; Denmark no. 45; France no. 30; Hungary no. 12, 30; Lithuania no. 23; Malta no. 21; the Netherlands no. 40; Poland no. 32; Spain no. 68, 74.
[115] Cf. *U. Magnus* in: *European Group on Tort Law*, Principles of European Tort Law (2005) Art. 10:101 no. 7.

The type and extent of compensation for a recognized loss, however, is therefore probably less controversial once the case has reached that final question, but there may be limits to the amounts available: A few jurisdictions couple the introduction of strict liabilities with caps on damages recoverable under these regimes, which at least initially were aimed at striking a balance between the interests involved. Some (like Austria) have given up such limitations in more recent pieces of legislation, while probably the majority of countries only considered introducing a maximum limit if foreseen by an international treaty.[116] 87

(ii) Ad hoc mitigation of damages

Some jurisdictions foresee a rule of "last resort" for the defendant which allows a reduction of the award against her at the discretion of the judge in case of extraordinary and overly burdensome and oppressive circumstances that speak in the defendant's favour. While several civil codes include such an ad hoc mitigation rule, not all jurisdictions actually apply it in court practice.[117] 88

(iii) Other remedies

Apart from monetary awards, it is important to know whether the system allows for injunctive relief, i.e. a tool to ban GM production in advance simply for the fear of admixture that may cause loss in the future, particularly if it has happened before.[118] 89

(h) Interdependencies between the various liability regimes

If a jurisdiction has decided to introduce some stricter form of liability that applies to the cases of our concern, the question remains whether this is meant to offer the victim exclusive remedies, or if she can still resort to traditional tort law (i.e. fault liability) alternatively or even cumulatively – while no legal system would allow her to recover twice, she may at least be allowed to seek indemnification for part of her loss under a fault theory to the extent it is not recoverable under the strict liability regime. 90

Typically, fault or any other general provisions of tort law are not superseded by strict liability rules altogether. While the latter do apply as *leges speciales*, they hardly ever rule out the alternative path via traditional tort law, apart from the fact that they by default tend to leave certain aspects of their claims to be governed by the general rules. 91

[116] *B.A. Koch/H. Koziol* (fn. 58) no. 139.

[117] Czech Republic no. 78 ff.; Estonia no. 31, 38; Finland no. 38; Hungary no. 40 ("not actually applied"); Lithuania no. 26; the Netherlands no. 41–42 ("hardly ever used"); Norway no. 43; Poland no. 92; Portugal no. 120 (only applicable in cases of fault liability); Sweden no. 42; Switzerland no. 54.

[118] See no. 71.

92 All jurisdictions which have provided for special rules that apply to GMO admixture leave the door open to alternative routes that their general tort law regime may provide, including special rules of a more general scope which may apply, but of course also classic fault liability, the latter though subject to its typically much narrower conditions.[119]

(i) Possible other defendants than the GM farmers

(i) Overview

93 In a typical tort law scenario, the farmer whose crops were adversely affected might sue her neighbour(s) from whose farm(s) the GM crops came (at least as suspected), and this is what we have primarily looked at till now. We have thereby not differentiated between the "neighbour" in the sense of the owner of the adjoining land on the one hand and the farmer who cultivates that land on the other, even though these may be different persons, e.g. if the latter is a tenant of the former.[120] This difference may have an impact on identifying the proper defendant in some jurisdictions.[121] In a classic fault-based cause of action, the latter may not be liable for wrongdoing by the tenant farmer since the respective theories of vicarious liability may not provide for a sufficient link between the two.

94 But even if we disregard this potential split of identities on the land from where the GMOs originated, the theories mentioned above also apply to further potential tortfeasors correspondingly.

95 "Anyone involved in the production or handling of GMOs is a potentially liable party when losses occur."[122] One possible alternative defendant, amongst others, could be the seed producer.[123] Also the authority that regulates (and authorizes) the release of GMOs may be targeted, particularly if it later turns out that there were flaws in the legislative or licensing procedure. Depending on the circumstances, further players may be involved, such as the farmers' cooperative from where the claimant borrowed machinery which was not cleaned properly.

96 This does not necessarily mean, however, that those listed will always be subject to liability, quite the contrary: As a rule of thumb, one might say that the farther away from the actual incident on the chain of causation, the less likely someone is to be held liable in (classic) tort law. In any case, the reasons estab-

[119] See, e.g., Austria no. 12; Denmark no. 35; Norway no. 17; Portugal no. 49 ff.

[120] Cf. *I. Glas*, Die Haftungs der Landwirtschaft im Kontext des Pachtrechts und Gesellschaftsrechts im Rahmen des Gentechnikrechts, in: *Ch. Gallies/I. Härtel/B. Veit* (eds.), Neue Haftungsrisiken in der Landwirtschaft: Gentechnik, Lebensmittel- und Futtermittelrecht, Umweltschadensrecht (2007) 141 ff.

[121] United Kingdom no. 42.

[122] *M. Davenport*, Genetically Modified Plants and Foods – Brave New World or Brand New Headache for Insurers? 35 [2006] The Brief 56, 61.

[123] Cf., e.g., the statement by a GM seed producer that full seed purity cannot be achieved: http://www.pioneer.com/CMRoot/Pioneer/biotech/images/management.pdf.

lished by tort law to shift the loss of the claimant at least in part to any given defendant need to be fulfilled.

From a policy perspective, several standard points are commonly cited when arguing why an individual along the chain of causation is selected as a potential defendant in tort. These include aspects like: 97

- knowledge of the risk
- profit or some other benefit from the risk
- control of the risk
- ability to prevent the risk from materializing, in particular to bear the costs necessary for such measures
- capability to cover against potential losses in the future.

Depending on the circumstances, the interplay of these factors may vary, and they may be complemented by further arguments. Even though it may appear at first sight that the list only includes pointers into the defendant GM farmer's zone, this is not the case: It may well be, for example, that the defendant was completely unaware of the special risk that her activities posed vis-à-vis her neighbour. In a fault case, it may therefore be of relevance whether the GM farmer knew that her neighbour had switched back to non-GM agriculture after years of using GM seeds as well, which will affect the width of the buffer zones and other precautionary measures. When looking at the latter, at least some of the necessary investments and efforts may be too costly for the GM farmer in relation to the risk or in comparison to the corresponding duties of her neighbours to protect themselves, which are never zero. 98

From the viewpoint of economic analysis, the costs of expanding the buffer zone beyond reasonable or statutory limits (which are marked, for example, by the reduced economic performance of conventional crops that the GM farmer may typically grow in that zone) may exceed the risk of admixture on the adjoining land (which not only takes into account the potential economic loss to the neighbour, but also its likelihood). 99

The overall idea is of course to search for the best way to spread the loss of the individual victim, but this presupposes that there are convincing arguments to shift that loss to others in the first place. 100

(ii) The seed producers in particular

Only one group of possible defendants will be singled out in this survey since applying the above-mentioned list of factors strongly points in their direction, which may even support a channelling of liability upon them:[124] the seed producers[125]. 101

[124] On channelling liability, see infra no. 113.

[125] For the sake of simplicity, this term is used to denominate all operators who develop and/or market GM seeds, whether immediate producers, secondary breeders, or similar members of the seed industry.

102 Unless the cause of action is based upon the fault of the party who triggered the immediate cause of the loss, causal uncertainties if several farmers in the neighbourhood grow GM crops could be circumvented by redirecting the victim's claims against the seed producer – after all, as long as the GMOs can be identified, they may also be traced to a particular producer. This advantage on the causation level also extends to cases where the admixture may have occurred by commingling with remnants in farming equipment – the GMOs, again, arrived there through the distribution chain originating from the seed producer: Even though the latter of course did not place her seeds there, the one who did was one of her customers, and the risk of not being able to identify which one of them it actually was could be absorbed by the distributor from whom the consignment causing the loss originated. This presupposes that the seed producer can in turn spread this risk upon all her customers via the price mechanism.

103 If the theory on which liability is based does not depend upon faulty behaviour within the GM farmer's sphere, incentives to ensure good farming practice are inevitably reduced, which in turn reduces concerns to keep the GM farmer high in the list of priority defendants.

104 A cost-benefit-argument harps on the tunes of *cuius commodum, eius et incommoda*: The seed producers have not started biotechnology for Samaritan purposes, but for profit, which they derive from customers who in turn expose their neighbours to the risk of admixture. If the loss is channelled onto the seed producers, the GM farmers are not entirely off the hook since they will ultimately contribute to these extra expenditures at the seed producers' level since the latter will inevitably pass these costs onto their customers via the price mechanism.

105 Seed producers in North America already try to ensure that they collect the full benefit from their investment by suing conventional or organic farmers on whose fields GM traces have been found for fees, even if it is assumed that these farmers have not contributed in any way to this admixture.[126] If the seed producers thereby volunteer to extend their profit range to third parties, it seems logical and fair to use exactly the same line of causation in the reverse direction as well.

106 Further support can be drawn from a larger perspective: If all the effects, both profits and losses, are centred in the hands of the seed producers, they have ample incentives to expand the margin between the two e.g. by monitoring the production line, by ensuring that their customers are properly instructed on how to use their seeds,[127] and ultimately by continuing research on their

[126] See, e.g., http://www.percyschmeiser.com on the famous Canadian case of *Monsanto v. Schmeiser*.

[127] DEFRA Consultation Paper (infra 720 ff.) no. 156: "Making GM seed companies responsible would give them a clear incentive to ensure an effective coexistence regime."

products, also with respect to potential detrimental effects that have not been discovered before.[128]

The seed producers might not necessarily oppose the channelling as such – Monsanto, for example, participates in an innovative compensation scheme practiced in Germany which has the same effect – ensuring compensation to conventional and organic farmers, while at the same time GM farmers are relieved of the threat of potential individual or collective liability.[129] Furthermore, the industry is already on alert since the StarLink fiasco, when GM maize by Aventis CropScience (now owned by Bayer) found its way into the food production chain despite lack of approval for human consumption. Aventis ultimately had to pay a US$ 110 million settlement,[130] which made insurers, among others, nervous. 107

If seed producers assumed the risk of unwanted crop spreading, they could thereby convince more and more farmers to switch to GM agriculture, who would consequently leave the group of possible claimants for the losses under survey here. 108

(j) Problems of aggregation

(i) Multiple tortfeasors[131]

If more than one tortfeasor may be liable for the same loss[132], any legal system will have to decide how to apportion the risk among these parties. The ultimate solution is not hard to imagine: Ideally, all those responsible for a loss should contribute to indemnifying it according to their respective share in causing the harm. Very often, however, this portion will be hard to determine, and even if a certain weighing may be possible, an exact percentage figure will be difficult to calculate. Jurisdictions typically cut that Gordian knot by holding all those liable for equal shares whose exact degree of participation cannot be determined, the latter of course being dependent upon the respective laws of evidence and other procedural factors. 109

A necessary follow-up question then is whether to allow the victim to pick just one of the many possible defendants who will have to indemnify her in full, though with an obvious right to go after the other tortfeasors for contribution. 110

[128] Cf. DEFRA Consultation Paper (infra 720 ff.) no. 156.

[129] See infra no. 109 ff.

[130] A court decision in this case before settlement was *In re StarLink Corn Prods. Liab. Litig.,* 212 F. Supp. 2d 828 (N.D. Ill. 2002). The details of the settlement are described at http://www.starlinkcorn.com/Claims/Documents/34800Starlink1232qxd.doc.

[131] See generally (and with much more detail) *W.V.H. Rogers*, Comparative Report on Multiple Tortfeasors, in: *W.V.H. Rogers* (ed.), Unification of Tort Law: Multiple Tortfeasors (2004) 271.

[132] Obviously, if each tortfeasor only has to account for one particular part of the overall loss which can be clearly distinguished from the rest, the issues in the following do not arise. See *W.V.H. Rogers* (fn. 131) no. 12–14.

Alternatively, the victim will have to sue each of the tortfeasors individually, so she will only collect a respective portion from each of them (and bear the additional risk that she may not be able to bring one of them before a court of law or succeed there for reasons particularly associated with that individual defendant).

111 The key question underlying that choice is who shall bear the risk of insolvency of one or more of the defendants. In a victim-friendly climate, obviously the first solution is the best, as the risk of not being able to collect damages from one of the tortfeasors is passed on to their "colleagues" who will fail to receive reimbursement of the part of the loss which they paid to the victim on behalf of the (now insolvent) other tortfeasor. Alternatively, one could argue that fairness demands alternative two, particularly in a fact setting where the multiple tortfeasors are joined because of uncertainties as to which of them really did participate in causing the loss, in which case at least one of them may be held liable even though she in fact did not (or not to that degree) cause the loss.

112 Jurisdictions are in accord that generally multiple tortfeasors should be jointly and severally liable[133], so they decide in favour of the victim and let her pick and choose a defendant who will then have to compensate her in full, coupled with a right of recourse against the others.[134] The alternative solution of proportionate liability is only an option if the respective shares in causing the loss can be identified.

113 A different approach could be taken if a legal system should decide ex ante that one of the actors should be at the primary focus of compensation claims, so that liability should be channelled to this tortfeasor either primarily or to the exclusion of more remotely connected parties.[135] This is not necessarily to the advantage of the victim: Claims against others may be precluded altogether.[136] Still, singling out one of many possible defendants may be supported, for example, by the assumption that her influence on the chain of causation in a standard case will often be stronger than that of others, that she was in a better position to prevent the loss, or that she can more easily spread the risk internally between all those involved. In particular, not only will she probably be in a better position to obtain insurance cover, but she can also typically pass those costs on to other parties involved (including the ultimate victims).[137]

[133] On the terminology, see *W.V.H. Rogers* (fn. 131) no. 3.

[134] *W.V.H. Rogers* (fn. 131) no. 4 ("remarkable uniformity"); see also Austria no. 36–37; Cyprus no. 32; Czech Republic no. 36; Estonia no. 13; Finland no. 13; France no. 20; Germany no. 10; Greece no. 56 ff.; Hungary no. 18–19; Ireland no. 18; Latvia no. 7; Malta no. 13; the Netherlands no. 15; Poland no. 24, 74–76; Portugal no. 36, 96; Slovakia no. 13, 19; Slovenia no. 32; Spain no. 20, 53; Sweden no. 17; Switzerland no. 26.

[135] On an economic assessment of channelling liability, see *M. Faure/A. Wibisana*, Economic Analysis (supra 558 f.) no. 73–74.

[136] See, e.g., Switzerland no. 6–7.

[137] Cf. *M. Faure/A. Wibisana*, Economic Analysis (supra 535) no. 9.

(ii) Multiple victims

A different (and additional) range of problems may arise if there is not just one victim of the same event, but if, for example, the fields of several conventional farmers have been contaminated, assuming for the sake of the argument that the GMOs originated in just one field.[138] From a substantive law perspective, these multiple victims may encounter barriers to full recovery which arise just because there is more than one claimant: Caps on liability may be narrowed by overall limits per event, so that if more victims suffer a loss equalling or exceeding the individual caps, their compensation will be reduced proportionally even though they would recover the full maximum amount if they had suffered harm alone. Procedural law may include further hurdles (or advantages[139]) for a group of victims, which is beyond the scope of this study, however. 114

4. Insurance options

(a) General aspects

Another way to obtain compensation is via insurance. The major difference here is that the victim at least in theory can draw from much larger funds than if she went after the individual farmer or any other tortfeasor. While the first variety that comes to one's mind in this context may be the latter's liability insurance (infra (b)), which is obviously closely linked to the tort law options just mentioned, one should not forget the alternative model of self-insurance of the potential victim, which will be dealt with separately (infra (c)).[140] 115

Either way, insurance allows the pooling of risks among a larger group of people exposed thereto, and this group can be expanded by law if it requires those at risk to provide for such cover. Claims will be handled by professionals who do just that, and – depending upon the insurance conditions – the procedure to pay out awards will be less complicated than before a court of law. Making insurance compulsory can contribute to ensuring that the product meets a certain demand on the market, though it may at the same time distort market forces and hinder proper risk differentiation, particularly if sufficient information to assess the risk is lacking.[141] After all, the insurer should tailor the policies according to the various aspects of the risk, ideally with respect to each insured. At least in theory, for example, those who run a higher risk should therefore also pay higher premiums. This is not necessarily always the 116

[138] If there are more possible sources of harm, the above-mentioned problems of multiple tortfeasors also multiply the complications of the case. In particular, causation will be a major problem zone as the GM farmers may argue that their crops did not cause the same degree of harm to each of the victims (which may be well-founded in light of the geographic distribution of fields).

[139] Cf. Sweden no. 19: Cases of the kind envisaged here may be dealt with by a class action, which was introduced in 2002.

[140] See also *M. Faure/A. Wibisana*, Economic Analysis (supra 567 ff.) no. 93 ff.

[141] *M. Faure/A. Wibisana*, Economic Analysis (supra 568 ff.) no. 98 ff. (in particular no. 103).

case, but under a mandatory insurance scheme, it is even less likely that this balance is achieved.

117 The standard checklist used to determine if a risk is insurable includes questions such as whether the frequency and severity of potential claims can be estimated, and whether the occurrence of a loss is truly fortuitous within the terms of the policy.[142]

> "At this point, GMOs present more unknown than known variables for insurers. Sufficient loss history is not available to underwrite GMO exposures. The technology used to create GMOs and the varieties of available GMOs are perpetually advancing. Thus, evaluating the risks inherent to particular GMO techniques or GMOs is of little value from a risk-bearing standpoint, especially since the long-term impacts of GMOs are totally unknown. Obviously, unknown variables are difficult, if not impossible, for an actuary to evaluate."[143]

118 This has led the insurance industry to include far-reaching exclusions of GMO risks into their policies,[144] even though some apparently offer "buybacks" to cover at least third-party liability exposure with clear-cut limitations.[145]

119 One key problem that affects all types of insurances is the wide range of risk scenarios in light of the various plants' distinctive potential for gene flow.[146] Insurers therefore argue that achieving a "uniform insurance solution for all plant types seems virtually impossible."[147] The administrative costs of establishing, marketing and administering a risk-specific range of insurance products would at least be very significant.

120 Another important issue concerns the extent of possible harm that shall be covered by the insurance. While this can always be defined by the policy itself (from risk exclusions to restrictions concerning the insured amounts), such a limited product may not meet market demands, particularly if farmers are required by law to buy insurance cover for risks beyond such boundaries. Insurers therefore argue that the potential compensable damage needs further legal specification, in particular with respect to the question whether losses arising from admixture below the 0.9% threshold should also be covered. Insurers want this to be answered in the negative since "it appears to be virtually im-

[142] *M. Davenport* (fn. 122) 61.
[143] *M. Davenport* (fn. 122) 61.
[144] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 577 ff.) no. 1, 4 ff. See the sample wording cited by *M. Davenport* (fn. 122) 59 (Exhibit 1): "This insurance does not apply to any injury, damage, expense, cost, loss, liability, or legal obligation arising out of or in any way related to modified seeds, plants, grains, crops, organisms, animals, or other material, however caused …"
[145] See Exhibit 2 given by *M. Davenport* (fn. 122) 62–63.
[146] See supra at fn. 2.
[147] *I. Ebert/Ch. Lahnstein* (supra 580) no. 13.

possible to avoid any trace of cross-pollination,"[148] which would eliminate the fortuity of the risk for practical purposes.

(b) Third-party insurance

Third-party liability insurance seems to be most relevant in the context of the cases under survey here. However, it is interdependent with the tort law addressed earlier and therefore only shifts the problem to another arena without truly solving it. Insurance thereby serves as a cushion to the shortcomings of tort law proper, inasmuch as it helps to simplify and to assure access to payments, but it certainly cannot level out the different requirements for liability in the various Member States mentioned above. All the uncertainties surrounding the question of tortious liability as indicated in part I.3 add to the further uncertainties with respect to the extent of a potential loss as well as its frequency. 121

Arguably the most important obstacle to offering liability insurance cover is a tort law regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation. Obviously, such a scheme[149] substantially increases the chances for a non-GM farmer to obtain compensation. This in turn converts the risk of the insured to be held liable into almost certainty, which runs afoul of the most fundamental principles of insurance.[150] As a minimum, insurers demand that the scope of compensable harm be clearly defined by excluding losses resulting from admixture with GMOs below the 0.9% threshold that currently triggers labelling requirements (and which thereby is crucial for determining the ensuing loss).[151] Needless to say, the current lack of such a threshold with respect to seeds would also have to be reconsidered. 122

If we disregard the severe restrictions on or the complete unavailability of liability insurance which covers GM risks, those most likely interested in buying such policies are the farmers who have opted to cultivate GM crops. By taking out insurance, they can spread the risk among each other, which effectively reduces the likelihood of having to compensate the entire harm caused individually. This is obviously also in the interest of potential victims who are thereby at least to some extent relieved of the risk that "their" tortfeasor becomes insolvent, and their position would be further improved if they could file direct claims with the insurer. What is sometimes overlooked, however, is the fact that it is actually the ultimate consumer who pays the insurance premiums: The GM farmer will inevitably try to pass on these costs to her customers, or at least include them in her calculation. 123

[148] *I. Ebert/Ch. Lahnstein* (supra 578) no. 4.
[149] Cf. the Austrian liability regime infra no. 158.
[150] Cf. *I. Ebert/Ch. Lahnstein* (supra 577 f.) no. 1, 4.
[151] *I. Ebert/Ch. Lahnstein* (supra 578) no. 4. See also the DEFRA Consultation Paper (infra 720 ff.) no. 138: "It would be a disproportionate burden on the GM sector to make it liable for redress on the basis of a threshold stricter than the relevant legal standard."

124 Another group of potential insurance clients are the seed suppliers, who are one step behind in the production chain. Depending on the liability regime, they will also have a more or less stronger interest in taking out cover against the risk of being sued (albeit by way of recourse).

125 The practical importance of such a risk pool is bolstered, of course, by statutory rules requiring insurance against liability risks.[152] These only make sense, however, if the insurance market is ready to offer adequate products for those who are obliged to take out such cover.

126 Depending on the policy, insurance cover – if available at all – will typically be limited to a certain maximum amount. Further caps may apply cumulatively, such as an "aggregate limit", defining how much the insurer will pay out in any one given time period per insured, or a "per occurrence" limit, which caps payments for all claims filed with the same insurer that arise out of a single event.

(c) First-party insurance

127 An alternative type of insurance would be first-party insurance: Potential victims thereby have to take out insurance themselves for their own risk of loss.[153] Probably all farmers already have first-party policies such as farm property insurance, though covering different risks, for example natural disasters such as hail or the like. However, these hazards are typically named in a closed list which excludes other risks such as GMO admixture.

128 Suggesting that first-party insurance could be one way to ensure that the losses of non-GM farmers are made good sounds problematic since this option seems to be too close to the starting point where the immediate victim had to bear her own loss entirely (supra I.2(b)), even though self-insurance would spread that risk at least among all other potential victims who join that pool.

129 Still, "[e]conomists are relatively enthusiastic concerning this first party insurance"[154]: Potential victims should know best what losses they may suffer, and they can shop for the best cover against risks that they think should be taken care of. They tend to receive payments faster than under other redress mechanisms since the awards are paid out upon the occurrence of the insured

[152] See, e.g., Luxembourg no. 53. Cf. supra no. 116.

[153] Cf. *M. Faure/D. Grimeaud*, Financial Assurance Issues of Environmental Liability, in: *M. Faure* (ed.), Deterrence, Insurability, and Compensation in Environmental Liability (2003) 7, 208–209, 217 ff., on first-party insurance against environmental harm.

[154] *M. Faure/A. Wibisana*, Economic Analysis (supra 568) no. 97. Interestingly, the British National Farmers Union, whose insurer (NFU Mutual) offers agricultural insurance, also seems to be in favour of such a regime: "Of the possible financial instruments to compensate non-GM growers against economic loss due to admixture we would favour an insurance-based approach. In principle, first-party insurance against economic loss due to admixture is the most attractive insurance option." Cited after http://www.non-gm-farmers.com/news_details.asp?ID=747.

loss and (at least in general) irrespective of its cause, even though some may be excluded in the policy.

However, for the very same reason, there is hardly any incentive for the victim to protect herself against damage beyond the requirements imposed upon her by the insurer, and the tortfeasor is not even addressed at all by the regime. The – at best – limited deterrent effect of tort law will be even further reduced if the potential tortfeasor knows that the harmful consequences of her conduct will be cushioned by resources to which she need not contribute unless the insurer sues her in a recourse action, which is not very likely at least in minor tort cases. 130

The potential victims may not see themselves as such – they may simply not be aware of the fact that someone in the vicinity may or already has started to cultivate GM crops. The risk of gene flow may be underestimated as well, which further reduces the conventional farmer's incentives to buy first-party insurance. 131

Furthermore, she simply may not see any need to do so in light of an obvious fairness argument: It may be difficult to convince conventional or organic farmers that they themselves should invest money into loss prevention if the risk is brought about by their neighbour whose profits from GM cultivation will not equally be reduced by any insurance premiums. 132

Nevertheless, first-party insurance could be of particular importance at least in all those cases where there is no other way that leads to compensation, for example due to difficulties of proving causation, or because the applicable national system denies liability if the cultivation of GM crops was done in accordance with the applicable farming standards in force at the time. Even if that was not the case, the tortfeasor may be insolvent and uninsured. There may be no compensation fund set up yet, or it may be dried out already. If non-GM farmers are aware of these possibilities (which is not necessarily the case, though), they may have ample motivation to seek cover against potential losses themselves. 133

For practical purposes, however, first-party insurance will only be an alternative route to redress the kinds of losses under survey here if it is priced in a way that makes it attractive to potential clients. Not only must there be sufficient information about the risk available to insurers,[155] but also the number of participants in the pool must be big and diverse enough in order to allow a better risk differentiation. More demand typically also increases competition among insurers, which tends to put pressure on the pricing. 134

One possible way to make such a product more attractive to farmers would be to bundle it with other farm insurances or to include the risk in existing policies, if only by eliminating or at least reducing the current GMO exclusions.[156] 135

[155] *M. Faure/A. Wibisana*, Economic Analysis (supra 570) no. 103.
[156] Cf. supra at fn. 144.

As with other risks involving a high degree of uncertainty, cover could be subject to time limitations, e.g. per cultivation season. The awards could be capped at a certain amount correlating to the potential loss of the individual farmer, which can be determined in light of the crop cultivated, the size of the field and its environment. Expanding existing farm insurance cover would also have the advantage of existing distribution networks.

5. Compensation funds

136 Another option contemplated by at least some jurisdictions is compensation funds.[157] While the risk pool is usually smaller compared to an insurance solution, such funds have the big advantage that they can be tailor-made to the particular problems they should address. Furthermore, such funds tend to have procedural advantages in comparison to other regimes: Since the risk group is identified in advance, the administration of the fund can also be adjusted to their specific needs. Formalities are typically easier to fulfil for the claimants, and payments can be faster than under other schemes. They are not necessarily linked to liability rules, in which case problems resulting from establishing the latters' requirements may be disregarded.[158]

137 Also, the range of payors who contribute to the fund is typically broader than in the classic insurance scheme. Not only those immediately concerned can be involved, but also others with a more general interest, including the State, which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable, for example by way of a State guarantee).[159] However, the amount of each stakeholder's contribution is not always easy to determine: While in the insurance setting, it is the decision (and responsibility) of the insurer to determine how high the premiums must be in order to maintain a functioning system, payments into compensation funds are not always calculated according to risk assessment as defined by actuarial mathematics. Particularly the State contributions tend to follow political and/or budgetary constraints.

138 On the other hand, for the very same reasons, compensation funds can be introduced to fill a gap in the insurance market: Even if commercial insurers fear that lack of information prevents them from properly assessing risks and therefore feel unable to offer cover, funds may nevertheless (or even just for that cause) be installed in order to at least serve as a temporary solution until the market can take over.

139 Compensation funds may have to operate with less financial means, though, and depending upon the pooling arrangement, the funds may be dried out even

[157] See infra II.3 for examples.
[158] Cf. the options for a "statutory redress mechanism" listed by the DEFRA Consultation Paper (infra 720 ff.) no. 165 ff.
[159] State aid restrictions impose obvious limitations on the possibilities of state involvement, of course.

before all claims have been settled. This may happen particularly if they serve as a gap filler in the way just mentioned: If the risks are not yet entirely known or hard to predict (as otherwise insurers would step in), actual claims may by far exceed expectations. The reverse may equally be true, however: If the aggregate contributions to the fund are not spent, this means in retrospect that they were priced too high, which in turn made GM crop cultivation more expensive and consequently less competitive than necessary.

Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. 140

Risk differentiation may also be inadequate in comparison to alternative indemnification models. Those who contribute to the fund are not necessarily those who are in control of the risk that shall be covered, or at least their contribution may not reflect the actual weight of their influence. 141

Payments out of the fund may not be as predictable as insurance awards, particularly if the means of the fund are limited, or if payments are at least in part only discretionary awards. A much more serious problem arises, however, if the fund is installed ad hoc after a first loss has actually occurred. 142

One more fundamental argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways of obtaining compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. The reasons for establishing a fund can certainly not provide us with all the answers thereto. 143

6. Ad hoc compensation

One may of course also take a more fatalistic approach and argue that there will always be a solution in case of need. One thereby typically points to the State which often steps in on a case-by-case basis, though depending upon the degree of public awareness, which may not always be very high in the cases under survey here. Other ad hoc solutions include monies and further benefits donated by individuals after a damaging event, but this is also not something very likely to happen in the scenarios envisaged here. Only large-scale or in some other way spectacular losses may qualify for such contributions by the general public, which is typically dependant upon the degree of media attention given to the case.[160] 144

[160] But see websites like, e.g., http://www.percyschmeiser.com where a victim of adventitious admixture asks for donations to support his quest against a seed producer.

145 In any event, ad hoc compensation is per definition unpredictable, both with respect to likelihood and quantum, and can therefore not be considered for the ex ante planning of co-existence measures. Furthermore, the amounts paid out differ quite substantially, which leads to inequalities that must be avoided.

146 One special variant of an ad hoc regime is given if the GM farmer has contracted with all her conventional neighbours before getting started.[161] Such an agreement could include an ex ante distribution of the risk, in particular in the form of a contractual promise by the GM farmer to indemnify her neighbours for losses they may encounter due to admixture, possibly including the costs of testing. The neighbours' claims will then become contractual, which typically improves their standing in a subsequent dispute.

7. Links to other loss scenarios

147 While the Product Liability Directive[162] is focused on harm to the individual, the Environmental Liability Directive[163] does not apply to "traditional damage" such as personal injury, damage to private property or to any economic loss. Instead, it is concerned with harm to the environment as such, i.e. to biodiversity, water and land. Nevertheless, some Member States have already introduced environmental liability regimes that at least address losses of individuals as well. While some of them are of no relevance to this study, however,[164] others at least arguably also offer compensation for losses caused by GMO admixture, which not only requires that they cover the peculiar harmful events that are of concern here, but also that their definition of "environmental damage" extends to losses of such kind.[165]

148 There is a considerable degree of overlap between the modern concept of environmental liability and the traditional concept of liability between neighbours. The responses of the various legal systems to immissions from neighbouring land described above[166] offer at least some guidance for developing a suitable model when deciding on how to compensate losses of the kind envisaged by

[161] The likelihood of such an agreement is not as remote as it may appear – after all, some jurisdictions require GM farmers to collect declarations of consent by their neighbours, which is a prerequisite for their permit to cultivate GM crops.

[162] Supra no. 62 ff.

[163] Directive 2004/35/EC of the European Parliament and of the Council on Environmental Liability with Regard to the Prevention and Remedying of Environmental Damage, [2004] OJ L 143/56.

[164] This is true, e.g., for Denmark no. 34; England no. 4; Poland no. 63–64; Slovakia no. 6–8; Sweden no. 3 (probably not applicable, though suitable).

[165] As to Finland, see II.2(b). See also Norway no. 3 (express reference to Pollution Act included in Genetic Technology Act); Portugal no. 7 ff. Romania also seems to consider providing for compensation of losses arising from GMO admixture in the course of the legislation implementing the Environmental Liability Directive. Cf. also Art. 24 of the Liechtenstein Act on Genetically Modified or Pathogenic Organisms ("Gesetz vom 17. Dezember 1998 über den Umgang mit gentechnisch veränderten oder pathogenen Organismen"), which introduces strict liability for harm "to humans or to the environment" caused by the special traits of GMOs.

[166] Supra I.3(e)(iii).

this study. It is particularly helpful to look at the solutions found for the interplay between the interests of those who pursue activities that have been licensed by the authorities on the one hand and the concerns of their neighbours not to be interfered with in their enjoyment of their own land on the other.

149 Take the example of a discotheque: Running such an establishment is not something prohibited per se, quite the contrary: There is a certain interest of society to make it possible that such places can be set up and maintained. There are, however, several regulatory restrictions thereto which are designed to preserve potentially conflicting interests that may be affected by such a business. If we focus on neighbours only, there is an obvious concern that there will be disturbances from the noise generated by such an establishment, for example. This should be dealt with by building regulations and other rules of administrative law: A permit to the discotheque owner will only be issued if – among other requirements – the legally defined noise thresholds are not exceeded, which means the applicant will have to take the necessary precautions, e.g. apply proper insulation measures, so that she can meet these conditions. The neighbours may still hear sound coming from the discotheque, but it should not be louder than what the law deems reasonably acceptable under the particular circumstances, otherwise the rules are either wrong or have not been implemented properly, in which case the neighbours can seek redress.

150 A new highway running through a rural neighbourhood will (or at least should) not be built unless all legally defined caveats are taken care of. Apart from more general environmental concerns, there may be a certain unavoidable emission of fuel components and heavy metals from the traffic onto adjoining land, which may ultimately affect the marketability of the agricultural products produced nearby. Law has to take account not only of the overall environmental impact of such a new road, but also of the adverse effects upon the neighbours who are all known individually in advance. Licensing procedures and other administrative measures (e.g. acquisition or expropriation of adjoining land up to a certain distance from the road in exchange for compensation) should make sure that a balance can be struck (inter alia) between the interests of society at large in the planned addition to the traffic network on the one hand and those of the landowners nearby on the other. As long as the safeguards of the regulatory framework have been observed, owners of land near a new highway will not have a legally valid claim for compensation of the remaining and at least generally foreseen detrimental effects of the emissions stemming from the newly opened highway.

151 An entirely different set of problems is connected to catastrophes and the losses to individuals resulting therefrom. At first sight, they seem to have very little, if anything, in common. Not only is the extent of harm in those cases dramatically different at least from the standard cases envisaged here, but also the events causing the loss are apparently completely unrelated. After all, catastrophes are typically associated with the forces of the uncontrollable elements, whereas GMO admixture would not occur without human intervention, if only

by the GM farmer. There are at least some arguments bridging this gap: The notion of "catastrophes" may well include man-made, including technological, disasters, and even natural catastrophes sometimes would not have the same impact if there had not been some very human failure multiplying the damage. When it comes to the cases we are focusing on, it may well have been the uncontrollable forces of nature without which the pollen or seed would never have spread to the neighbouring land.

152 The reason why catastrophes are mentioned in this context lies elsewhere, however: It is commonplace that farmers can (more or less) easily obtain insurance cover against losses caused by natural disasters. It is equally well known that there are permanent State funds ready to step in when such risks materialize, and even in countries which lack such ex ante planning, these have a considerable experience with ad hoc compensation schemes developed ex post.[167] Similar solutions may apply to animal or crop diseases. One may wonder, therefore, why it is possible to tie a more or less satisfactory safety net in response to fairly unforeseeable risks, but not in cases where someone in the vicinity wants to start growing GM crops. A quick reply may point at the fact that admixture may ultimately be unavoidable, and that the risk in the latter case is strongly influenced by geographic, climatic and other individual criteria. Also, it is simply too predictable, i.e. the risk is much more likely, if not certain, to materialize. On the other hand, the (current) impossibility to fully control gene flow does not mean that every neighbouring field will inevitably be contaminated above the 0.9% threshold (thereby presupposing that the GM farmer abides by the applicable farming standards such as ample buffer zones etc.). Considering how often certain regions are hit by destructive hailstorms, the chances of losing one's entire crop may not be so much different. Therefore, at the bottom line lies the unpleasant question: How can we explain to non-GM farmers why they are compensated if their crops are destroyed by pattering hailstones, but not if GM pollen are spread onto their fields?

II. Current solutions

1. Introduction

153 A survey of the status quo in all jurisdictions covered conveys a rather diverse and inhomogeneous picture. The lowest detectable common denominator seems to be the fact that most systems are currently on the move, either by implementing changes recently legislated, or by at least considering future amendments to their liability regimes.

154 Those countries which have already introduced specific legislation dealing with losses caused by GMOs have thereby taken a clear stand, either in favour of or against GM cultivation: Jurisdictions which have adopted a very strict li-

[167] On the various responses to catastrophes and the ways to compensate ensuing losses, see *M. Faure/T. Hartlief* (eds.), Financial Compensation for Victims of Catastrophes (2006).

ability regime clearly signal caution or more concern with regard to such farming technology, others which have designed compensation rather than liability schemes apparently want to ensure and facilitate actual co-existence between conventional and GM farming. Mere silence of other legislators is neutral in this respect, in particular if the legislative process is still going on.

In the following part, only those aspects of the legal systems under survey will be mentioned which have been designed specifically to address the problems of involuntary GMO admixture. General tort law issues will not be addressed since these have already been mentioned in the overview given above (I.3). 155

2. Special liability regimes

The first group of specific solutions include both liability regimes which have been tailor-made for our problem setting as well as provisions which merely refer such cases to another special tort law regime which would not be applicable otherwise. Some countries such as Germany, for example, explicitly assign the cases under survey here to neighbourhood or any other special indemnification rules of broader application, which in substance nevertheless renders this solution unique although it has not been designed specifically for the GMO scenario. 156

(a) Austria

The Austrian special statutory liability regime for GMOs is modelled after the general rules on compensation for neighbourhood interferences, including a right to obtain an injunction against GMO cultivation on adjoining land if such cultivation is not customary in the area concerned.[168] 157

If the claimant substantiates that some activity within the defendant's sphere was generally apt under the circumstances to cause the kind of harm she actually suffered, it is presumed that it was indeed the defendant who caused the claimant's losses,[169] and if the latter cannot rebut this presumption, she will be liable without fault. If there is more than one neighbour who cultivates GM crops, they are all liable jointly and severally unless their individual contributions can be identified. 158

Claims arising under this special regime first need to be brought before a conciliation body, and only if a settlement cannot be reached may the claimant proceed to bring the case before a court of law.[170] 159

Several Austrian Federal Provinces (*Bundesländer*) have introduced their own Genetic Engineering Precautionary Measures Act (*Gentechnik-Vorsorge-* 160

[168] Austria no. 4.
[169] Austria no. 7.
[170] Austria no. 21.

gesetz, *GtVG*), of which some include special liability rules.[171] However, these separate rules have to be disregarded since their enactment constitutes a clear violation of the Austrian Federal Constitution.[172]

(b) Finland

161 Sec. 36 par. 1 of the Finnish Gene Technology Act (GTA) holds that "damage to the environment" caused inter alia by the deliberate release of GMOs (sec. 2 GTA) shall be compensated according to the 1994 Environmental Damage Compensation Act (EDCA), which effectively replaced the traditional civil law rules on nuisance as between neighbouring land.[173] As the Finnish report suggests,[174] cases of involuntary admixture of GM with conventional or organic crops would fall under this notion of environmental harm and consequently be governed by the EDCA, which provides for strict liability of the operator of a harmful activity, but excludes minor losses. If not, the harmful consequences of admixture would be "other loss" as referred to by sec. 36 par. 3 GTA, which is to be compensated according to the general rules of tort law, though at the express exclusion of the requirement of fault.

(c) France

162 In contrast to earlier attempts to legislate on the matter, a recent draft law provides for strict liability of the GM farmer (*responsabilité de plein droit*) for economic losses of his non-GM peers under certain conditions: The fields concerned must be within a certain distance, both the GM and non-GM crops must have been grown in the same harvesting season and the non-GM farmer must have intended to make commercial use of her produce, which turns out to be subject to the labelling requirements (i.e. exceeding the 0.9% threshold). In order to be able to cover such losses, the GM farmer must provide for some financial guarantee yet to be determined in detail.

[171] See § 11 Burgenland GtVG, 19.5.2005, LGBl 2005/65; § 12 Carinthian GtVG, 21.10.2004, LGBl 2005/5 (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile=220030200DE.PDF) and § 8 Salzburg GtVG, 7.7.2004, LGBl 2004/75 (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile=220030475DE.PDF).

[172] Art. 10 par. 1 no. 6 of the Austrian Federal Constitution gives the exclusive power to legislate in civil law affairs to the Federation. While Art. 15 par. 9 allows the Federal Provinces to adopt civil law provisions that are necessary for the regulation of subjects within their own field of legislation, this exceptional power can only be exercised to the extent it is necessary and not in conflict with federal law. In the instant case, the Federal Gene Technology Act already provides for liability rules, conflicting provisions on the level of the Provinces are therefore not admissible (apart from the fact that the rather bizarre contents of the said provisions would violate the principle of equality if valid).

[173] Sec. 18 of the 1920 Act on Neighbour Relations, Finland no. 56 (with only indoor conflicts remaining within that provision's scope).

[174] Finland no. 1.

(d) Germany

The German statutory liability regime also uses the Austrian technique to shift these cases into the more general ambit of neighbourhood liability, but while Austria simply duplicated its rules into the special statute, Germany went the other way and included a pointer to the more general rule in its Genetic Engineering Act (GenTG), but coupled this with substantive restrictions, which in essence brings about a strict liability regime for the cases under survey here:[175] 163

§ 36a par. 1 GenTG rules that any dispersal of GMOs constitutes a "significant impairment" within the meaning of § 906 BGB, which triggers the disperser's duty to compensate the ensuing losses irrespective of fault if the impairment of the neighbouring land "cannot be prevented by measures that are economically reasonable". According to § 36a par. 2 GenTG, "compliance with good professional practice" is by law deemed to be "economically reasonable". Furthermore, § 36a par. 3 GenTG prevents the assessment of first-time GM farming as "usual" by excluding the possibility to thereby consider whether the fields in question are cultivated with or without GMOs. 164

If the actual neighbour from whose fields the GMOs spread cannot be identified, all those from whom they may have originated will be jointly and severally liable for the full loss of the victim according to § 36a par. 4 GenTG unless their individual shares can be determined. 165

(e) Hungary

The Hungarian Gene Technology Act determines that (inter alia) harm resulting from the incomplete segregation of GM and conventional crops shall be governed by the general strict liability rule for dangerous activities (§§ 345–346 of the Hungarian Civil Code) unless the victim had previously consented to the GM farming of her neighbour in writing (in which case traditional fault liability would apply).[176] 166

(f) Italy

Even though special legislative measures addressing the loss scenarios under survey here have already been enacted in Italy, they have not yet been implemented for various reasons.[177] It remains to be seen whether the regime envisaged by the acts passed so far will ever make it to the practice stage. 167

Even if it does, it only addresses violations of the conduct foreseen by the applicable co-existence rules and therefore does not extend to cases of accidental admixture. Still, it would improve the position of the claimant at least insofar 168

[175] Germany no. 39 ff.
[176] Hungary no. 1 ff.
[177] Italy no. 1 ff.

as she would not have to prove the misconduct of the defendant, but it is up to the latter to exculpate herself.[178]

(g) Norway

169 § 23 of the Norwegian Act on Gene Technology[179] provides for strict liability for activities that fall under its scope and includes by way of reference the liability provisions of the Norwegian Pollution Act for the kind of damage foreseen here. These rules read together allow claims based upon the mere likelihood of causation (which is not generally the case in Norwegian tort law[180]). In addition, the link between the conduct as such and its harmful effect is presumed, so it is up to the defendant to prove that there is no causal connection between her GM farming and the economic loss of her neighbour.

(h) Poland

170 The Polish Act on Genetically Modified Organisms of 2001 includes in its Art. 57 a special rule introducing strict liability for damage to persons, property, or to the environment caused by the contained use of GMOs or their deliberate release into the environment. As the Polish report suggests, this rule already applies to the kind of cases envisaged here since the range of risks falling under this rule is not limited. A current draft statute which is intended to replace the said Act will include an explicit reference to GM crop cultivation.

171 Under the present regime, only force majeure is accepted as a valid defence, as is a causal influence of either the victim herself or of a third party, though the latter two must have been the exclusive cause of the loss in order to avoid liability under the GMO Act.[181] Abiding by the statutory rules of good farming practice will not aid the defendant either.[182]

(i) Slovakia

172 In Slovakia, a 2006 Act on genetically modified agricultural production provides inter alia that the deliberate release of GMOs constitutes a dangerous behaviour within the meaning of § 420a Civil Code, thereby submitting cases arising out of an involuntary admixture to a strict liability regime of a more general kind.[183]

(j) Switzerland

173 The Swiss solution is unique inasmuch as it provides for a channelling of strict liability towards the person or entity which has obtained the authorization to

[178] Italy no. 4, 13 ff.
[179] See its translation at Norway no. 1.
[180] Norway no. 11.
[181] Poland no. 7.
[182] Poland no. 20.
[183] Slovakia no. 2, 22, 25, 51 ff.

release the GMO into the environment. GM farmers or other players involved are therefore exempt from liability in the standard cases envisaged here. There is no presumption of causation, but the standard of proof is set at mere preponderant probability. The liability regime is considered to be *lex specialis* to the general rules of tort law, which therefore do not apply, not even alternatively.[184]

3. Compensation funds

(a) Compensation funds in legislation or already in force

(i) Belgium

- Walloon region[185]

174 In the Walloon region of Belgium, the scope of an already existing fund shall be expanded to also cover losses resulting from the adventitious presence of GM plants in conventional or organic crops. Payments into this fund ("subscriptions") will be collected from all producers of GM crops upon granting authorization to do so. The extent of each applicant's contribution shall be determined in light of existing insurance cover, if any, and according to individual risk factors[186] rather than some flat fee as foreseen in other countries.[187] Also other enterprises engaged in GM agriculture, including those dealing in the transportation and storage of GM plants, will have to contribute to the fund accordingly.[188]

175 The claimants will receive compensation for their economic losses (including "any other losses or costs directly linked to adventitious presence" of GMOs) as defined by Art. 5 of the draft decree.[189] The government has retained the power to introduce a lower threshold in order to exclude smaller claims.

176 The draft very thoroughly tries to address the problems arising from the involuntary spread of GMOs as comprehensively as possible, though at the expense maybe of predictability in practical application, but certainly of administrative costs, as the contributions to the fund shall be determined on an individual risk basis, and many aspects are left open for further legislative or administrative choice.

[184] Switzerland no. 7.
[185] See in the Annex infra at 668 ff.
[186] These risk factors include "whether or not GMPs are grown, whether or not work is carried out requiring contact with GMPs, the species grown, the surface area to be cultivated, the distance separating the genetically modified crop from land farmed by the nearest neighbouring producers, the coexistence on a farm of a GMP crop and non-genetically modified crops …, and taking account of cultivation agreements which may have been concluded between neighbouring producers. Where a producer or operator poses no risk, the subscription shall be set at zero." (Art. 8 Sect. 2 of the draft).
[187] Cf. Denmark at II.3(a)(i) and Portugal at II.3(a)(iii).
[188] See Art. 11 of the draft.
[189] See infra 670 ff.

- Flemish region[190]

177 The Flemish region has recently presented a preliminary draft decree providing for a similar compensation scheme, equally expanding the scope of a more general fund to cover economic losses incurred by non-GM farmers due to the admixture of their crops with GMOs despite all due care taken by the GM farmers. According to this model, the latter have to pay a (currently still undefined) fee into the fund upon receipt of the authorization to grow GM crops. In contrast to its Walloon counterpart, the Flemish model does not (yet) foresee contributions by other stakeholders.

(ii) Denmark

178 Denmark was the first country to introduce legislation on a compensation fund for losses arising from GMO admixture.[191] The Danish model foresees – initially for a period of five years – that GM crop growers shall pay 100 DKK per hectare of GM cultivation into a fund which shall be administered by the Danish Plant Directorate, a division of the Ministry of Agriculture. Even though there seems to be no State participation other than in the administration of the fund at first sight, there may be at least an interim financing by the State: If in one given year claims should exceed the resources of the fund, they will nevertheless be satisfied. The excess monies will come from the State, but shall be recovered in the following year when the farmers' contributions will be adjusted accordingly.[192]

179 Non-GM farmers who suffer economic losses due to involuntary admixture but without contributory conduct in their own sphere[193] can claim compensation from the fund for the market price difference as well as for costs incurred for testing and sampling. Organic farmers can ask for further damages due to their special situation.[194] A lower threshold which the losses must exceed in order to be eligible for payments under the regime is foreseen, but yet to be set. Causation need not be proven strictly, a certain closeness in space and time between a GM field and the contaminated land suffices.

180 While the provisions governing the compensation fund currently do not yet address cross-border losses, the Danish government is currently negotiating with authorities of the German state of Schleswig-Holstein to achieve a bilateral solution for transboundary admixture.[195]

[190] See in the Annex infra at 665 ff.
[191] See Denmark no. 1 ff. and infra Annex 674 ff.
[192] See the State Aid Decision No. 568/04 on this scheme, p. 4.
[193] Denmark no. 5.
[194] See Art. 9 par. 3 of the draft: Recoverable are also losses which are "a consequence of requirements for conversion of organic areas or animals due to the occurrence of genetically modified material".
[195] As stated by Danish representatives at the SIGMEA Workshop on Legal Approaches to Coexistence in Sheffield on April 16, 2007.

The Danish model was submitted for state aid scrutiny and was subsequently cleared by Decision No. 568/04.[196] The main arguments raised by the Commission in support of upholding the regime were the limited duration of the present scheme, the fact that it is financed by those who are in charge of the cause (the GM farmers, though irrespective of any wrongdoing on their side), but also the present unavailability of insurance cover on the European market. 181

(iii) Portugal

The Portuguese compensation fund is designed for an initial period of five years (but may be extended thereafter).[197] It is limited to cases of adventitious presence of GMOs in conventional or organic crops above the labelling threshold of 0.9% only, while losses caused by the GM farmer's neglect of good farming practice has to be pursued on the basis of tort law.[198] Monies are collected via a green tax on seeds (€ 4 per 80,000 seeds, Art. 6), though the fund may generate further income from investing amounts not used, but also from a € 100 fee per application, which is withheld if unsuccessful (Art. 11). 182

Applicants must prove causation at their own expense (Art. 9 par. 5) and are only eligible if they have used certified seeds themselves.[199] Claims must be delivered to the DGADR, Directorate General for Agriculture, Rural Development and Fishing within the production (and contamination) year. As payments depend upon the means of the fund, compensation may be reduced proportionally if its resources should not suffice to pay out all approved amounts. 183

(b) Planned variations of compensation funds

(i) Finland

In Finland a compensation fund is being discussed which would address the issues under survey here.[200] As the concept stands, contributions shall be collected from both the State and the GM farmers (for the latter, calculated on the basis of the size of their GM fields). Payments will only be made for adventitious presence of GMOs in non-GM crops above the 0.9% threshold, not in cases where the admixture was the consequence of some faulty conduct. Proof of causation will be alleviated inasmuch as mere probability shall suffice. However, minor losses will not be compensated under the proposed fund. 184

[196] Http://ec.europa.eu/agriculture/stateaid/decisions/n56804_en.pdf.
[197] See Portugal no. 71 ff. and infra Annex 707 ff.
[198] See Portugal no. 82 for details.
[199] See Art. 8 of the draft for further eligibility criteria.
[200] Finland no. 5–6.

(ii) Germany

185 A 2004 proposal of the German *Bundesrat* envisaged a compensation fund with the participation of the State and economic stakeholders (including GM farmers, seed producers, seed importers or developers, and the biotech industry).[201] It would have applied to cases of adventitious admixture only, and only as long as the insurance industry would be ready to offer adequate cover. Most details were left open, however. The discussion is still pending, though seed producers have already declined to participate in such a fund.[202]

(iii) United Kingdom (England)

186 A statutory redress scheme is currently being considered by DEFRA[203]. In contrast to other jurisdictions, England is also considering to include seed producers as payors of compensation, with contributions collected either to an ex ante fund or to an ex post ad hoc regime.

187 Applicants would only need to prove admixture of their own crops with GMOs above the legal threshold of 0.9% without even alleging what the source thereof could be (apart from an exclusion of causes within their own sphere).[204] Compensation will most likely be limited to losses calculated on the basis of the said threshold.[205]

4. Other special solutions

(a) Pure state compensation

188 According to Directive 98/34/EC, Slovenia notified a draft Act on co-existence to the Commission which provides that the State shall fully compensate victims of adventitious presence of GMOs in conventional and organic crops. In the introduction to its filing, the government argues that:

> "if the Act and the planned implementing regulations … determine such measures for ensuring the coexistence of genetically modified and other crops that the adventitious presence of GMPs in other agricultural plants and products cannot arise (unless there is a failure to implement these measures correctly and consistently), the individual that cultivated the GMP in accordance with the Act cannot be held liable for adventitious presence".[206]

[201] Germany no. 26 ff.
[202] Http://www.bmelv.de/nn_750598/DE/04-Landwirtschaft/Gentechnik/Gentechnikgesetz. html. See also infra II.4(b)(ii) on the alternative German model introduced by the seed producers.
[203] Department for Environment, Food & Rural Affairs. See its consultation paper (infra 720 ff.) for details.
[204] United Kingdom no. 5, 11.
[205] DEFRA Consultation Paper (infra 720 ff.) no. 140 ff.
[206] Available at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction=getdraft &inum=1305441. See also infra 713 ff.

In such cases, therefore, the State assumes "objective liability" (Art. 29 of the draft) and pledges to pay compensation on the basis of the market price difference, though subject to an assessment by a special committee. The remaining cases of admixture are referred to general tort law (Art. 28). 189

It is doubtful whether this draft will stand the test of state aid restrictions. In light of State Aid Decision no. 568/04,[207] one key aspect missing in the Slovenian proposal is a time limitation of the intended regime: In contrast to the Danish model, which was set up for a temporary period of five years only, the Slovenian draft statute does not foresee any such restriction. Furthermore, the compensation payments are taken out of the State's general budget without any specific contribution from the GMO farmers or seed producers. Therefore, the mere argument that insurance is currently unavailable (which is not even raised by the Slovenian government) does not seem to suffice in order to uphold the proposed regime. 190

(b) Voluntary compensation schemes[208]

In some Member States, stakeholders have teamed up to settle potential losses resulting from GMO admixture ex ante, either on a national level or at least on a local level. The Danish compensation fund model[209] also falls under this category, for example, inasmuch as it is based upon a decision-making process involving all concerned parties. In the following, some further models developed bottom-up rather than top-down will be presented. 191

What will not be dealt with in detail, however, is the obvious possibility for neighbouring farmers to jointly find a contractual solution for admixture problems ex ante. A GM farmer could enter into an agreement with her neighbours, for example, which arranges for regular testing at the expense of the GM farmer and/or includes a contractual duty for her to indemnify all potential losses (including, e.g., a definition of what kind of losses will be covered and how to assess them). Such individual solutions can hardly be anticipated by the legislator, however, unless farmers are required to submit evidence of such an arrangement with their neighbours as a prerequisite to obtain a permit to proceed with GM cultivation. 192

(i) The Netherlands

A unique solution from a European perspective can be found in the Netherlands.[210] "According to good Dutch tradition,"[211] all stakeholders[212] have agreed 193

[207] See infra II.7.
[208] See also the options considered in the DEFRA Consultation Paper (infra 720 ff) no. 162–164.
[209] Supra II.3(a)(ii).
[210] The Netherlands no. 48–50; infra 700 ff.
[211] The Netherlands no. 48.
[212] Biologica (Dutch Organic Farming Association), LTO Nederland (Dutch Organisation for Agriculture and Horticulture), Plantum NL (Dutch Plant-Breeding Association) and Platform Aarde, Boer en Consument (Dutch Land, Farmers and Consumers).

upon a *Convenant Coëxistentie*[213] and thereby regulated problems of adventitious presence of GMOs in non-GM crops internally, even though parts of this contract are complemented by legislative and regulatory Acts.[214] This industry agreement regulates GM farming and foresees compensation to all who suffer losses despite adherence of their peers to these principles.[215] Their direct economic damage (including loss of turnover as well as costs of testing) shall be compensated by a compensation fund which is yet to be established. Payments into this fund shall come from the biotech industry, the seed producers, all farmers (including organic growers), and furthermore from those who process the products of GM agriculture. Initially, the State will also contribute. This model ensures that GM farmers who abide by these practice rules are immune from liability in tort, whereas violations of the said provisions have to be dealt with by the law of delict and thereby fall out of the contractual regime.

(ii) Germany

194 Another innovative project to achieve co-existence was launched in Germany in 2005.[216] With the support of Monsanto and Pioneer, a feed producer (Märka Kraftfutter GmbH) guaranteed to buy the entire maize production of farmers who grow maize conventionally within a distance of 100 meters of GM maize fields, irrespective of potential admixture. They also assumed the responsibility of testing this maize for GM presence, which clarifies whether the maize has to be labelled. The GM farmers participating in this model had to contractually commit themselves to adhere to the farming standards established by the seed producers.[217] The project was discontinued in 2007, however.

5. Costs of testing

195 In virtually all jurisdictions, the claimant has to finance the testing of her crops in advance, but may claim these costs ultimately from the defendant if the latter's liability is confirmed before a court of law.[218] It is a mere technical matter whether these costs are considered to be additional losses (which have to be added to the tort claim) or procedural costs (in which case they are adjudicated separately).[219]

[213] Agreement on Coexistence in the Primary Sector, November 2004.

[214] See, e.g., the Regulation on the Coexistence of Crops issued by the Dutch Commodity Board for Arable Farming (available on the TRIS database at http://ec.europa.eu/enterprise/tris/pisa/app/search/index.cfm?fuseaction=getdraft&inum=1255325).

[215] Violations of these rules and the consequences thereof fall outside the scope of this model and are left to tort law.

[216] Germany no. 28. On the results of the first phase of this model 2005, see http://www.transgen.de/pdf/erprobungsanbau/ergebnisse_maerka-modell.pdf.

[217] Cf. the SCIMAC voluntary redress "charter" presented by the DEFRA Consultation Paper (infra 720 ff.) no. 162–164, which builds upon the same concept.

[218] Austria no. 51; Finland no. 9; France no. 31; Germany no. 63; Greece 82; Ireland no. 60; Lithuania no. 35; Luxembourg no. 65; Malta no. 10 (but wide discretion of courts in apportioning costs); Switzerland no. 64; United Kingdom no. 66.

[219] Cf. Estonia no. 10; Finland no. 9; the Netherlands no. 47, 51; Portugal no. 127–128.

However, it is equally clear that the fees paid for testing where results turn out negative can generally not be recovered.

6. Cross-border issues

196 GMO admixture does not stop at national borders, which raises questions as to whose court will be competent to adjudicate over the case, and which law it shall apply to solve it. After all, in a cross-border case, there are at least two jurisdictions which compete to offer the applicable law, and choosing one of them may be decisive for the outcome of the case.

197 These issues are irrelevant when it comes to compensation funds inasmuch as their statute will typically decide about procedure and geographical scope autonomously. It is well imaginable, however, that the protective scope of such funds remains limited to their own respective jurisdictions, thereby excluding foreign claimants from access to payments. Current data available does not yet allow predictions on how these issues will be handled by the redress schemes that have already been conceived.

(a) Jurisdiction

198 The most important body of law governing questions of jurisdiction for the Member States of the European Union are the following instruments:

- the Brussels Convention[220] of 1968;
- the Lugano Convention,[221] which was signed twenty years later and was intended to offer the EFTA countries as well as other non-members of the EU the possibility to join a regime almost identical to the earlier Brussels Convention;[222]
- and finally (and nowadays most importantly) the Brussels I Regulation of 2001,[223] which was designed to replace the afore-mentioned Conventions.[224]

[220] Convention of 27 September 1968 on jurisdiction and the enforcement of judgments in civil and commercial matters, [1972] OJ L 299/32.

[221] Convention of 16 September 1988 on jurisdiction and the enforcement of judgments in civil and commercial matters, [1988] OJ L 319/9.

[222] Switzerland and Poland (at the time not yet an EU member) have joined this convention, whereas Liechtenstein is the only EFTA State which did not accede to this regime. The Lugano Convention therefore now applies if the defendant is domiciled in Iceland, Norway, or in Switzerland.

[223] Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, [2001] OJ L 12/1.

[224] Denmark was not bound by the Regulation for lack of participation in Title IV of the EC Treaty, but has agreed to effectively apply the regime of the Regulation as it stands subject to certain exceptions and reservations. See the Agreement between the European Community and the Kingdom of Denmark on jurisdiction, recognition and enforcement of judgments in civil and commercial matters, [2005] OJ L 299/62.

199 The following provisions of the Brussels I Regulation (and only that regime shall be dealt with in the following section)[225] may govern the kind of claims we are concerned with in this study:

> Art. 5: "A person domiciled in a Member State may, in another Member State, be sued …
> 3. in matters relating to tort, delict or quasi-delict, in the courts for the place where the harmful event occurred or may occur; …"
>
> Art. 22: "The following courts shall have exclusive jurisdiction, regardless of domicile,
> 1. in proceedings which have as their object rights in rem in immovable property or tenancies of immovable property, the courts of the Member State in which the property is situated. …"

200 For the kind of cases under focus here, only Art. 5 par. 3 is relevant, even though Art. 22 could well be applied to the above-mentioned cases of private nuisance, to the extent a jurisdiction considers these as property actions, arising not from a delict but from the right *in rem* of the landowner whose crops have been contaminated. However, in a recent ruling, the ECJ has clearly cut off that path by stating that such claims are not governed by Art. 22, which leaves them within the domain of Art. 5 par. 3.[226]

201 The "harmful event" in Art. 5 par. 3 is interpreted extensively by the ECJ, including not only the place where the damage occurred, but also the location where the harmful cause was set, thereby effectively allowing the claimant to choose between the two (ubiquity principle). Therefore, if GM seed from a field in country A is blown onto land in country B causing damage, the victim can file a tort claim in either country at her own choice.[227]

202 As an exception, however, this flexibility is restricted if compensation is sought for pure economic loss only: In such cases, the claimant cannot sue at the place of her domicile simply because her assets which have been reduced are centred there if the effect of the harmful conduct has already had direct consequences in another country.[228]

[225] The corresponding provisions of the Brussels Convention (Art. 5 par. 3, Art. 16 par. 1) and the Lugano Convention (Art. 5 par. 3, Art. 16 par. 1 lit. a) contain almost the identical language, the only significant difference being a lack of explicit reference in Art. 5 par. 3 to events which have not yet occurred, but "may occur" in the future.

[226] *Land Oberösterreich v. ČEZ*, ECJ 18.5.2006 C-343/04. Due to the timing of the facts underlying that case, the Brussels Convention and its Art. 16 were at stake (cf. fn. 225), but in light of the identical wording and underlying substantive motivations, it is clear that this ruling correspondingly applies to the new Regulation as well.

[227] *Bier v. Mines de Potasse*, ECJ 30.11.1976 C-21/76, [1976] ECR 1735: A French company polluted the Rhine water, causing harm to a flower producer in the Netherlands. The Court held that the victim could sue both in the Netherlands (where the damage occurred) as well as in France (where the cause was set, i.e. the water discharged into the river).

[228] *Kronhofer v. Maier et al.*, ECJ 10.6.2004 C-168/02, [2004] ECR I-6009. The scope of this ruling is often overstated by claiming that the occurrence of pure economic loss in general does

Furthermore, consequential losses in a country other than where the direct harm occurred do not justify the jurisdiction of courts at that additional location:[229] Therefore, the fact that the market of the conventional farmer whose fields in country A were contaminated lies in country B (so that her losses effectively "occur" there) does not shift jurisdiction onto the latter. 203

(b) Choice of law

(i) Admixture cases under current conflict of laws regimes

At present, jurisdictions are divided when it comes to determining which law applies to a cross-border tort case. Even though all adhere to the so-called *lex loci delicti commissi*, it is exactly under dispute where the delict was committed, which comes down to the same issue as just discussed at the occasion of the court's jurisdiction: Is it the place where the harmful event was completed (i.e. the cause was set),[230] or is it the location where the damage occurred instead?[231] Some opt for either the former or the latter, others allow the court[232] and/or the claimant to choose,[233] yet others seem to be internally undecided.[234] In Austria, for example, the connecting factor for the general rule applicable to tort law conflicts is the harmful conduct, whereas the special rule for GMO liability focuses on the place where the damage occurred.[235] 204

A separate analysis may apply if the claim is based upon the law of property, which is an alternative path to compensation in some jurisdictions.[236] If the applicable rules of conflict of laws follow a structural analysis rather than a functional approach, the *lex rei sitae* will govern, which means that the connecting factor is the location of the land that is protected.[237] In most cases, this will coincide with the place where the damage occurred, so the applicable law will be the same in those jurisdictions whose tort law conflicts rule at least allows focusing on that factor.[238] 205

not suffice. This was not the issue before the court, where the plaintiff had lost monies that he had entrusted to the defendants in a different country for speculation (which obviously failed). In *Kronhofer*, the pure economic loss had already occurred elsewhere, and the Court only rejected jurisdiction at the plaintiff's domicile where the loss ultimately (but indirectly) lay.

229 *Dumez France v. Hessische Landesbank*, ECJ 11.1.1990 C-220/88, [1990] ECR I-49.

230 Austria, no. 54; Latvia no. 23; Poland no. 102; Portugal no. 141 ff. (subject to exceptions); Spain no. 84; Sweden no. 51 (but exception if Nordic Convention applies); Switzerland no. 69 (though place of damage if foreseeable); United Kingdom no. 69.

231 Austria, no. 52; Luxembourg no. 68; Malta no. 37.

232 Czech Republic no. 98 ff.; France no. 36.

233 Estonia no. 59; Finland no. 62; Germany no. 65; Hungary no. 48; Italy no. 51; Lithuania no. 37; Norway no. 51 (for inner-Scandinavian cases). See also Slovenia no. 52.

234 E.g. Denmark no. 58; Greece no. 90–92; Norway no. 54. See also Belgium no. 66.

235 Austria no. 52.

236 Supra I.3(e)(iii) (in particular no. 68).

237 See, e.g., Austria no. 53; Germany no. 70; Portugal no. 146; cf. UK no. 69.

238 Supra at fn. 231 and 232 ff.

(ii) Admixture cases under the Rome II Regulation[239]

206 The differences with respect to the choice of the applicable tort law will hopefully be reduced once the Rome II Regulation becomes fully effective on 11 January 2009, which shall fill the present gap in European law with respect to the conflict of laws in extracontractual relations.[240]

207 The general rule under this regulation is the *lex loci damni*, which is a variant of the *lex loci delicti commissi* focussing on the occurrence of the damage rather than its cause. The formula used to solve the mentioned differences between the Member States in this respect reads:

> Art. 4. (1) Unless otherwise provided for in this Regulation, the law applicable to a non-contractual obligation arising out of a tort/delict shall be the law of the country in which the damage occurs irrespective of the country in which the event giving rise to the damage occurred and irrespective of the country or countries in which the indirect consequences of that event occur. …

208 In light of the ECJ's position taken with respect to jurisdiction,[241] it is most likely that this rule will also be interpreted to govern compensation claims based upon property law rules, since the same policy reasons apply.

209 Art. 7 deals with environmental liability, which expands the general rule insofar as it allows the victim to choose between the default applicable law and the law of the country from where the harm originated. The rule applies to "environmental damage", which either in itself or as a trigger of ensuing personal injury or property damage must have led to the "non-contractual obligation" for which the applicable law is sought. "Environmental damage" is not defined by the Regulation itself, but merely by its recital 24, which speaks of any "adverse change in a natural resource, such as water, land or air, impairment of a function performed by that resource for the benefit of another natural resource or the public, or impairment of the variability among living organisms". It will remain to be seen whether the rather narrow wording of Art. 7 will be extended to include at least some of the cases considered here.

7. State aid issues

210 While it is beyond the scope of this study to analyze and evaluate whether and to what extent the financial participation by a Member State in a national compensation scheme might constitute state aid within the meaning of Art. 87(1)

[239] Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), [2007] OJ L-199, 40 (available at http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/l_199/l_19920070731en00400049.pdf).

[240] The Regulation will not apply in Denmark, however.

[241] Supra at fn. 226.

of the EC Treaty, the issue as such shall nevertheless be raised in this context, if only as a pointer to a further set of problems.

211 The Danish compensation fund system described above[242] has already been scrutinized by the Commission.[243] The Commission started its assessment of the scheme by finding that the measure was attributable to the State since the fund was financed with an obligatory fee whose use is determined by the State. It was also clear that compensation paid by the fund would benefit both non-GM farmers (by enabling them to collect compensation they would otherwise not have received) and GM farmers (who can spread the risk of individual liability among others who do the same). Since the measure would benefit certain undertakings, it was also considered selective. The measure was therefore held to constitute aid within the meaning of Art. 87(1) EC Treaty. The provisions concerning aids to compensate losses in agricultural production[244] were not applicable because the damage in question could not be regarded as an exceptional occurrence within the meaning of the Guidelines. However, in light of the clear EU objective to promote co-existence, the fact that GM farmers finance the scheme and in the absence of suitable insurance products on the market which could substitute the measure envisaged by Denmark, the Commission was convinced that it was necessary as a temporary measure until the insurance industry was in a position to take over the risk management function. It was therefore concluded that the measure contributed to the structural development of agricultural production and was therefore considered to be compatible with the common market according to Art. 87(3)(c) EC Treaty.

212 As a rule of thumb, therefore, one could conclude that the Member States under certain conditions may promote co-existence by setting up and financing compensation schemes whose purpose it is to alleviate the concerns of farmers who want to continue conventional or organic agriculture but fear that they may suffer losses if one of their colleagues should decide to switch to cultivating GM crops.

213 The aspects of the Danish regime which the Commission deemed particularly crucial in order to qualify for an exception under Art. 87(3)(c) EC Treaty were that compensation was possible even in cases where none could be claimed under civil law, as well as the temporary character of the scheme, limiting its validity in time to the moment when suitable products are available on the insurance market. This possibility is not as illusory as it may seem: After all, one of the major obstacles for insurers in their bid to offer adequate products is the lack of experience with certain risks. An alternative compensation model that gets GM farming started on a broader scale will allow the market to gain such experience, which may be decisive for the insurance industry.

[242] Supra II.3(a)(i).
[243] State Aid Decision no. N 568/04.
[244] See the Community Guidelines for State Aid in the Agriculture and Forestry Sector 2007 to 2013, [2006] OJ C 319/1, p. 17 ff.

214 Another aspect of the Danish model stressed by the Commission was the fact that the scheme shall ultimately be financed by the GM farmers themselves. This raises doubts as to whether some other possible involvement of the State may be looked at equally favourably, for example a state guarantee backing up an insurance scheme. This question would have to be assessed by weighing the benefits of the scheme to sectoral developments against possible distortion of competition.

III. Options for the future

1. Range of desirable solutions

215 The current state of the law in all Member States already shows such a wide range of options that hardly any further variety is imaginable. Anything from traditional fault liability to no-fault compensation schemes can already be found. These are all, per se at least, at first sight desirable, if only for the very jurisdiction that introduced it.

216 In light of this undeniable diversity, one is inclined to ask whether it should be levelled out by harmonizing the laws at least with respect to certain aspects of such cases. An answer thereto will be sought in the following section.

217 Before this, let us have a quick glance at some of the key issues that need to be resolved if a uniform compensation model were to be developed,[245] without prejudicing for the time being whether this is feasible and/or desirable at all.[246] The list will not (and cannot be) comprehensive, as the problems are too manifold.[247] The items chosen shall merely give some idea of the complexity of the decision-making process that is inevitably needed for such a task.

218 Some aspects would have to be addressed irrespective of the type of regime chosen. One key question would be of course whether all economic losses of non-GM farmers shall be compensated or just parts thereof. This could be split into subtopics such as the importance of the 0.9% (or any other applicable) threshold (compensation only in the case of a higher degree of admixture?)[248] or the desirability of caps and/or thresholds (which, if answered in the affirmative, necessarily leads to the follow-up question of where exactly to set these limits)[249].

219 The biggest challenge for all compensation regimes is to define the trigger for payments, and this invariably includes an analysis of causation. How can this link be established, and who has got to prove it? The latter question is easier to

[245] See also the checklist supra I.2(c).
[246] See in particular infra III.2.
[247] First-party insurance, ad hoc and other compensation regimes will be disregarded during that brief overview, but obviously need to be considered as further options with peculiar problems.
[248] See also infra no. 257.
[249] See the critical analysis of financial limits by *M. Faure/A. Wibisana*, Economic Analysis (supra 565 f.) no. 89–91.

answer – it is hard to imagine that any system would relieve the claimant entirely of that task. However, from that decision onward, the situation gets less clear: What percentage of probability must the claimant prove (the range going from 51% to 100%), and are there any ways to soften this duty, in particular by way of factual presumptions or even a reversal of the burden of proof after a primary fact has been established?[250]

220 If the political preference should be in favour of resolving disputes between neighbouring GM and non-GM farmers in tort law proper, one would need to choose between a fault or strict liability model or any of the various hybrids between those two extremes, as well as a broad range of details. These choices would need to be made with an eye to the insurability of such liability risks.

221 If, on the other hand, a compensation fund were to be recommended as a standard solution for all Member States, the various options to finance the fund need to be thoroughly analyzed (including the manifold ways to adjust the fund to changing needs over time), as well as its administration (both with respect to the institution in charge as well as the procedure). One crucial choice will concern access to the fund for those whose loss was caused by the fault of another (and who therefore could claim compensation under tort law). At present, the scope of most funds is limited to cases of accidental admixture only. However, it is not entirely clear why those who seem to deserve easy access to compensation more than others are excluded for that reason.[251] After all, this would alleviate them of the risk of the tortfeasor's insolvency and shift it to the fund (which in turn could pursue the claim upon subrogation). On the other hand, awarding damages for negligently or even intentionally disregarding good farming practice under the regular tort system may provide incentives to abide by such rules, even though these could be mirrored in a compensation fund scheme by way of a recourse action against GM farmers who were at fault when causing the loss covered by the fund. Another feature of the fund which would need to be decided upon concerns its borderlines to the insurance market, which can be pinned down to the question whether the fund shall be set up only temporarily or on a permanent basis.[252]

2. To harmonize or not to harmonize?

222 Typically, those countries who opted in favour of specific legislation did so in order to make access to compensation easier and to shift the risks of GM farming onto those who decide to go ahead with it. Other countries have (whether purposefully or not) decided to maintain their traditional tort law rules with all the complications indicated earlier.

[250] See supra I.3(d)(iii).
[251] See also Finland no. 8.
[252] As the economic analysis shows, a merely temporary fund is preferable as long as the private insurance market does not offer adequate cover: *M. Faure/A. Wibisana*, Economic Analysis (supra 571 ff.) no. 110 ff.

223 Is such national diversity really desirable, or do we have to strive for harmonization in this field?[253] Harmonization as such can never justify itself, though – the existence of differences between the Member States per se is not sufficient reason to interfere with their national legal systems. After all, the differences between them may at least in part be triggered by diverse factual backgrounds, be it agroeconomic, climatic, market, or any other factors which do not change simply because the legal response thereto is altered.

224 The problem cannot be addressed, however, before resolving the fundamental question whether harmonization is feasible at all. If it were impossible, there is no point in deciding whether we want it or not.

(a) Degree of harmonization

225 One key question to be asked is how far a possible harmonization program should go. Obviously, this question is inseparably intertwined with the following ones that focus on the feasibility and desirability of the various options. A smaller degree of harmonization may be easier to achieve (both technically and politically) than the replacement of all existing redress schemes with a uniform model imposed from above. Nevertheless, the degree of interference with the national legal systems as they stand is per se rather policy-neutral, which is why these possible solutions will be addressed at this point.

226 To begin with, it is clear that there is no one-stop solution in response to the diversity of the laws of the Member States. Apart from no action at all, which is certainly one option that should not be disregarded just because it happens to be the solution with least activity at Community level, the other extreme at the opposite end of the range would be complete harmonization of all aspects of compensating losses arising from adventitious presence of GMOs in non-GM crops. The latter would require an exclusive regime to be set up which does not allow any deviations or alternative paths on the side. So if, say, the introduction of a European compensation fund were the model of choice, any alternative action in classic tort law would need to be ruled out entirely to the extent they overlap with the claims covered by the unified regime. This would presuppose that the latter is conceived in a way that allows no way out,

[253] The EESC (fn. 102, 4.7) has already made up its mind:
"4.7 Civil liability provisions must fully cover compensation for financial damages
4.7.1 The reproductive capability of GMOs and the fact that their unwelcome presence can cause financial damage to those affected makes it necessary to adapt the civil liability provisions in Member States to ensure that such damages are covered.
4.7.2 The civil liability provisions should ensure that those involved are liable only to the extent that they are able to prevent possible damages. Liability for keeping to good professional practice and any further expenses of the supplier of a GMO should rest with the users of that GMO. Conversely, the liability for damage occurring despite good professional practice being observed should rest with the supplier. If appropriate, the Community rules on legal liability should be adapted accordingly.
4.7.3 Suppliers or users of GMOs should be able to prove their ability to cover, whether through insurance or by similar means, any liability for damages that arise from their activities."

which in turn means that it must address all aspects of the claim as precisely as possible, from merely administrative points such as the procedure for filing and handling claims to the more fundamental question of financing, from a description of the requirements for compensation to the extent of compensation, how multiple claims are dealt with, how the regime handles cross-border issues (and also in this respect, forum shopping must be ruled out), and so on. However, one should note from the outset that previous efforts at European level to achieve complete harmonization in the field of tort law have invariably proven to be impossible to realize.[254]

227 A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. Depending on which points fall under the latter category, such a partial solution can be more or less far-reaching. As a rule of thumb, however, the more that is left to individual solutions, the less desirable such a model is from an EU perspective if uniformity is the ultimate goal.[255] While it will inevitably lead to different treatment of similar cases in the Member States, this may not necessarily be in conflict with the intention to proceed with harmonization in the first place. After all, some aspects of the claims will be handled in a uniform way, and a political assessment of the problem may lead to the conclusion that only those aspects are deemed crucial and worthy of harmonization. Identifying these elements will be critical, however. One (but certainly not the only) key aspect will be how to deal with the requirement of causation, for example, which is an essential component of any imaginable compensation mechanism.

228 A very mild form of harmonization (if at all) would be to offer a merely optional model for the Member States to consider without any need for them to implement it. It is questionable, however, whether such a solution deserves that name, since it will most likely not abolish the differences between the various regimes existing altogether, though maybe some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis perspective, one may wonder, however, whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system.

229 This has to be differentiated from setting a minimum standard that shall apply throughout Europe.[256] The policy choice could be, for example, that non-GM

[254] Cf. infra at no. 238.

[255] Cf. *J. Smits*, European Private Law: A Plea for a Spontaneous Legal Order, in: *D. Curtin et al.* (eds.), European Integration and Law (2006) 55, 62: "Another reason for the ineffectiveness of the acquis is that almost all private law legislation aims at minimum harmonization. This implies that the Member States can establish more stringent provisions to protect consumers, going beyond the directive itself. The effect of this is that companies are still confronted with divergent legislation among the Member States and may still be deterred from doing business elsewhere."

[256] But see fn. 255.

farmers deserve compensation for at least the immediate harmful effects of contamination, and that it should be more or less readily available to them. Further conditions or aspects could be included in defining that minimum standard. This would immediately change the status quo in light of the fact that some legal systems do not yet reach that benchmark. However, a common minimum standard is also not justified per se – again, one needs to ask whether such an interference, even if less substantial than others listed here, is necessary and desirable from a political point of view.

230 An alternative target that could be set would be that the Member States should regulate liability in such a way as to facilitate insurability of such risks, but leave the tools to reach that goal up to them to choose. Denmark has, for example, conceived its compensation fund regime in order to temporarily fill a gap until insurance is available, which at the same time may indeed be the trigger which makes the risk calculable and thereby insurable.[257]

231 Yet another option could be to conceive a system which only deals with cross-border contamination. However, the key argument against a similar plan with respect to environmental liability was that a "transboundary only system would … lead to subjects being treated completely differently within one Member State, since some, who happen to be involved in a case of transboundary damage, could be liable under the EC transboundary only regime, whereas others, who are conducting the same activity in the same country and causing similar damage, could walk free if the national regime happened not to cover such a case".[258] For lack of equal treatment, therefore, this option certainly deserves the label "least desirable" within the range of alternatives just mentioned, though the choice of either one of them will invariably discriminate against other problems of a similar kind that have not yet been addressed by Community action.[259]

232 A cross-border redress scheme such as just considered has to be differentiated from the question of how Member States respond to cross-border issues in the context of their national regimes. While the former solution would offer a substantive answer to the claimants, another way to strive for harmonization would be to merely tackle the jurisdiction and conflict of laws issues. However, both of the latter concerns either have already been answered[260] or are about to be solved[261] on a more general level, so coming up with a separate scheme would require very fundamental justification.

[257] See supra no. 181 and 213.
[258] White Paper on Environmental Liability, COM(2000) 66 final, 9.2.2000, 25–26 (available at http://ec.europa.eu/environment/liability/white_paper.htm).
[259] Cf. infra no. 259.
[260] Supra II.6(a).
[261] Supra II.6(b).

(b) Feasibility of harmonization

Technically speaking, anything goes. As long as the Community's authority to legislate in this field is not considered to be limited with respect to the action envisaged, possible measures can include the full range of options just listed. 233

However, from a legal policy perspective, the answer to the question whether one of those solutions really helps to reach the desired goal is not as straightforward, particularly not in light of the fact that one always needs to assess what side effects any measures may have on the legal systems of the Member States, and whether these are so critical that the intended action needs to be reconsidered. 234

The starting point for this inquiry is whether the Member States are prepared for the kind of Community action that is envisaged. 235

In light of the broad range of plant varieties, each with a peculiar risk of gene flow, the insurance report doubts "that one comprehensive insurance solution can be found for GMO crop."[262] However, it may well be that this biological diversity is still easier to overcome than the differences between the legal systems. 236

Throughout history, European jurisdictions have developed different claims cultures and different compensation cultures. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put considerable emphasis on a more individualistic approach. Seen from a distance, all tort laws at least seem to pursue the same goal, and all apparently use comparable tools. The closer one looks, however, the further apart they are, and it is the details that may well make the difference.[263] All jurisdictions require some causal link between the harmful conduct and the loss, but the way to convince the judge thereof is longer and more difficult in some countries than in others. All offer compensation if someone is hurt through the fault of another, of course, but some let the claimant prove it, others presume it and let the defendant refute it. Some jurisdictions are more open towards strict liabilities, others are very restrictive. 237

These differences need to be considered and taken seriously if Community action is to be taken in this field. Otherwise, the so-called harmonized regime will lead a life of its own, either hardly applied in practice at all due to better options in the internal laws of the Member States,[264] or, if effective, causing 238

[262] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 580) no. 13.

[263] See supra I.3.

[264] Cf. the fate of the Product Liability Directive, where the second report on its application more than fifteen years after its adoption had to admit "that only little information about the application exist and statistics, if available, are not complete". COM(2000) 893 final, p. 8. The third report is much more optimistic, though not quite understandably why: See COM(2006) 496 final, p. 6.

difficulties due to frictions with existing national concepts.[265] After all, the use of at least some basic general concepts such as damage and causation seems to be inevitable for any imaginable harmonized redress mechanism, and in light of existing dissimilarities between the Member States even at this fundamental level, either differences in applying the desired uniform standard or inconsistencies on the national level with local standards seem unavoidable. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. The outcome of academic efforts to define a standard for harmonizing tort law as a whole such as the "Principles of European Tort Law"[266] needs to be consulted in this respect in order to avoid problems of the kind experienced with previous attempts to interfere with national tort laws, carried through with an eye solely to the narrow focus of the matter.[267]

239 If we look at the present-day solutions to be found in the Member States, at least some of them seem to be the unique results of a unique legal, social, and economic environment, which as such is not transferable to other Member States.

240 Just think of the Dutch *Convenant Coëxistentie*,[268] which per se is certainly a very reasonable model,[269] but it is hard to imagine how this could be taken over by any other country. As the country report rightly states, achieving solutions in a bargaining process of the stakeholders is a "good Dutch tradition,"[270] but it is hard to predict whether such a tradition can be initiated elsewhere as well. Too many factors come into play here, including (but not limited to) the market situation, the structure of the insurance industry, the interplay of the government with interest groups and the like.

241 The optimistic statement at the beginning therefore has to be revised if the feasibility of harmonization is assessed in a more differentiated way. Full harmonization is not feasible at all, unless a uniform redress scheme is introduced which excludes all detours, backdoors and alternative ways to compensation in the Member States. Even if that should be the solution envisaged, one needs to bear in mind that any such singular regime would disrupt the harmony of the Member States' legal systems internally, which at least indirectly will also

[265] Cf. *J. Smits* (fn. 255) 67: "Harmonization means that European and national elements within one legal system form a consistent whole and, if there is no smooth cooperation between the two, it is hard to categorise harmonization as successful."

[266] *European Group on Tort Law*, Principles of European Tort Law (2005). See also http://www.egtl.org/Principles.

[267] The problems of the Product Liability Directive, for example, are evidenced by the three reports thereupon issued so far (cf. fn. 264) and the ECJ rulings in recent years, e.g. C-52/00, *Commission v. France* [2002] ECR I-2553, and C-154/00, *Commission v. Greece* [2002] ECR I-3879.

[268] Supra II.4(b)(i).

[269] See *M. Faure/A. Wibisana*, Economic Analysis (supra 535) no. 10, on economic arguments in favour of contractual solutions.

[270] The Netherlands no. 48.

have a bearing at the European level. Any less ambitious degree of action at Community level will not lead to harmonization in the narrower sense of that word, as the implementation and subsequent application of such an effort will not necessarily lead to uniform solutions. However, that per se should not be seen as a deterrent to interfering with the existing situation, it just needs to be borne in mind in order to correctly assess the impact of any such plan when deciding upon it.

(c) Desirability of harmonization

(i) Is the internal market really affected by such diversity in any negative way?

242 The impact of local compensation schemes on the internal market is often overstated, as is the preventive effect of a tort law rule in general, which plays the key role in this respect, even though the two need to be looked at separately: Even if a liability regime should have a preventive effect, this does not necessarily mean that it deters foreigners from submitting themselves to it by doing business in that legal system – they may simply choose to pursue their activities with due consideration of the potential consequences thereof if something goes wrong.

243 While there are quite important differences between the laws of delict in all Member States, on average they do not reach far enough to play such a decisive role in the choice of market participants as does, say, the "quantum leap" to the U.S. tort system, the latter being marked not only by the theoretical availability of punitive damages,[271] but in particular by substantial procedural advantages for victims to pursue their claims (starting from contingency fee arrangements with attorneys to the manifold ways to aggregate claims, from extensive possibilities to obtain evidence during discovery to the role juries play in court practice).

244 Local market conditions in the narrower sense (such as the costs of human labour, land, or of raw materials, the availability of subsidies, the regulatory framework for the branch of industry concerned etc.)[272] seem to be much more influential than the likelihood of losing a tort case, which in turn also quite significantly depends upon the duties of care established by administrative law. Besides, the better the rules prescribing good farming practice (coupled with effective surveillance of compliance), the lower the risk that damage will be caused, which is one of the reasons why such rules were introduced in the first place.

[271] This red rag of European enterprises has a much more faded colour, though, in light of statistics underlining the very limited practical importance of this head of damages.

[272] Cf. *M. Brülhart* (supra fn. 25) 128; *J. Smits* (fn. 255) 66 ("[T]he importance of law should not be overestimated either."). See also *M. Faure/A. Wibisana*, Economic Analysis (supra 550) no. 50: "[A] much more important role will in practice be played by safety regulation than probably by liability rules, at least as far as prevention is concerned."

245 The less predictable losses and/or duties to compensate them are, the more likely market participants will have a distorted perception of the risk, and this is even more so when emotions tend to at least influence (if not prevent) rational decisions.[273] If that is the case, the risk will either be over- or underestimated, thereby preventing at least to some extent the proper interplay of rules regulating the market ex ante with those responding ex post to failures and defects on the market.

246 The decisive factor in GMO agriculture is the openness or hostility of a legal system towards such technology in general, which is reflected by more or less lenient buffer zone definitions and other regulatory choices. Tort law typically only mirrors the attitude of the respective market towards GM farming. Liability rules are therefore generally more a symptom and not the cause of market conditions attracting or deterring new entrants.

247 Only extreme variations may have a more noticeable effect on mobility in the internal market, such as the complete unavailability of tort law protection in certain fields, or – at the other end of the spectrum – a very harsh liability regime which effectively makes it impossible (or too expensive) to obtain insurance cover.

248 Above all, one may wonder whether mobility in the internal market is really of major concern to farmers. Those who have their fields on or near national borders may be exposed to foreign legal rules anyhow, even without leaving the country (though the seeds or pollen from their fields may).[274] Undoubtedly, though, seed producers, for example, who operate internationally will at least be indirectly affected by tort law restrictions in one state which effectively amount to a market barrier there. However, this does not lead to "legal uncertainty"[275] at all as long as the rules governing choice of law are clear, and they will (or at least should) be, at latest once the Rome II Regulation is in force.[276]

249 Even if one reached the conclusion that diversity does affect the internal market in a negative way, one should still ask the necessary (but often forgot-

[273] See also *W. van den Daele*, Special features of the public debate on the risks of transgenic crops – The dynamics and arenas of a modernization conflict, in: *MunichRe* (ed.), 5th International Liability Forum Munich (2001) 25 at 56:
"Risk regulations – even under the precautionary principle – select among fears; they take only fears into account that can be based upon some 'reasonable' assumption of possible damage. Risk is a formula for justified fears. However, fears are emotional facts, and they do not need to be justified in order to be real. To be told that your fears are not justified will not necessarily reduce these fears; in fact, it may instead propel mistrust in the authorities who tell you this."

[274] See II.6.

[275] This is presumed (but not explained) by the European Economic and Social Committee (fn. 102) 3.7.3.

[276] See II.6(b)(ii). This cannot avoid potential uncertainties with respect to losses incurred at both sides of the borders to non-EU countries, but this problem cannot be solved by an EU-internal liability regime anyhow.

ten) follow-up question whether a harmonized regime adds any improvement to that situation. It is well imaginable that harmonization makes the situation even worse, if only by causing frictions with existing national rules that continue to apply, or by replacing non-uniform rules with harmonized ones whose application in the Member States turns out to lead to even more differing solutions. If this is not ruled out, the search for factors affecting the internal market in support of legislative action at European level will inevitably be incomplete and unbalanced.

Furthermore, harmonization would have to go beyond setting a mere minimum standard, otherwise the problem of diversity will persist (although changing this need not necessarily be the political intention after all).[277] 250

Ultimately, the question of how much the internal market is indeed affected by the existing diversity of compensation models cannot be answered by a legal study. It would require further research from an economic and sociological perspective, including a survey among market participants.[278] 251

(ii) Should the Community interfere with present-day solutions?

The current situation in the Member States reflects their outlook on GMOs. The various solutions offered for losses caused by gene flow are just one indication of the overall attitude. They are all based upon a weighing of interests, and the choice of tools speaks for itself. Far-reaching tort claims against GM farmers without any effective possibility for them to take out insurance can be contrasted with state-backed compensation funds that are designed to spread these farmers' individual risks evenly. Selecting one model over the other is a policy choice, and it is not determined by any inherent feature of the respective legal system in general or its tort law in particular. 252

The key question is therefore whether the EU wants to give a boost to GM farming in Europe, and whether this has to happen in all Member States alike. This is clearly not a legal question, and it is certainly not our task here to find the answer thereto. 253

One may well ask, however, whether this answer needs to be found in the tort law arena at all. Promoting GM production can be achieved by other, more direct means, and if the problem is rooted in the general public's fear of or mistrust in genetic engineering, tort law cannot offer any way to overcome that fear or to establish confidence. 254

[277] Cf. the citation by *J. Smits* supra fn. 255.

[278] But see the outcome of an economic study submitted in preparation for the Environmental Liability Directive, which – in line with the above reasoning – concluded that "[i]t seems unlikely … that existing liability systems in EU Member States are currently creating any significant distortion of trade": *ERM Economics*, Economic Aspects of Liability and Joint Compensation Systems for Remedying Environmental Damage (Summary Report), Annex 2 to the Commission's White Paper on Environmental Liability (fn. 258) 37, 39.

255 However, even though different ways to compensate the losses envisaged here are just the symptoms and not the cause, finding a cure for the latter may also require a look at the former.

256 If the political choice should be in favour of at least reducing differences between the Member States' ways of handling losses caused by admixture, a clear starting point lies beyond the domain of compensation rules. It is an essential prerequisite for all legal systems to identify the proper yardstick for evaluating the conduct of the GM farmer, which is not only essential for a fault-based claim: It is also crucial for the compensation fund models presented above[279] to know whether the claimant could also recover in tort law – most of them are only designed for cases of accidental admixture, and even if not, it is still decisive whether the funds will have a recourse action against a tortfeasor by way of subrogation. Consequently, defining good farming practice is a fundamental task which needs to be fulfilled before any further thought is given to the follow-up issue of how to respond to a situation where someone does not adhere to that standard or causes loss despite full compliance.[280] If we look at the substantial differences in the definition of buffer zones alone, it is obvious that there is yet a long way to go before uniformity can be achieved in this respect.

257 A further crucial point is more focused on the definition of the damage which triggers the compensation mechanism.[281] Above all, it is essential to decide whether claimants shall also recover losses caused by admixture even though it remains below the 0.9% threshold. The losses as such may not be talked away, but the question is whether the legal system shall indemnify them. Such choices need to be made throughout tort law,[282] and they certainly need to be made here. Again, the answer is not predetermined by the fundamentals of tort law – it is the result of balancing the interests involved, and as in any weighing process, the outcome is not entirely predictable. Setting a standard here could resolve some uncertainties which may account at least for some differences between the Member States.[283] This applies correspondingly to seeds, where a clear threshold is currently lacking altogether.

258 How far harmonization shall go[284] is yet another political choice, as is the selection of the preferable model.[285]

259 One discomforting question still needs to be posed upfront, however: Why should there be Community action for cases with such a comparatively narrow

[279] Supra II.3.
[280] See also *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 581) no. 14.
[281] See also DEFRA Consultation Paper (infra 720 ff.) no. 140: "In establishing any redress mechanism the specific economic losses which redress is available need to be clearly identified."
[282] Cf. supra I.3(c).
[283] *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers (supra 578) no. 4.
[284] Supra III.2(b).
[285] Supra III.1.

risk scenario and not in other areas which are much more relevant in everyday practice? Liability for traffic accidents, for example, has not yet been harmonized in Europe.[286] The same question has to be answered at Member States' level, of course: Setting up a compensation fund for problems of co-existence may not be an obvious first choice on the agenda of legislators,[287] and the same is true for the ranking of problems that may adversely affect the internal market.[288] On the other hand, no task list will ever be completed if its items are not tackled one by one. As long as the particular item and the way it is being handled fits into a broader regime, there is no reason why it should be left aside just because there are other tasks left to be addressed.

[286] However, motor vehicle liability insurance is significantly regulated, which effectively cushions the most pressing needs in cases of cross-border accidents. Nevertheless, the major reason why Parliament has proposed signficant changes to the Rome II draft (supra II.6(b)(ii)) is exactly the lack of uniform liability (and remedies) rules.

[287] See also supra no. 143 and 152.

[288] Cf. *J. Smits* (fn. 255) 62: "[I]t is quite arbitrary why some topics are part of the acquis and others are not. … If the purpose of the EU is to address issues that may hamper the functioning of the internal market, there is much more to regulate than is currently being done."

Conclusions and Recommendations

Bernhard A. Koch

A survey of all EU Member States shows considerable differences between the various ways that non-GM farmers may be compensated for their economic losses resulting from the admixture of their crops with GMOs stemming from an adjoining field. 1

All foresee at least some sort of minimum protection, if only by offering a general tort law claim under its regular conditions. The latter is currently true for the majority of the Member States, which is not surprising in light of the rather exceptional character of GM farming in most European countries at present. This also seems to be why many have so far not yet seen a need to change existing rules for the risks under survey here, even though other legislation addressing co-existence may have an indirect effect on the application of the respective tort law regime, e.g. by defining the standard of due care. However, existing dissimilarities between the tort laws of the Member States already make for quite substantial variations in the way potential claims would be handled and resolved. 2

This diversity is immediately evident when one considers the kinds of harm the various legal systems recognize as compensable: Purely economic loss is treated separately in some countries (and will therefore only be indemnified subject to additional conditions), whereas it falls under a more general notion of damage in others. Even if a loss is recognized from a tort law perspective, it needs to be linked to a cause within the defendant's sphere. Differences relating to this particular requirement of tortious liability stem not only from substantive, but also from the respective procedural laws of the Member States. Furthermore, there is a wide range of policy reasons for holding a defendant liable, if all other requirements are met, starting (at least historically) from the defendant's subjective fault to strict liability, which does not depend upon a value judgement of the defendant's behaviour. In between are, for example, more objective forms of fault as well as presumptions thereof. 3

All jurisdictions have shaped their tort laws with selections from that range, but that choice was not made uniformly throughout Europe: In an overall as- 4

sessment of the current situation in the Member States, some focus more on the fault side of that range, whereas others have moved towards its no-fault end to a greater or lesser degree. Some jurisdictions have chosen to introduce a special liability regime designed specifically for the risks under survey, or to refer them expressly to some already existing special rules of tort law which address other risks as well. Invariably, claims in those countries will fall under some strict (or at least stricter) liability regime.

5 The Member States have of course all implemented the Product Liability Directive whose regime will most likely not apply to cases of the kind envisaged here, though.

6 Almost all legal systems seem particularly concerned about possible disputes between neighbours, inasmuch as all offer at least some form of special remedy irrespective of fault in cases where some harmful influence originated from adjoining land. The underlying motive is to find a compromise between two conflicting interests which per se are of the same value since both landowners have the identical right to enjoy their property. The solutions found to solve such neighbourhood conflicts therefore seem to be at least one model to consider for developing co-existence rules in the GMO case scenario. However, the ways Member States tackle these issues differ considerably as well. One key aspect common to all jurisdictions in such cases is, however, that they tend not to focus so much on the question whether the behaviour of which the neighbour complains is faulty, but whether it is unusual in the area (even though it may be common in other places), which is a highly objective standard.

7 Fault liability nevertheless remains the default rule in all tort laws. Typically, fault or any other general provisions of tort law are not superseded by strict liability rules altogether, which almost invariably tend to leave certain aspects of the claim to be governed by more general rules. Even if a legal system foresees a strict liability claim in response to a certain loss, this will hardly ever be the exclusive path to compensation for the victim as she may still be able to resort to traditional tort law (i.e. fault liability) alternatively or even cumulatively (though not beyond her actual loss).

8 Depending on the scope of the applicable liability regime, the immediate neighbour who cultivates GM crops is not the only imaginable defendant, but all other farmers in the area, and (apart from cases of established wrongdoing by one of them) it will depend upon the rules of causation to select who will be considered to have set a (possible) cause, and whether and to what extent mere likelihood thereof will suffice to proceed with the case against each of them. The majority of European legal systems, but not all, provide for joint and several liability of all those from whom the admixture may have originated in a way which would trigger liability.

9 Other possible defendants include the seed producers or distributors, those in charge of the farming equipment used (not only) in GM fields, as well as the

authorities whose licenses made the GM cultivation admissible. This does not necessarily mean, however, that all of them will be subject to liability – after all, its requirements need to be fulfilled in order to trigger an award.

10 One fundamental advantage of attributing the losses under survey here via tort law is the fact that it is a risk spreading scheme which is generally accepted in society, not only in light of its strong roots in history, but also since it corresponds to very basic notions of corrective justice, at least in its core. It is essential, however, to keep in mind that its primary function is to compensate losses and not to prevent them. Even though the latter were desirable, other areas of the law offer better tools to achieve that. Liability rules may have a preventive effect, though, even more so if they significantly improve the victim's position: The lower the requirements to hold someone liable for a certain behaviour or activity, the more likely it will be reconsidered by the actor particularly if deciding to go ahead with it is based upon an advance economic assessment of the expected benefits and detriments.

11 Any Community action trying to harmonize tort law as a response to GMO admixture should be based upon careful considerations of the dangers such an interference with existing national laws might bring about. Throughout history, European jurisdictions have each developed an individual claims culture and a distinct compensation culture. Some are more open towards the idea of national solidarity and collective risk-sharing, others still put considerable emphasis on a more individualistic approach. Imposing uniform rules for a comparatively narrow case scenario such as the one envisaged here may lead to a solution which may not be available under all existing tort laws, even though it will necessarily have to build upon at least the more fundamental concepts thereof. Tort law language may alone lead to complications as the technical terms that unavoidably will have to be used are understood by the respective jurisdiction in the way it has evolved there, with all its distinct features and interactions with other aspects that the GMO scheme may not include. Attempting to find a uniform standard for indemnifying losses caused by gene flow may thereby risk an admixture of tort law regimes even within one single Member State. Full harmonization cannot be achieved anyhow unless tort law is harmonized in a more general way which applies beyond singular case settings, and this does not seem to be an option for the time being.

12 It is also important to note in this context that differences in technical or administrative rules on co-existence will most likely have a greater impact on the feasibility of cultivating GM crops and the protection of non-GM farmers from GMO admixture than the existing differences in liability rules: Generally, co-existence approaches are aimed at avoiding damage in the first place. Under normal conditions, and if good farming practice is well designed, damage should be the exception. Consequently, rules intended to avoid harm should have a greater impact than rules applying to cases where segregation measures have failed. Harmonization of liability would therefore only make sense after these ex ante aspects of co-existence are harmonized.

13 A further crucial point is more focused on the definition of the damage which triggers the compensation mechanism. Above all, it is essential to decide whether claimants shall also recover losses caused by admixture even though it remains below the 0.9% threshold. The losses as such may not be rationalized away, but the question is whether the legal system should indemnify them. Such choices need to be made throughout tort law, and they certainly need to be made here. The answer is not predetermined by the fundamentals of tort law – it is the result of balancing the interests involved and, as in any weighing process, the outcome is not entirely predictable. Setting a standard here could resolve some uncertainties which may account at least for some differences between the Member States. This applies correspondingly to seeds, where a clear threshold is currently lacking altogether.

14 Notwithstanding these caveats, tort law may certainly be designed in such a way as to redistribute at least some losses resulting from GMO admixture. However, certain limits will always have to be taken into account which are not inherent in tort law proper, but inseparably connected thereto. Tort claims are traditionally administered by regular courts of law, and the procedure to obtain compensation can be cumbersome, time-consuming and costly. Even if the plaintiffs succeed at the end of this process, they may still not be able to collect damages from the defendants if they do not hold sufficient funds to pay their dues.

15 At least the latter could be avoided if the defendants held liability insurance that covers such losses, though the other (and more fundamental) problems would remain unsolved which concern the tort law claim itself, to which liability insurance is obviously closely connected. If the losses fell under some first-party insurance scheme, however, the victims would not have to resort to tort law in the first place. Probably all farmers already have first-party policies such as farm property insurance, though covering different risks, for example natural disasters such as hail or the like. However, these hazards are typically named in a closed list which typically excludes risks such as GMO admixture at present.

16 Whether third- or first-party insurance, both allow the pooling of risks among a larger group of people exposed thereto and the pool is even bigger if taking out such cover is made mandatory. The insurer can tailor its products according to the various aspects of the risk. At least in theory, for example, those who run a higher risk will typically also pay higher premiums (though not necessarily so, and it is certainly not a linear correlation). The procedure to pay out awards will be less complicated than before a court of law.

17 First-party insurance has the additional advantage for the victim that her peculiar risk is taken care of She should know best what losses she may suffer, and she can therefore (at least in theory) buy cover against such risks tailor-made to her situation. Payments can be even faster than under a liability insurance scheme with direct claims, because the insured risk focuses on the occurrence

of the harm and (at least in general) not its cause, even though certain risks may be excluded. This is not the only reason why this type of insurance may be the most cost-efficient regime. First-party insurance could be of special importance at least in all those cases where there is no other way that leads to compensation, for example due to difficulties of proving causation, or because the applicable national system denies liability for other reasons, in particular if the cultivation of GM crops was carried out in accordance with the applicable farming standards in force at the time.

18 Further problems with insurance, whether first- or third-party, may arise, however, when insurers assess the risk: They may be lacking crucial information (even with all due efforts), or may not be in a position to duly take account of them when calculating premiums. The policies may include limitations of certain risks or other restrictions. The insured amount may not suffice to cover the full loss owing to manifold reasons, which could have grave consequences. Those at risk may not be aware of it at all or have false assumptions of the extent of the risk: Conventional or organic farmers simply may not know that someone in their vicinity has started to cultivate GM crops. This may seduce them out of buying insurance at all or only subject to unreasonable limitations. Such problems could be remedied by making insurance compulsory, but that may distort the functioning of the market forces.

19 At present, neither liability nor first-party insurance products covering GMO risks seem to be available on the markets under survey. Problems for insurers in this respect can be traced back to the standard criteria which would allow them to consider whether such risks are insurable: estimable frequency and severity, the fortuitous nature of the loss, and the ability to spread it. Arguably, there is currently not enough data available to predict both likelihood and extent of possible losses, particularly in light of the broad range of plant varieties and their peculiar features that have a bearing on these aspects. Unless it is clear for insurers that losses below the legal threshold of admixture need not be covered, the fortuitous aspect of the risk may be lacking entirely, as complete segregation is impossible in a co-existence environment. Arguably the most important obstacle to offering liability insurance cover is a liability regime which allows for compensation of any type of loss irrespective of any wrongdoing by the insured and coupled with a presumption of causation, or – probably even worse – a liability regime which does not allow for predictions of how an admixture case would be solved.

20 Problems relating to the insurability of the risk of admixture could be avoided if a compensation fund were available to absorb it. Some Member States have indeed already decided to establish such a fund or are at least considering doing so in future.

21 Compensation funds are typically tailor-made to a particular risk scenario. The procedure to assess a claim and to make payments is often faster. Since the risk group is identified in advance, the administration of the fund can also be

designed according to their specific needs. The range of payors may be broader than under other indemnification regimes – not only those immediately concerned will be involved, but also others with a more general interest, including the State which may otherwise not contribute to indemnifying losses (though participation in an insurance pool may be imaginable). Compensation funds need not necessarily follow the restraints of actuarial mathematics and therefore can be introduced to fill a gap in the insurance market: Even if commercial insurers feel unable to offer cover, compensation funds may nevertheless (or even just for that reason) be installed in order to at least serve as a temporary solution until the market can take over.

22 Compensation funds may operate with less financial means, however, and depending upon the pooling arrangement, the funds may be dried out even before all claims have been settled. Lack of current information is not the only reason why compensation funds may have to struggle with inadequate risk assessment – depending on the political pressure that tends to precede the formation of such a risk pool, its conditions may not even entirely reflect what is already known. Risk differentiation may also be inadequate in comparison to alternative indemnification models. Those who contribute to the fund are not necessarily those who are in control of the risk that should be covered, or at least their contribution may not reflect the actual weight of their influence. Payments out of the fund may not be as predictable as insurance awards, particularly if the means of the fund are limited, or if payments are at least in part only discretionary awards. A much more serious problem arises, however, if the fund is installed ad hoc after the first loss has actually occurred. One major argument against compensation funds is the principle of equality: Why are certain risks (and therefore certain claimants) favoured whereas others are left to the more traditional ways of obtaining compensation? Indeed, one may wonder why a comparatively exotic risk such as the economic losses caused by gene flow should deserve to be addressed by a special fund as long as traffic accidents and other, much more frequent loss scenarios are not equally addressed. This question can of course also be posed with respect to any other special solution, for example in the field of tort law.

23 At first sight, one is inclined to think that the existing diversity of solutions could negatively affect the functioning of the internal market. However, from a legal point of view, there is no obvious reason for grave concerns in this respect for two reasons: First, similar degrees of diversity for compensation mechanisms also apply in other areas, and second, the internal market is more likely to be affected by the diversity in technical co-existence measures. An economic or sociological study may have different findings, though.

24 Any choice to interfere with the present national compensation models in an endeavour to achieve at least some degree of harmonization will necessarily have to be based on a political opinion-forming. The legal perspective itself does not offer sufficient guidance to single out an optimal solution.

After all, the tort law and other compensation systems applicable to the cases under survey here only mirror the attitude of the respective jurisdiction towards GM farming, which is primarily marked by other rules such as definitions of good farming practice which come into play ex ante, whereas indemnification by definition is only an ex post matter. Consequently, defining good farming practice is a fundamental task which needs to be fulfilled before any further thought is given to the follow-up issue of how to respond to a situation where someone does not adhere to that standard or causes loss despite full compliance. 25

The various solutions presently offered for losses caused by gene flow are all based upon a weighing of interests, and the choice of tools speaks for itself. Far-reaching tort claims against GM farmers without any effective possibility for them to take out insurance can be contrasted with state-backed compensation funds that are designed to spread these farmers' individual risks evenly. Selecting the one model over the other is a policy choice, and it is not determined by any inherent feature of the respective legal system in general or its tort law in particular. 26

As could be seen above, there are various ways to respond to the risks on which this study is focusing, and so are the possible degrees of harmonizing the current national solutions. All have their peculiar advantages and disadvantages. The choice of either option will necessarily be dominated by the replies to the more fundamental questions of how to promote co-existence, and how far to go in achieving that goal. 27

It is clear that there is no one-stop solution in response to the diversity of the laws of the Member States. Apart from no action at all, the other extreme would be complete harmonization of all aspects of compensating losses arising from the adventitious presence of GMOs in non-GM crops. The latter would require that an exclusive regime will be set up which does not allow any deviations or alternative paths on the side. 28

A lesser degree of harmonization could be achieved by identifying a compensation model for all Member States which leaves certain aspects open for them to regulate individually. As a rule of thumb, however, the more that is left to individual solutions, the less desirable such a model seems to be from an EU perspective. It will inevitably lead to different treatments of similar cases in the Member States, but this is not necessarily in conflict with the intention to proceed with harmonization in the first place. After all, some aspects of the claims will be handled in a uniform way, and a political assessment of the problem may lead to the conclusion that only those aspects are deemed crucial and worthy of harmonization. Identifying these elements will be critical, however. One (but certainly not the only) key aspect will be how to deal with the requirement of causation, for example, which is an essential component of any imaginable compensation scheme. 29

30 A very mild form of harmonization (if at all) would be to offer a merely optional model for the Member States to consider without any need for them to implement it. This will most likely not abolish the differences between the various regimes existing altogether, however, even though some Member States may indeed adjust their systems accordingly. From a cost-benefit-analysis perspective, one may wonder whether establishing such a regime is really needed in light of the fact that the various options currently chosen by the Member States already constitute a full catalogue of possible schemes, and the pros and cons of each of them are clearly visible for those jurisdictions which are considering a re-evaluation of their own system.

31 This has to be differentiated from setting a minimum standard that shall apply throughout Europe. The policy choice could be, for example, that non-GM farmers deserve compensation for at least the immediate harmful effects of contamination, and that it should be more or less readily available to them. Further conditions or aspects could be included in defining that minimum standard. An alternative target that could be set would be to require Member States to achieve insurability of such risks, but leave the tools to reach that goal up to them to choose.

32 Another option could be to conceive a system which only deals with cross-border contamination. This would lead to inequalities, however, since victims of a transboundary incident would be treated differently from purely national cases.

33 Defining cross-border matters on a purely technical level does not seem to be necessary: Questions of jurisdiction are already determined by European law, allowing a tort law claimant to sue not only in the country where the loss occurred, but also where the harmful cause was set. Conflicts of tort laws is already covered by European legislation that will soon become effective. From then on, in all countries where it will apply, the law of the jurisdiction in which the damage occurs shall govern, irrespective of the place where the event giving rise to the damage occurred, so that the law of the non-GM farmer would apply to tort claims. The only potential gap could concern the question whether national compensation funds allow foreign victims to file transboundary claims, but such gaps may be filled by bilateral arrangements, for example.

34 The key concern of any steps taken towards harmonization – if that should be the political preference – must be the interaction of any uniform guidelines or rules with the existing legal systems in general and the tort law regimes in particular.

35 This makes it hard to imagine how a uniform liability regime as such could be introduced without more far-reaching efforts to link it to some common basis of European tort law in general which has yet to be defined. As long as insurers do not offer adequate products on the market covering first-party or third-party risks of the kind under survey here, considerations to leave the matter to the

insurance market forces are rather academic: The reasons brought forward by insurers as obstacles to covering such risks therefore have to be addressed first. Compensation funds as a temporary solution filling these gaps in the insurance market seem to be a workable solutions in some Member States, but whether it is desirable and feasible to establish such a regime for the others, either at national or at European level, depends upon economic and political factors beyond the scope of this study.

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Bernhard A. Koch (ed.)

Damage Caused by Genetically Modified Organisms

Comparative Survey of Redress Options for Harm to Persons, Property or the Environment

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Table of Contents

Introduction

Bernhard A. Koch

Co-existence of modern and more traditional farming techniques is not only a matter of agricultural law and practice. Biotechnology in particular triggers concerns and even fears whether its use in the food and feed supply chain may cause losses to farmers or seed producers, to distributors or processors, to consumers, or to the environment. Consequently, the question who should compensate such losses and how is an important item on the agenda of those regulating the market. No matter how likely or improbable such losses are, the mere existence of such worries calls for at least clarifications as to what the remedies could be and who should provide them, and these answers should ideally be given upfront in order to enable the peaceful coexistence of conventional, organic and GM farmers. **1**

The present study is the product of a follow-up project to a previous endeavour by almost the same team of authors some three years ago dealing with a more limited question of losses caused by genetically modified organisms, i.e. the economic loss resulting from the adventitious presence of GMOs to neighbouring (conventional or organic) farmers. The initiative at the time came from the European Commission directly, whereas the current work is financed indirectly with EU monies through an FP6 integrated project called "Co-Extra"[1]. The outcome of the earlier research was published in 2008[2]. To the extent that the issues overlap the authors in this current volume will obviously rely on cross-referencing to their earlier contributions rather than duplicating the texts. In both studies, the views presented are those of the authors and do not necessarily reflect the opinion of the sponsors. **2**

The following contributions aim at tackling aspects of delictual liability not yet covered by their predecessors. While the original task was to concentrate on the (pure) economic loss of adjacent farmers only, here we are trying to address further possible losses in the entire food and feed supply chain, including (but not limited to) losses of individuals as well as harm **3**

1 http://www.coextra.eu.

2 B.A. Koch (ed), Economic Loss Caused by Genetically Modified Organisms. Liability and Redress for the Adventitious Presence of GMOs in Non-GM Crops (2008).

to the environment. However, it is impossible to provide a comparative study of all imaginable losses in all jurisdictions covered, analyzing all aspects of potential claims. Instead, the focus will primarily be on deviations from standard tort law as well as on alternative routes to compensation. Claims based on contract law will be mostly disregarded, since these problems will be covered by yet another study within the Co-Extra framework. However, some pointers to contractual obligations will be inevitable, particularly in those jurisdictions where the borderlines between tortious and contractual liability are less strict.

4 Unlike the previous study, the current survey includes non-European jurisdictions for the sake of comparison, selected in light of their market importance and particular experience with GMOs. Not all European countries could be covered, of course, but the twenty jurisdictions chosen from all legal families should constitute a representative sample.

5 In order to asses the state of the law in all these legal systems, a standardized questionnaire was sent out to all reporters, to which they provided replies to the extent that the questions were relevant for their respective jurisdiction. In light of the harmonization in the field of conflict of laws and jurisdiction within the EU, a separate report was commissioned presenting the (at least in part just recently) harmonized aspects of cross-border claims in the Member States. A further paper analyzes international environmental law, in particular with an eye to ongoing developments initiated by the Cartagena Protocol on Biosafety. Specific problems that the insurance industry faces are presented by a report drafted by a senior risk expert working for a major reinsurer. An economic analysis gives insight into the legal problems from a different, but equally important perspective. The comparative report at the end does not try to summarize the state of the law in all jurisdictions considered – this would by far exceed the scope of this volume and the task pursued. Instead, it is meant to serve as a pointer to more detailed information throughout this volume, but also to highlight the key areas of concern where problems may lie when aiming at co-existence despite potential risks of admixture.

6 When considering the various types of losses imaginable, the assessment starts from the assumption that such damage was indeed caused, without questioning the scientific likelihood that such risks may indeed materialize. This is the task of scientists, not of lawyers. Tort law in particular steps in once something has gone wrong and proceeds from there. Furthermore, as in the previous volume, even the adventitious presence of GMOs in non-GM crops will occasionally be referred to as "contamination". The person that thereby (directly or indirectly) suffers harm will be

called the "victim", who seeks indemnification in tort law from a "tortfeasor". The use of such words is purely technical and is not meant to have some pejorative undertone.

Questionnaire

I. General overview

1. Are losses caused by GMOs covered by any specific liability or other compensation/redress regime in your jurisdiction, or are these losses at least addressed expressly by a special regime with an otherwise wider scope of application? If so, please present these in overview and describe the extent to which they overlap/interact with more general tort law regimes, and where they differ.
2. Can the state be held liable for any such losses under certain conditions, or do general or special rules of sovereign immunity apply? To what extent (if at all) does state liability deviate from the standard tort law regimes? If you mentioned a special regime under 1, to what extent is the state involved therein?

II. Damage

1. Which losses caused by GMOs are recoverable in your jurisdiction in general?
2. Is pure economic loss recoverable, and if so, under what conditions?
3. Is mere fear of a loss triggered by GMOs recoverable (e.g. non-pecuniary loss due to the fear of developing an illness in the future)? If applicable, please mention how the fear of mobile phone radiation or of adverse consequences of other modern technology is considered in your jurisdiction.
4. What is the standard of proof with respect to establishing losses envisaged by this study, particularly with an eye to future losses?
5. Are nominal/symbolic losses recognised in your jurisdiction?
6. Are there any special rules for mass losses (apart from caps – e.g. special rules on establishing/proving loss)?

III. Causation

1. How does your jurisdiction react to the uncertainty of merely potential causes (as in cases of alternative causation, for example), particularly in light of causes possibly lying within the victim's own sphere? Possible scenarios relevant for this study include cases where it is unclear who violated segregation rules/good farming practice, for example.
2. Do special rules apply in case of more complex cases such as scenarios comparable to the DES cases (e.g. where a food producer has bought maize from several producers in differing quantities, and it remains unclear which batch was contaminated)?
3. What is the impact of force majeure when it comes to establishing causation?
4. Threshold to prove causation
5. Are there any special rules on causation (including those developed in court practice) that may apply to GMO cases?

IV. Types of liability

1. Fault liability
   (a) If fault rules are applied in the cases envisaged here, are they handled in any special way (e.g. by reversing the burden of proving fault, or by altering the standard of care)?
   (b) Does it make any difference if specific (statutory or customary) rules governing GM or non-GM farming (e.g. good farming practice, segregation rules, food safety or hygiene provisions, etc.) have been violated?
2. Product liability
   (a) Did your jurisdiction incorporate the development risk defence when implementing the EC Product Liability Directive (85/374/EC)? Whether or not this is the case, how is this aspect handled in practice?
   (b) Apart from the regime implementing Directive 85/374/EC, does your legal system have any alternative route for compensating losses caused by (agricultural) products? What are the conditions thereof, and do you think it will survive the scrutiny of the ECJ (which in

recent rulings has repeatedly insisted on the Directive's regime as being not only a minimal, but an exclusive standard)?

(c) How does it affect liability if it is proven that the defendant has obeyed all rules and regulations governing his production process?

3. Environmental liability

(a) How did your country implement the Environmental Liability Directive (2004/35/EC)? Do you foresee financial guarantees?

(b) Is there any liability regime covering environmental harm in your jurisdiction which exceeds the scope of Directive 2004/35/EC?

(c) Who can recover what losses in the case of harm to biodiversity or other harm to the environment as such?

(d) Is there any special liability regime covering losses sustained by individuals in the course of damage to the environment as such (e.g. nuisance or neighbourhood regimes)?

(e) What is the position of your jurisdiction with respect to international agreements such as the Cartagena Protocol?

4. Other strict liability regimes

Are there any (other) strict liability regimes applicable in cases of harm caused by GMOs (apart from product or environmental liability as just mentioned)?

V. Vicarious liability

1. Please mention very briefly the scope of vicarious liability in your jurisdiction, in particular whether someone can be held liable for an independent contractor hired by him/herself.

2. If you consider the feed and food production chain, who would be liable for people further up (e.g. the crop retailer for the crop wholesaler, or for the farmer, or the latter for the seed producer etc.)? Please disregard contractual liability for warranties relating to the products.

3. Can someone further down the feed or food chain include someone further up it in a trial against him/herself? Can, e.g., the farmer bring his seed producer into a lawsuit filed against him by a customer (or is he even under an obligation to include him)? Can he thereby escape liability (by shifting the loss onto the seed producer)?

VI. Multiple tortfeasors

Please describe very briefly whether your jurisdiction applies joint and several liability and/or proportional liability in cases of multiple tortfeasors.

VII. Defences

Which of the following defences may be raised against liability for GMO related losses?

1. Does the licence/permission to grow GM material (if applicable) serve as a defence against liability triggered by its use? Does it make any difference if the GMOs are approved for testing only?
2. What would the impact of consent/assumption of risk be on liability, e.g. if the victim had knowingly consumed GM products?
3. To what extent will third-party behaviour (such as sabotage or improper conduct by a neighbouring farmer) be considered?
4. Which statutes of limitation apply to the cases envisaged by this study? Please mention specifically if these deviate from standard tort cases.
5. Are there other (e.g. specific) defences that might be relevant in a GMO liability case?

VIII. Remedies

1. Pecuniary compensation
   (a) Are there any special rules on compensating bodily harm caused by GMOs, or do the regular remedies apply? (such as caps)
   (b) Are there any special rules on compensating property losses caused by GMOs, or do the regular remedies apply? (such as caps)
   (c) Are there any special rules on compensating economic losses caused by GMOs, or do the regular remedies apply? Can an organic farmer, for example, recover the full costs of restoring a field that was contaminated with GMOs to meet organic standards, or would deductions apply for the seasons that he could have grown conventional crops there?
   (d) If animals are harmed by contaminated feed, what can their owner recover? How is the value of an animal calculated, and does it in-

clude, e.g., a cow's potential for producing milk or meat? Does the mere fact that an animal eats GM contaminated feed constitute harm to the animal and therefore, recoverable damage for its owner?

(e) Are the costs of disposing of contaminated production/animals fed with GM feed recoverable?

2. Non-compensatory damages

Does your jurisdiction recognise punitive, exemplary or any other forms of non-compensatory damages?

3. Other remedies

Does your legal system foresee other remedies such as reparation in kind, substitution in kind, or further types (e.g. community contributions)?

4. Costs of pursuing a claim

(a) What is the general rule on the recoverability of costs in a civil trial (e.g. the "loser pays" principle)?

(b) What are the conditions for recovering the costs of establishing causation (e.g. in case a food producer was held liable – can he recover the costs of detecting GMOs at farming level)?

5. Advance cover

Do any of the liability or other redress schemes foresee financial guarantees such as mandatory insurance cover by, e.g., the GMO producers?

IX. Cross-border issues – Conflict of laws

1. If the Rome II Regulation comes into force in your jurisdiction (which will be dealt with by a separate report), please briefly describe the torts conflicts regime that it will replace, focusing on the main differences in a nutshell. Otherwise, please present the key aspects of the conflicts rules applicable to the cases under survey here.

2. Is there any special regime that applies to resolve bilateral or multilateral cross-border claims for compensation, either in tort or under any compensation scheme (since, e.g., a GMO fund regime may foresee provisions for cross-border claims)?

X. Cases

1. Due to the adventitious presence of GMOs in a field, maize which is normally sold as conventional contains GMOs beyond the legal labelling threshold. This is not discovered before the final stage of the food production chain by the producer of taco chips. The whole production is lost since the supermarket chains refuse to accept delivery from the producer.

   (a) Please solve the case by cross-referring to your general statements above. Who can sue along the chain of distribution – the taco producer, the wholesaler of the maize, etc.?

   (b) Would the case be solved differently if the GMO content was below the labelling threshold?

   (c) Would the case be solved differently if the admixture was not adventitious, but occurred due to the disregard of segregation rules, for example?

   (d) Would the case be solved differently if the GMO found was not admitted for production in your jurisdiction?

   (e) If the admixture had occurred on a non-GM field and it transpires that the GM seeds were blown from: (i) neighbouring fields; or (ii) a truck passing by, would the farmer of the affected field be liable for all or part of the loss caused further down the distribution chain?

2. Twenty years after the sale of GM maize used for food products, it turns out that it has certain disadvantageous health effects for humans.

   (a) Can the producers be held liable at this point for risks unknown at the time of growing the maize? Who would be liable – the seed producer/farmer/food producer/distributor/etc?

   (b) Can compensation already be claimed at a point when the negative health effects have not yet materialised, but are to expected to according to scientific expertise/mere rumours?

   (c) Would it make any difference if the GM maize had only been in use for feed, causing harm to the animals, which may or may not cause harm to humans consuming the meat as well?

3. The driver of a food logistics company discovers that a farmer, from where he regularly picks up agricultural products fails to obey mandatory segregation rules or food or feed hygiene standards, which may

lead to the admixture of GM and non-GM produce sold and packaged separately by that farmer. Does he or his employer have a duty to warn, i.e. notify the recipient of the allegedly "non-GM" produce?

Damage Caused by GMOs: Comparative Analysis

Bernhard A. Koch

I. Introduction[1]

1. Casum sentit dominus

1 The most basic rule of tort law, as explained in the first report,[2] is "casum sentit dominus", or "the loss lies where it falls". This often forgotten principle makes clear that the law of delict is not an automatic route to compensation, awarded by way of reflex as sometimes suggested by the media, but insists on a set of more or less far-reaching requirements which need to be fulfilled before a duty to indemnify the victim is greenlighted. Therefore, if any of these requirements are not met in a single case, the loss stays with the victim, who may still recover elsewhere, though, e.g. from social or private insurance.

2 While it may be bitter for the victim, law needs to reconcile all interests involved, including those of the addressee of the victim's claim, but ultimately also of society at large. In the interplay of individual interests, compromises are sometimes necessary. For example, while someone may be disturbed by the noise of aircraft flying over her piece of land, she will

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1 Please note that the TLD country codes will be used in the following footnotes to refer to the country reports in this volume, added by the marginal number of the relevant paragraph(s). AT therefore refers to the Austrian country report, CZ to the Czech Republic, DE to Germany, DK to Denmark, EE to Estonia, ES to Spain, FI to Finland, FR to France, GR to Greece, HU to Hungary, IT to Italy, LI to Liechtenstein, LU to Luxembourg, MT to Malta, NL to the Netherlands, NO to Norway, PL to Poland, SE to Sweden, SI to Slovenia, UK to England and Wales (not to the UK as a whole), AU to Australia, BR to Brazil, CA to Canada, US to the United States. In order to stay with two-letter abbreviations, the report on jurisdiction and conflict of laws is referred to as JC, the presentation of international environmental law as IE, the insurers' perspective as IN, and the economic analysis as EA. As it will be cited throughout the text, the previous study published in B.A. Koch (ed.), Economic Loss Caused by Genetically Modified Organisms (2008) will be referred to as "Economic Loss" only.

2 *B.A. Koch*, Comparative Report, in Economic Loss 585 (no. 12).

not be able to collect compensation for the alleged deterioration of the value of the property or for the impact upon her own enjoyment of the land unless certain limits are exceeded (the latter being more likely the closer to the airport the land lies, of course).[3] These limits are laid down in order to achieve a balance of interests, and maintaining an airport, being in the public interest, necessarily entails that those living in the area will have to live with the sound of approaching and ascending aircraft, just like house owners have to bear noise from through-traffic on nearby streets, or with fumes from their neighbours' occasional barbecue parties. In the case of GM farming, pollen may drift over very long distances, but its concentration obviously decreases the further it is carried, and at some point away from its origin the likelihood and/or impact of contamination is so low that a legal system generally favourable to GM farming may not link consequences to such remote admixture, so that the owner of the target field will also not be able to find compensation in tort law.

3 In this project, we wanted to identify what tort law requires in order to indemnify "classic" losses such as bodily injury and property damage if caused by GMOs in the food or feed supply chain, or if GMOs turn out to have a harmful impact upon the environment. This comparative report tries to highlight the key differences between the jurisdictions under survey, but also show where they are in accord. The prime focus is on the law of delict, since contractual liability will be addressed elsewhere.[4] At the end of the comparison, more general questions will be asked such as whether the existing differences should be levelled out by harmonisation (at least within the EU), and/or whether there is a need to promote alternative compensation models.

2. Imaginable losses

4 In our previous project on liability for GMOs, we focused primarily on the pure economic loss sustained by a conventional or organic farmer whose produce had been contaminated with GMOs, so that a supposed premium on the market price for GM-free products could no longer be gained. Imaginable loss scenarios involving GMOs go much further though:

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3 But see DK no. 6.

4 This is subject of a separate study conducted within the framework of the CoExtra project.

- To begin with, such economic losses may equally be incurred by others up or down the chain of distribution such as wholesalers or food or feed producers. However, most of these issues will be governed by contractual liability, which is not within the ambit of this study.[5] Still, some jurisdictions expand contract law concepts into tort law, and this is where such losses may play a role also in tort practice.
- Anti-GMO activists in particular point at potential health risks of GM products to humans. If such a risk should indeed materialise, the injuries caused would affect interests enjoying the highest degree of protection in all legal systems.[6] However, consequences in tort law depend upon the degree of impact: mere concern, for example, about potential health risks, that does not amount to a condition which can be measured medically will typically be disregarded by all jurisdictions (*de minimis non curat praetor*).[7] As soon as the impact upon the human body can be diagnosed by medical science and triggers the need for treatment, however, the laws of delict will invariably be prepared to offer compensation to the victim subject to their standard conditions.
- Animals themselves may be harmed upon consumption of GM feed, but even if they remain unaffected, their produce may turn out to be harmful, or it may not be as equally marketable as before.
- The impact upon the environment may at first be just that – potentially detrimental effects of GM farming upon biodiversity is another theme often heard in public debates.[8] Harm to the environment, should it ever occur, may also trigger secondary losses to individuals, however, starting from property losses, e.g. of those owning land or animals affected by such effects, to – again – impacts upon the health of human individuals.[9]

5 The causes of such imaginable losses may lie along the entire supply chain – from the very first steps of the seed production to the ultimate distribution of (primary or secondary) agricultural products to consumers. Admixture may occur at all stages of the supply chain, and the further down damage occurs, the more difficult it will be to establish who caused the loss.

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5 The responses to Case 1 show that the core cases that come to one's mind first would fall under contractual rather than delictual liability, thereby reducing the scope of loss scenarios falling under tort law proper.

6 See infra II.1.

7 See infra II.3.

8 This will be addressed infra VII.

9 See infra VII.2(b) and (c).

II. Damage

1. Losses to persons or things

When it comes to the "classic" losses for which tort law foresees remedies, jurisdictions worldwide are united in claiming to adhere to the principle of full compensation.[10] However, this only means that they are willing to remedy all those losses in full that they recognise as compensable, so there is a first limit to the indemnification of losses in a comparative overview already at the stage of defining damage. For example, while stepping on someone's toes clearly counts as an attack on that person's physical integrity, no jurisdiction will probably be prepared to offer her compensation for the pain she undoubtedly may suffer, arguing that such a minor interference is not damage recognised by tort law. "No law based on rational principles can impose damages on each and every act of carelessness. ... The law of delict would ruin itself ... if, say in a case of negligent damage to the environment, it not only compensated the owners of the contaminated land for their loss, but also awarded the inhabitants of the area compensation for loss of enjoyment due to the damage caused to the wildlife of the area."[11] **6**

Apart from such *de minimis*-rules and related limitations, there are more substantial filters that may apply, and so compensation for that reason alone may be fuller in some jurisdictions than in others.[12] The objective of full compensation has further boundaries at the remedies stage, where there may be caps or other limitations that have an immediate impact upon the amount offered in compensation (not to speak of the limits of liability along the way towards remedies). These will be addressed further below.[13] **7**

While there are at least some differences concerning the recognition of material losses as compensable in the various jurisdictions, there is clearly a marked difference between them as far as non-pecuniary losses are concerned. To begin with, not all legal systems recognise the same types of **8**

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10 *B.A. Koch/H. Koziol*, Comparative Analysis, in B.A. Koch/H. Koziol (eds.), Compensation for Personal Injury in a Comparative Perspective (2003) 407 (no. 40); *Ch. von Bar*, The Common European Law of Torts II (2000) no. 136 ff. See, e.g., CZ no. 17.

11 *Von Bar* (fn. 10) no. 1.

12 Cf. *B.A. Koch/H. Koziol*, Comparative Analysis (fn. 10) no. 41 ff. on the differences of the legal systems covered there with respect to compensation for personal injury (as far as, for example, visitors' costs, loss of earning capacity without loss of actual income, or the indemnification of the inability to run the household are concerned).

13 See infra IX.

immaterial harm, which comprises pain and suffering in its core, extends to losses of amenities, and can go further beyond infringements of personality rights[14] to what in Italy is recognised as *danno extrapatrimoniale* such as *danno biologico* or *danno esistenziale*.[15] A separate category concerns third party losses following fatal or non-fatal, but very serious bodily injuries of the primary victim, even though most jurisdictions have in the meantime at least acknowledged the equivalent of damages for bereavement in recognition of the loss of a loved one.[16]

9 Property losses also on their face seem to be recognised as compensable in the same way under all jurisdictions, but at least subtle differences remain, if only when it comes to the type of assessment (objective or subjective), the (lack of) recognition of sentimental or other personal affection, the compensability of repair costs even if not yet incurred, or similar facets.

10 Even though legal systems evidently differ not only in minor points of detail when defining what losses are recognised by the various tort systems in the first place,[17] one should note that these variations are nothing specific to the topic of GMO-related losses, but apply equally in other tort cases.

11 What is specific to the kinds of cases under survey here, however, is the question whether or not contamination with GMOs counts as "damage" to the land or to the crops of the non-GM farmer. This issue does not seem to have appeared before European courts yet and is therefore open to debate.[18] The solution will depend upon the courts' view of whether a mere physical change such as a GM seed taking root already counts as "damage", or whether it is the (monetary or other) consequences of such a change instead that are crucial, such as a loss in value on the markets or the like, but also the development of certain resistances[19] or a measurable

14 Cf., e.g., HU no. 17; NO no. 4.

15 See, e.g., *G. Christandl*, Eine kurze Darstellung der neuesten Entwicklungen im italienischen Nichtvermögensschadensrecht unter besonderer Berücksichtigung des *danno esistenziale,* http://www.personaedanno.it/cms/data/articoli/files/000180_resource1_orig.doc.

16 Germany may end up being the only jurisdiction left which does not accept mere grief as a loss to be indemnified by tort law now that the Netherlands are considering to introduce some type of compensation by statute: See e.g. *M. Faure/T. Hartlief*, The Netherlands, in H. Koziol/B. Steininger (eds.), European Tort Law 2006 (2008) 338 (no. 6).

17 An in-depth comparative analysis of the recognition of the various kinds of losses in 28 European jurisdictions will be given by *B. Winiger/H. Koziol/B.A. Koch/R. Zimmermann* (eds.), Digest of European Tort Law II: Essential Cases on Damage (forthcoming 2011).

18 See, e.g., UK no. 6.

19 *Munich Re*, Genetic Engineering – A Challenge for the Insurance Industry (2003) 55, 73; EA nos. 83 ff.

negative impact upon soil ecology.[20] GM-pro activists will of course argue that admixture with GMOs not only leaves (previously) GM-free land unharmed, but on the contrary improves its value due to the specific benefits of transgenic seeds.

2. Pure economic loss in particular

Pure economic loss has been dealt with extensively in the first volume that focused primarily on farmer-to-farmer problems. As in this previous work, pure economic loss is defined as damage suffered irrespective of injuries to the human body or to someone's property, but which instead directly affects the assets of the victim. It is typically distinguished from mere consequential loss, which is a secondary loss incurred after primary damage to persons or property was sustained, and which is indemnified together with the latter.[21] **12**

In order to continue the example of the previous sub-section, if one considers the drift of transgenic pollen onto a conventional or organic field as harm to the latter itself, the loss of the premia on GM-free products is but consequential to the damage to the land. If, on the other hand, the admixture as such is not yet perceived as a detrimental change to the property, so that the loss of bonus payments is the primary harmful event in the sphere of the victim, she has thereby suffered a pure economic loss. This already shows that there are no clear borderlines between the two concepts.[22] Still, the question is not of purely academic relevance – as stated for Australia (but equally applicable to all jurisdictions), "it is generally easier to recover for damage to property than it is for purely economic losses."[23] **13**

This is true because some jurisdictions are more reluctant to offer compensation for merely economic losses which are not just a secondary consequence to some primary injury to life, health, or property. A prime argument for such limitation is the floodgates argument:[24] the range of **14**

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20 EA nos. 89 ff.

21 *M. Bussani/V. Palmer*, The notion of pure economic loss and its setting, in M. Bussani/V. Palmer (eds.), Pure Economic Loss in Europe (2003) 3 ff.; *W. van Boom*, Pure Economic Loss: A Comparative Perspective, in W. van Boom/H. Koziol/Ch. Witting (eds.), Pure Economic Loss (2004) 1 (nos. 5–8).

22 V*on Bar* (fn. 10) no. 25 ff. and the examples given in no. 32 (in particular the German case at fn. 175 where fish were fed with antibiotics, rendering them unmarketable, even though they were not harmed from a veterinarian point of view). Cf. the *Hoffmann* class action cited by CA no. 10 and the comparison of the *Starlink* and *Sample* cases in US no. 4.

23 AU no. 8.

24 *Bussani/Palmer* (fn. 21) 16 ff. See also EA no. 104.

claimants may explode if a tortfeasor had to compensate all those who incur a purely financial detriment without further harm – just think of the employer of an injured employee, or someone stuck in a traffic jam after an accident between two other cars. The more foreseeable the range of such third-party claimants gets, in particular by way of a special pre-existing relationship between them and the tortfeasor, or the more blameworthy the latter's conduct is, the less protection the tortfeasor deserves against their demands. Therefore, jurisdictions which distinguish pure economic loss as a separate category tend to recognise it as a compensable detriment to one's assets only if incurred within a contractual relationship,[25] or in cases of qualified fault (in particular if the tortfeasor acted with intent).[26]

15 Other jurisdictions do not distinguish pure economic losses from further types of damage and are therefore not biased against recognizing them as compensable.[27] However, there may be a *de facto* difference when it comes to applying the standard tests of liability, in particular when establishing causation.[28]

3. Mere fear of a loss in particular

16 As long as there is no scientific evidence of specific dangers of a certain technology, there obviously have also not been any occurrences where it was proven to have caused harm. Apart from lawmaking where legislators are called to foresee liabilities for potential future incidents of losses, such technologies are considered in tort law practice from two different angles: one is based upon assumptions of causation when the technology is merely suspected of triggering some actual loss that has already occurred. This will be dealt with in the subsection on causation below.[29] The second angle focuses on the assumption itself and examines whether the fear of a future loss caused by some technology (and therefore the fear of the technology itself) is compensable as such.

17 In the area of green biotechnology, these fears may arise in various settings, depending upon the role of the players involved:

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25 E.g. AT no. 9; EE no. 10; LI no. 9; AU no. 11.

26 AT no. 9; DE no. 11 (both e.g. when acting *contra bonos mores*); FI no. 15; SE no. 13 (criminal act, especially weighty reasons).

27 DK no. 5; FR no. 6; GR no. 10; IT no. 10; LU no. 23; NL no. 5; NO no. 6; PL no. 18; SI no. 4; ES no. 14.

28 See, e.g., ES no. 14. Cf. also HU no. 19 and NL no. 6.

29 Infra III.2(b).

(1) Whether substantiated or not, consumers may fear of developing allergies or suffering from other health problems if the agricultural products they buy contain GMOs. This may, in turn,

   (a) remain a mere emotional state, without having any measurable medical impact, or

   (b) develop into an illness triggered by the fear, which then constitutes an actual injury to the person and as such falls under the commonly recognised types of harm in tort law.

(2) Farmers, on the other hand, may fear that their fields will be contaminated with GMOs, which, if true, might trigger economic losses if their conventional or organic products can otherwise be sold with a premium on the market for being GM-free.[30]

(3) A combination of the two may lead to a real loss in income: If consumers refuse to buy from a farmer whose produce they suspect contains GMOs, which in fact it does not, the latter will suffer an actual economic damage, even though it is just a secondary consequence of the fear of technology (that the victim does not even apply herself).

18 The economic losses of varieties (2) and (3) have already been addressed by our previous study.[31] With most jurisdictions requiring actual loss in order for tort law to step in,[32] there are still some where at least variant (3) may not be excluded from recovery just because of the type of loss at stake.[33]

19 In the first scenario, all jurisdictions are in accord that mere fear as in alternative (a) is not compensable.[34] However, if the anxieties trigger psychosomatic manifestations or are otherwise medically measurable, victims in some countries may pursue tort claims for recovery subject to further requirements.[35]

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30 This is currently not the case in those European markets where both conventional and GM-maize compete. See, e.g., *M. Gómez-Barbero/J. Berbel/E. Rodríguez-Cerezo*, Adoption and performance of the first GM crop introduced in EU agriculture: Bt maize in Spain (2008, available at http://ftp.jrc.es/EURdoc/JRC37046.pdf) Table 11 (pp. 29).There are, however, organic premia which are the same as compared to both conventional and GM maize.

31 *Koch* (fn. 2) no. 35 with further references.

32 See, e.g., AT no. 10; BR no. 31; CZ no. 23; GR no. 13; MT 17.

33 *V. Ulfbeck*, Denmark, in Economic Loss 145 (no. 46); FI no. 24; HU no. 25; LI no. 10.

34 CZ no. 25–26; UK no. 9, FR no. 8 (with some lower courts obviously not entirely sure); cf. LU no. 27 (influence of the precautionary principle at the example of mobile phone radiation); ES no. 16 (probably more generous approach of the Spanish courts).

35 AU no. 12; CA no. 12 (but "difficult to imagine" in light of requirements); DK no. 6; FI no. 21 ff.; GR no. 13 (fn. 12); HU no. 25; NL no. 7; PL no. 21; ES no. 15 (mental trauma

20 Variant (1) may be treated differently by some jurisdictions otherwise denying compensation if the harm that the consumers fear is certain to occur in the future and just a matter of time unless prevented in the meantime.[36]

4. Nominal losses in particular

21 The congestion of court dockets with petty lawsuits has not only triggered procedural limits to access to courts, but also raised concerns how substantive law could cut back small tort claims. During the debate around the German tort law reform of 2002, there were (ultimately unsuccessful) plans to declare nominal losses incompensable.[37]

22 While the monetary benefit to claimants in such cases may be minimal, they nevertheless invest time and efforts into pursuing such trivial claims in order to be heard, and in order to achieve the recognition of the claim as such. The question therefore is whether jurisdictions hear such calls and accept nominal losses, e.g. by awarding symbolic "compensation". This may be an issue particularly when it comes to recognizing fear scenarios as outlined above, or if there is no economic loss because conventional crops achieve the same market price as their GM counterparts.

23 The question is answered in the affirmative in common law jurisdictions, where certain torts do not require proof of damage.[38] In most other jurisdictions, nominal losses are either expressly or at least in practice disregarded.[39] Only a few civil-law countries recognise symbolic losses or at any rate do not rule them out as such.[40]

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even if no illness); SE no. 18 (only if criminal conduct). See also the Seveso case example given by the Italian report, IT no. 13.

36 See, e.g., CA no. 13; DE no. 12; FR no. 7; GR no. 12; MT no. 17.

37 *J. Fedtke*, Germany, in H. Koziol/B.C. Steininger (eds.), European Tort Law 2001 (2002) 229 (no. 6). Such plans are also in the current Austrian tort law draft; see *B.C. Steininger*, Austria, in H. Koziol/B.C. Steininger (eds.), European Tort Law 2007 (2008) 134 (no. 8).

38 AU no. 14 (though doubtful for GMO cases); CA no. 15; UK no. 12; US no. 7.

39 AT no. 12; CZ no. 30; DE no. 14; DK no. 8; ES no. 18; GR no. 17; HU no. 29; IT no. 15; LI no. 12; LU no. 30; MT no. 20; NL no. 12; NO no. 9; PL no. 27; SE no. 21 (but no general exclusion); SI no. 7; BR no. 35; CA no. 15 (Québec).

40 EE no. 15 (not per se excluded); FI no. 28 ("possible"); FR no. 13 ("recognised in French law"; see in particular the examples in fn. 29).

5. Special rules on mass losses

Losses caused by GMOs in the food supply chain in particular may exceed the scope of individual incidents by far and affect a multitude of victims. If we depart from the assumption for the time being that food products containing transgenic ingredients indeed trigger allergies or cause other bodily harm, as opponents predict, cases filed on behalf of all those affected may go far beyond what we know from recent pharmaceutical cases or the like. **24**

Only few jurisdictions in Europe currently foresee special rules on handling mass tort claims,[41] but this is just a momentary snapshot, as many are indeed considering introducing (or already have introduced[42]) procedural tools such as class actions modelled after or at least inspired by the U.S. correspondent.[43] This development is being pushed by efforts on the EU level to develop such mass claim models for consumers. **25**

Procedural alleviations as indicated have a considerable impact on substantive tort law as well: Some claims (particularly smaller ones) would never be brought into court otherwise, since fees and costs effectively serve as deterrent. Also, the scientific proof of a causal link may be too expensive a hurdle for individual claimants, even if they can ultimately recover such costs should they win their case. **26**

Another feature of mass tort claims from experience is that they tend to draw more media attention, which is particularly true for sensitive issues like GMOs, and media presence puts pressure on politicians to interfere ad hoc, whether within the limits of existing substantive and/or procedural law or not. **27**

6. Proving damage

Jurisdictions adhere to different standards of proof, which can have a crucial impact on the outcome of the case if filed in country A rather than country B.[44] While this is generally true for all elements of a tort claim, **28**

41 Most jurisdictions do not offer special provisions governing mass losses: AT no. 13; CZ no. 31; DE no. 15; DK no. 9; EE no. 16; FR no. 14 (but action pursuing recovery for collective losses, e.g. of an association); GR no. 18; HU no. 30; IT no. 16; LI no. 13; LU no. 31; MT no. 21; NO no. 10; SE no. 22; UK no. 13; AU no. 15; BR no. 36.

42 FI no. 29; NL no. 13; PL 29 (planned); ES no. 19–20; CA no. 16–17; US no. 9.

43 See FR no. 15–16 (collective loss claims, representative action); PL no. 29.

44 See, e.g., *K. Clermont/E. Sherwin*, A Comparative View of Standards of Proof, American Journal of Comparative Law (Am. J. Comp. L.) 50 (2002) 243. The impact of these differences on the proof of causation is addressed below at III.2(a).

some legal systems apply further special rules when it comes to proving the fact or the extent of a loss.[45]

29 In particular, courts seem to be more generous with respect to the exact value of the damage, although all require from the plaintiff proof that she has suffered some loss, even if the burden of proving further elements may be shifted onto the defendant.[46] There is a more or less express range of judicial discretion in valuing the loss, particularly if it appears difficult to quantify it in detail.[47]

30 More troublesome are claims where it remains uncertain (though not impossible) whether there will be any harm at all in the future. French courts, for example, are in practice willing to compensate such a mere chance of future damage,[48] whereas other jurisdictions at best allow declaratory judgments which freeze the question of liability (and stop the period of limitation from running), but leave the determination of remedies for the future to decide once the risk of a loss materialises.[49]

III. Causation

1. Linking damage to a cause

31 As a general rule recognised by all legal systems (though not necessarily expressly),[50] no-one is to compensate damage that he did not cause.[51] This simple rule is linked to an equally simple test, the *conditio sine qua non* (or but-for) test: if the victim had still incurred her loss had the defendant not intervened in the course of events, the latter's conduct cannot have caused the damage, and therefore he should not be liable for his

45 See, e.g., FI no. 26–27.

46 E.g. AT no. 11; FR no. 9; NL no. 9; PL no. 23; ES no. 17. But see GR no. 16 (claims may be rejected "as vague and unfounded" if exact quantum not proven).

47 AT no. 11; FI no. 25; FR no. 10; HU no. 27–28; NL no. 10–11; SE no. 20; UK no. 11.

48 FR no. 11; see also AU no. 13.

49 E.g. DE no. 13; PL no. 25.

50 *J. Spier/O. Haazen*, Comparative Conclusions on Causation, in J. Spier (ed.), Unification of Tort Law: Causation (2000) 127 (127 ff.). A comprehensive overview of the jurisprudence in 26 European jurisdictions is given by *B. Winiger/H. Koziol/B.A. Koch/R. Zimmermann* (eds.), Digest of European Tort Law I: Essential Cases on Natural Causation (2008, in the following: Digest I).

51 If someone is to be held liable for another, such as an employer for his employees, it is the latter that have set the actual cause and not the person ultimately liable, but a cause within the latter's sphere is still necessary to trigger his liability.

behaviour or source of risk within his sphere.[52] If it is clear, for example, that the GMOs that caused damage did not originate from the defendant's field, he will not be liable for such harm. If the only applicable rule of liability requires some culpable wrongdoing of the tortfeasor, the fact that, say, the physical condition of the victim would equally have deteriorated if the defendant's conduct had not taken place, the latter will not be liable, even if his behaviour as such was in violation of some rule.

There are exceptions to this general rule, which come into play when there is more than one possible cause of the loss at hand, and it remains unclear which of the several options really had a significant impact on the events ultimately triggering the damage. These exceptions will be addressed further below.[53] **32**

The but-for test is too rough, though, in order to identify only those tortfeasors who should be considered when trying to establish liability. With no further qualification, the parents of a tortfeasor would also pass the test because if they had not had that child, the latter could never have committed a wrong. There are, of course, less ridiculous constellations which all legal systems sort out in order to focus on those causes which are worthwhile pursuing in tort law. The filters they use are referred to as adequacy test, the theory of proximate causation or remoteness, and similar methods to reduce the list of causes to those which are close in space, time and other relevant factors.[54] **33**

Whatever gets caught by those filters (if it gets there through the but-for test in the first place) cannot trigger liability, no matter how negligent or dangerous the activity was. In light of obvious question marks as to the risks involved with GMOs, this hurdle will undoubtedly prove crucial in claims practice. **34**

2. Burden of proving causation

All actual or potential causes have in common; however, that they need to be proven as such before tort law can decide whether they may ultimately lead to liability of the person(s) in whose sphere the cause lies. **35**

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52 The mirror image is equally true in case of omissions: if the defendant had failed to act, he in principle should not be liable for such omission if the damage would have occurred even if he had acted as expected.

53 Infra III.3.

54 *Spier/Haazen* (fn. 50) 130 ff.

(a) Standard of proof

36 As has already been explained, legal systems apply different standards of proof.[55] Some legal systems insist on a very high degree of likelihood that the alleged cause had indeed led to the harm at stake – even though one can rarely prove facts with certainty, that is in essence what these jurisdictions strive for, at least in theory.[56] At the other end of the spectrum lie those countries where it suffices to prove that some conduct or activity was more likely than not the cause of some harm, so instead of a probability above 90%, anything higher than 50% sharp – "a preponderance of the evidence" – is already satisfactory.[57] Some jurisdictions are in between, requiring a distinct degree of likelihood, but not necessarily close to certainty.[58]

37 These differences clearly affect the way claims regarding novel technologies make it through the courts in the various legal systems.[59] The higher the degree of uncertainty, the less likely will the claimant succeed in those jurisdictions which aim at certainty, and consequently allegations based upon mere fear of negative consequences will hardly serve as a basis for compensation claims or other remedies.

(b) Easing the burden of proving causation

38 The standard of proof affects the one who is charged with the burden of establishing causation, which traditionally is the claimant, who has to prove all requirements to grant her claim.[60] This burden may be shifted or entirely reversed, however, which imposes a more or less stringent duty upon the defendant to weaken the allegations by the claimant.

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55 Supra II.6. These are also the key drivers in cases of causal uncertainty from an economic perspective: EA no. 49.

56 AT no. 18; CZ no. 47; DE no. 23 (but lower standard in pharmaceutical product liability); ES nos. 23, 31 (though some courts appear to be more generous); GR no. 24; HU no. 37; LI no. 18 (but lower degree of likelihood in draft GMO Act, no. 19); LU nos. 49–50; MT no. 25; SI no. 15.

57 EE no. 21; IT no. 20; NL no. 20; NO no. 15; AU no. 24; CA no. 23; UK no. 20; US no. 12. See also SE no. 37 (if strict liability of the Environmental Code applies).

58 DK no. 7; FR no. 28; PL no. 39 (generally "probability bordering on certainty", but sometimes only "sufficient degree of probability"); SE no. 36.

59 See also EA nos. 50 ff. providing an economic assessment of the various options outlined above.

60 See, e.g., AT no. 11; GR no. 14; UK no. 11.

The most far-reaching variation thereof is a presumption in favour of the claimant which cannot be rebutted at all. As it seems, no legal system is going to such extremes in the case of damage caused by GMOs, even though French law comes close: if produce that was intended to be GM-free exceeds the labelling threshold because of involuntary admixture, any ensuing loss can be recovered upon mere proof that it was grown in the vicinity of a field where transgenic crops were cultivated.[61] **39**

A less radical variation of the burden of proof is to presume a chain of causation from certain facts (that the claimant has to prove as a starting point), but to allow the defendant to overturn this supposition by proving that the impact of the conduct or activity for which he is charged did not in fact fit into this presumed course of events. This may be expressed by law, such as the Luxembourg Coexistence Law[62] or the Norwegian Pollution Act,[63] or develop from court practice, such as in the Netherlands.[64] In Greece, a reversal of the burden of proof may result from the analogous application of a civil code provision which manifests the principle that he who controls a source of danger has to account for the consequences should such risk materialise.[65] **40**

A lesser form of modifying the standard of proof is to lower it by requiring the claimant to convince the court that the defendant's activities were at least likely to have triggered the loss instead of asking for full conviction. This is the case, for example, in Austria, where the Gene Technology Act does just that by reducing the scope of what claimants have to prove to a mere likelihood (without setting a minimum degree of probability) that the GMO controlled by the defendant was prone to cause the damage.[66] The defendant can only rebut this if he shows that the claimants' loss was in fact not caused by the genetic modification, but by some other cause.[67] Also the Finnish Environmental Damage Compensation Act – as the draft **41**

61 FR no. 29.

62 LU no. 51.

63 *B. Askeland*, Economic Loss Caused by GMOs in Norway, in Economic Loss, 361 (nos. 9–10). See also ES no. 24–25.

64 On the *omkeringsregel* developed by the Dutch Supreme Court, see NL no. 21. Cf. NO no. 11.

65 *E. Dacoronia*, Economic Loss Caused by GMOs in Greece, in Economic Loss, 246 (nos. 52–53).

66 A similar rule is included in the proposed Liechtenstein Act on the Use of Organisms. Art. 61 para. 2 of the draft provides: "If this evidence cannot be reliably provided or if providing such evidence would be an undue burden on the person required to provide proof, the court may accept the preponderance of the evidence." See also Sweden for a comparable approach developed by court practice.

67 AT no. 21.

law on coexistence – does not require full proof of causation from the claimant, who only needs to show the probability of a causal link between defendant's activity and her loss; however, such likelihood must exceed 50% significantly.[68] The German Act on Genetic Engineering, though otherwise similarly strict as its Austrian counterpart, does not go that far: the claimant still has to prove that her loss was caused by GMOs within the defendant's control, the only alleviation offered by the statute is a presumption that it were the modified qualities of the genes which triggered the loss. This can be rebutted by the defendant, however, if the latter shows that it could also have been the unmodified genes.[69]

42 Another way to reduce the burden of proving causation is by way of recognizing prima facie evidence, which is slightly more covert than the variety just mentioned, but in most cases has the same effect on the outcome of the case.[70] Here, the evidence evaluated by the judge upon her own assessment (and not required by statute) shows that the alleged cause according to experience tends to show exactly the kind of consequences at stake in the absence of proof that there are other possible explanations for such outcome. Let us for example assume that one day there may be scientific proof that a certain gene transferred into a crop triggers a specific allergic reaction upon consumption.[71] The claimants all show exactly those symptoms, and the defendant has cultivated, processed or distributed a product containing that very gene which made its way into the food consumed by claimants. In such a case, the judge may prima facie assume that the defendant caused their condition unless the latter can prove that there are other allergens within the sphere of the claimants which also might have triggered those reactions.

43 Finally, yet another approach is to conclude from the facts as evidenced that there is no other logical explanation but for the one presented by the claimant. This practice of "elimination" is expressly recognised in France, for example.[72]

68 FI no. 31.

69 DE no. 24.

70 AT no. 19 (particularly if protective law was violated, such as the Austrian GMO legislation); PL no. 33. See also *Dacoronia* (fn. 65) nos. 54–55.

71 Cf. the Brazil nut allergen case described in *Munich Re* (fn. 19) 50.

72 FR no. 19 ff. (see, e.g., the bee case cited at fn. 40); cf. NO no. 11.

3. Special problems of causation

Despite alleviations of the burden of proof it may still remain unclear what actually triggered the loss because there are other equally imaginable causes. If none of them exceeds the threshold of the standard of proof, no cause in the legal sense can be identified, and consequently no-one will be held liable. If, however, more than one constitutes a *conditio sine qua non*, the first question is whether the two or more causes have jointly triggered the loss, so that all of them pass the but-for test. Such a joint causation typically leads to joint and several liability of all those interacting, unless their individual share can be identified.[73] There may, however, also be cases where the multitude of possible causes does not pass the but-for test because the loss may still have occurred if any one of them is disregarded. Only a few of these scenarios shall be briefly considered by way of examples. **44**

(a) Alternative causation

The classic scenario of such kind is often explained with the so-called hunters' case – two hunters fire a shot, a passer-by is hit by one stray bullet, but it cannot be proven from which of the two guns it originated. Several legal systems currently foresee joint and several liability of both hunters, if at all, so irrespective of who is sued by the victim, he has to indemnify the latter in full and subsequently seek recourse from the other hunter.[74] A more modern approach suggests to instead hold them liable proportionally, i.e. each of them only for half of the loss, arguing that it would be unfair to place the risk of insolvency of the other hunter solely upon the one who happens to be sued first – and who may not have caused the loss at all.[75] A radically different solution is followed by some other legal systems, essentially based on the argument that neither defendant can be proven to have **45**

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73 E.g. AT no. 52.

74 See *H. Koziol,* Comparative Report, in Digest I (fn. 50) 6a/29 (pp. 387 ff.); AT no. 14; DE no. 16–20; EE no. 18; ES nos. 21, 27; FR no. 25; *Dacoronia* (fn. 65) nos. 56 ff.; LI no. 14; NL no. 16 (but see no. 17 for an exceptional case of proportionate liability); PL no. 32 (if concurrent action of a group, not random individuals); SE no. 26 (but see no. 27); BR no. 38; CA no. 18; US no. 10.

75 See Art. 3:103 (1) of the Principles of European Tort Law (http://www.egtl.org/Principles/) and the commentary thereto in *European Group on Tort Law*, Principles of European Tort Law (2005) 47 ff. The proposed solution was adopted, e.g., in England (UK no. 16–17) and the Netherlands (NL no. 17, so far only in special legal – here: employment – relationship). Cf. US no. 9. It is also favoured by the economic analysis: EA nos. 51 ff., 60 ff.

caused the loss, so that the victim cannot recover in tort law at all.[76] So if, for example, conventional maize was stored in three different silos consecutively, and the admixture with a transgenic variant could have occurred in either of the three with the same degree of likelihood, none of those in charge of the silos can be held liable in the latter jurisdictions.[77] If all three had disobeyed cleaning requirements after storing GM maize and thereby are proven to have created a risk of admixture, which may have materialized in only one of the silos, each of the three will be held liable for the full loss in the first jurisdictions cited and then have to seek recourse from the other two internally.[78]

(b) Cumulative causation

46 Another multi-cause scenario where the but-for test fails is the case of so-called cumulative causation, where each of the several simultaneous activities alone would have triggered the whole loss, so the damage would have occurred even in the absence of all but one of these events, irrespective of which is to be disregarded hypothetically. In contrast to the previous scenario, there is no doubt that each activity constituted a cause if assessed individually, and so probably at least a majority of jurisdictions would opt for joint and several liability of all those involved.[79] This may also be a more frequent scenario in the GMO context, at least if there is widespread cultivation of a certain approved GMO which ends up being discovered in conventional or organic food or feed.

(c) Supervening causation

47 A related problem differs from cumulative causation only when looking at the timeline: If there are two consecutive rather than simultaneous causes, where the first one already triggers the full negative consequences that the second event would have equally caused had it happened earlier, one

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76 CZ no. 41; DK no. 11; HU no. 35; LU no. 39 (but see nos. 40–42); SI nos. 9–12; cf. SE no. 27.

77 Cf. the Canadian ragweed example (CA no. 18).

78 Cf. the US theory of enterprise liability, where an entire industry producing the same risky product can jointly be held liable if the producer of the actual defective item cannot be identified; US no. 10.

79 E.g. *Dacoronia* (fn. 65) nos. 56 ff; UK no. 15 (if material contribution to the risk proven). See also *B.A. Koch,* Comparative Report, in Digest I (fn. 50) 7/29 (pp. 476 f.). Cf. PL no. 34–35 (two defective products from different producers as possible causes – Supreme Court overturning Court of Appeal's decision in favour of joint and several liability).

could disregard the second event unless it has led to further or aggravated harm. However, not all legal systems draw these consequences, as some would treat both events as causes that may trigger liability. Different solutions are not only offered in an international perspective, but even intranationally, as these problems seem to be disputed even within legal systems.[80]

Such problems may well arise in the GMO context if admixture occurred at two or more steps of the supply chain. In such cases, it is not always the first one in time that will be considered relevant in a tort law perspective. **48**

(d) Risks within the victim's own sphere

(i) Conduct of the victim or people within her sphere

If one of the actual or suspected causes for the victim's loss lies in her own sphere, this may reduce liability of those in charge of the other causes or exclude it altogether.[81] The operator of a storage site will therefore not be liable for the admixture occurring there if caused by the carelessness of one of the victim's own drivers. **49**

Generally speaking, any activity set by the victim which also meets the but-for requirement (including adjustments) will reduce her claim for compensation according to the respective percentages of likelihood that the victim's own activity was a cause of the loss and would fulfil the other requirements of liability if she were a third person.[82] **50**

A specific facet of a contributing risk within the victim's own sphere is predispositions or infections independent from the GMO activity. A tricky question arises, for example, if it remains unclear whether certain allergies from which the victim suffers were triggered by the consumption of GM food, or whether there were other external reasons or, say, the genetic condition of the victim, which are all at least equally probable causes. Most jurisdictions would probably stick to their "all-or-nothing" approach and consequently deny liability because of this "non liquet" **51**

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80 *B.A. Koch*, Comparative Report, in Digest I (fn. 50) 8a/29 (pp. 501 ff.): "Academic debate in several countries has apparently not yet found a universally accepted answer to this question.".

81 E.g. AT no. 15; CZ no. 96 ff.; FR no. 24; GR no. 20 (at discretion of the court); LI no. 15; MT no. 44; SE no. 77.

82 On the mirror image rule in case of contributory conduct, see, e.g., *M. Martín-Casals*, Commentary on Chapter 8, in *European Group on Tort Law*, Principles of European Tort Law (2005) 130; *von Bar* (fn. 10) no. 518 (p. 546).

situation. Only a few so far are prepared to divide the loss between the victim and those responsible for potential external causes according to the respective likelihood.[83]

(ii) Risks outside both the tortfeasor's and the victim's sphere

52 If the origin of the loss lies beyond both parties' sphere, its consequences still remain with one of them, i.e. the victim. As explained at the beginning, the purpose of tort law is to highlight possibilities for the victim to shift her loss onto someone else. If that should fail, the loss lies where it falls.[84] However, if such extraneous cause should coincide with another potential event for which someone else could be held liable, the question is how legal systems balance the impact of these two (or more) influences upon the chain of causation.

53 At least one aspect triggers the same legal consequences in all jurisdictions covered, though not necessarily based upon the same dogmatic reasoning: Force majeure, i.e. the impact of an extraordinary natural phenomenon that is unavoidable and unpredictable, serves as a full defence against liability and leads to a complete exoneration of the defendant if its effects overshadow any other causal influence.[85] This does not mean, however, that any act of nature will serve to free the alleged tortfeasor from liability – a GM farmer cannot argue that the wind which blew pollen to neighbouring fields was force majeure simply because it was an act of nature. After all, winds are predictable, at least within limits of long-term experience. A once-in-a-century storm, on the other hand, may fall within the ambit of the defence, also because one is not required to take precautionary measures against such outrageous and rare events (unless foreseeable).[86]

54 Another external cause for which the alleged tortfeasor cannot be held accountable lies with third parties who interfere with the chain of causation. To the extent they do, the but-for test and its variants will decide.[87]

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83 Cf. *B.A. Koch*, Comparative Report, in Digest I (fn. 50) 6b/29 (pp. 436 ff.).

84 Supra no. 1.

85 AT no. 17; CZ no. 43–46; DE no. 22; EE no. 20; ES nos. 28 ff.; FI no. 35 (but narrow interpretation of force majeure); FR no. 26 (but not if mere contribution to causing the loss); GR no. 22; HU no. 36; IT no. 19; LI no. 17; LU no. 43 ff.; MT no. 24; NL no. 19; NO no. 14; PL no. 36–38; SI no. 14; SE no. 33; UK no. 19K; AU 21 (remoteness; defence only if unforeseeable); BR nos. 40 ff.; CA no. 22; but see US no. 11. Cf. EA nos. 65 ff.

86 See AU no. 22.

87 However, in practice courts may tend to apply the test more favourably to the victim.

If they pass the test, the victim can go after them to seek compensation. The remaining question – whether she could recover from the original defendant what was actually caused by someone else – has already been answered: only if it remains unclear who of the two actually did cause her loss, legal systems may opt for joint and several liability of both of them, and they will then have to seek recourse internally, but not at the expense of the victim.

IV. Fault

The "most traditional, most widespread and – apparently – most important"[88] route to compensation in tort law leads through the test whether there was any culpable wrongdoing on the side of the defendant. Over time, the perception of blameworthiness has moved away from judging the individual individually to applying a more objective notion of fault, using a yardstick that has some imaginary third person in mind who in the position of the actual wrongdoer may have behaved differently – the "reasonable man" (or woman) who in practice is presumed to have superpowers beyond any cartoon hero, if all the standards of comparison developed in court were compiled to a catalogue of responsibilities: after all, what should have been done by the defendant is always assessed ex post, when the chain of causation has been analysed thoroughly, tempting judges to retroactively impose duties upon the defendant that were unbeknownst to the latter at the time of acting. However, after the event even the fool is wise, so duties of care identified in the aftermath of the loss are not necessarily obvious to the tortfeasor in advance. The concept of fault has thereby "become a mere phantom, an empty shell which serves as camouflage for a criterion of imputation which has almost nothing to do anymore with an individual blame towards the tortfeasor".[89] Nevertheless, it continues to be (or at least to be claimed) the backbone of tort law.[90] Unless there is a special liability regime in place which eases access to compensation for the victims (otherwise they will disregard it),[91] fault liability will always be in place to step in as at least one option to pursue one's claims. This also means that damage caused by the negligence of the actor

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88 *P. Widmer*, Commentary on Chapter 4, in *European Group on Tort Law*, Principles of European Tort Law (2005) 64 (no. 1).

89 *P. Widmer*, Comparative Report on Fault as a Basis of Liability and Criterion of Imputation (Attribution), in P. Widmer (ed.), Unification of Tort Law: Fault (2005) 331, 357 (no. 68).

90 *Widmer* (fn. 89) 332 (no. 2).

91 See infra V.

are run-of-the-mill cases in tort law for which all legal systems foresee liability – things going wrong through human error deviating from common standards at any given point along the supply chain will easily be remedied this way once causation is established.

56 Apart from this move towards objective standards of care, there is also a noticeable tendency at least in Europe towards stricter varieties of liability, e.g. by shifting the burden of proving fault under certain circumstances[92] or even generally[93] (which in practice means that the defendant will hardly escape liability because proving that he was not at fault is often tricky).

57 If the duty of care is not determined by way of imagining what a reasonable person would have done under the circumstances, but by law which prescribes or forbids a certain behaviour in order to prevent the infliction of harm, any violation of such express duties will help to establish fault or even be considered faulty per se by most jurisdictions unless the defendant can prove that no-one could have adhered to that legislative standard in light of the facts of the case.[94] This may also apply to non-legislative standards which are common usage in a particular industry or trade, including protocols or guidelines promoted by interest groups, but also instructions by a GMO producer.[95] Therefore, if statutes or soft law foresee certain farming practices and coexistence measures in order to avoid unwanted admixture, any violation of such rules may be presumed to be faulty if the negative consequences that should have been avoided materialise due to such conduct. The reverse is not true, however – abiding by such standards does not per se exempt the defendant from liability.[96]

58 The case is simpler with unapproved GMOs – whoever made it possible to let them flow into the food or feed supply chain will easily be held liable for any negative consequences thereof that are deemed compensable, in case of qualified fault probably most (if not all) legal systems would even indemnify pure economic loss.[97]

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92 E.g., ES no. 34; DK no. 17; *Dacoronia* (fn. 65) no. 62; IT no. 22 ff.; PL no. 47; BR no. 46.

93 E.g. EE no. 23; HU nos. 5–6; SI no. 17.

94 See, e.g., CZ nos. 52–53; DE nos. 4, 6, 39; DK no. 17; ES no. 36; FR no. 32 ("Any violation of regulations governing GM farming will automatically be considered a fault leading to liability . . ."); IT no. 26; LI no. 21, 23; LU no. 55; MT no. 28; NL no. 30; NO no. 18; PL no. 50; SE no. 41; UK no. 23; AU no. 28; US no. 15; but see HU no. 41; CA no. 27.

95 Cf. AU no. 29.

96 See infra IX.2. Support for this impact of compliance with or disregard of rules and regulations comes from an economic analysis: EA nos. 39 ff.

97 Cf. FR no. 34.

V. GMO-specific liability regimes

Several legal systems have decided to introduce a liability or other redress scheme tailor-made to losses caused by GMOs. To the extent these rules fall into the respective jurisdiction's environmental liability legislation, therefore dealing only with GMO-related environmental harm, they will be addressed in the section on environmental liability below.[98] **59**

Some of these special regimes provide for compensation to farmers who have suffered an economic loss due to the adventitious presence of GMOs on their fields. These systems have already been addressed by our previous study, which is why they will not be covered specifically again.[99] Furthermore, if special provisions merely refer to the general law of torts, they will also be disregarded in the following.[100] **60**

None of the legal systems represented in this study have introduced any alternative compensation scheme designed to absorb the losses under survey here, even though some of them have done so for the economic losses addressed in the earlier project. **61**

Of the jurisdictions foreseeing special liability rules for the types of harm that are the main focus here, one has to differentiate between those that have introduced rather general strict liability for damage caused by GMOs and others which draw a line between risks during research and development on the one hand and commercial cultivation after approval on the other hand. **62**

Finland, Hungary, Liechtenstein, Norway and Poland belong to the first group. **63**

Finland refers losses other than harm to the environment (which is covered by a separate regime) or those falling under its Product Liability Act to its general Tort Liability Act, but cuts out the requirement of fault in so doing. Therefore, damage to persons or property of the latter category is subject to strict liability.[101] Furthermore, in order to fill the gap left by the consumer losses limitation of the product liability regime, there is a separate strict liability rule for feed producers, thereby extending the fun- **64**

98 Infra VII.

99 See *Koch* (fn. 2) nos. 153 ff. Of the jurisdictions covered in both studies, Austria, Denmark, Finland, France, Germany, Hungary, Italy, Norway and Poland already provide for such special solutions, furthermore Luxembourg (where it was introduced after the manuscript to the previous book was finished, see LU nos 2–4).

100 E.g. EE no. 1.

101 FI no. 4.

damental ideas underlying product liability to losses to property in the commercial setting of feed buyers.[102]

65 *Hungary* chose a different legislative technique and by statute defined all loss scenarios involving GMOs – including approved ones – as "abnormally dangerous activities" within the meaning of the Hungarian Civil Code's general rule on strict liability. In order to prevent non-GM farmers from being held liable for losses caused by GMOs adventitiously present on their fields, this referral does not extend to risks inherent in GMOs themselves, but only to "genetic technology activities".[103]

66 Current Art. 24 of the *Liechtenstein* Act on Handling Genetically Modified or Pathogenic Organisms (GPOG) foresees strict liability for all damage originating from an enterprise or installation handling GMOs, unless caused by force majeure or grave fault of the victim or some third party.[104] The regulatory compliance defence is unavailable. Those potentially liable have to take out liability insurance. If the current draft bill replacing the GPOG becomes law,[105] the current liability regime will be more refined, providing inter alia for a lowering of the standard of proving causation and an explicit exclusion of the state of the art defence. If harm is caused to consumers or to agricultural or forestry businesses, liability will be channelled to the person holding the authorisation to use or release GMOs.

67 The *Norwegian* Act on Genetic Technology provides for strict liability for any activity that places or emits GMOs in the environment[106] (NO no. 2). The definition of "deliberate release" in § 9 of this Act includes release for commercial purposes and is not limited to contained use or research-related release.[107]

68 Art. 57 of the current Law on GMOs in *Poland* holds any "user" of GMOs (whether in containment or by deliberate release, including commercial cultivation or distribution) strictly liable for damage to persons, property, or to the environment.[108] As in the afore-mentioned jurisdictions, force majeure excludes liability, but the impact of the victim or of a third party

102 FI no. 5.
103 HU no. 14.
104 LI no. 1.
105 LI nos. 3–4. An English translation of the draft can be found on TRIS at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile=120099006EN.DOC.
106 NO no. 2.
107 See also the English translation of the whole Act at http://bch.cbd.int/database/attachedfile.aspx?id=602.
108 PL no. 1 ff.

must be the exclusive cause of the loss in order to exonerate the defendant. A pending draft bill to replace the existing legislation will essentially maintain the current liability rules.[109]

The second group is marked by a strict liability solution for the risks associated with the research and development stage, whereas potential losses occurring during commercial cultivation are merely referred to each country's product liability regime (which is modelled after the Product Liability Directive).[110] *Austria* and *Germany* appertain to this second group.[111] The special statutory regime addresses damage caused in laboratories, in field trials, etc., but does not extend to approved GMOs as soon as they enter the market. This duality of approaches leaves some gaps: not all imaginable risks fall under the concept of product liability (or environmental liability, which essentially absorbs risks that GMOs pose to the environment). In particular, damage to property which is not in private use such as harm to farm animals will fall under those jurisdictions' general tort law since none of the special regimes applies.[112] **69**

VI. Product liability

The most likely cause of action in delict arising out of the case scenarios under survey here will presumably be product liability, though possibly coupled with other causes of action: Apart from contractual liability, damage caused by agricultural products (whether genetically modified or not) can trigger liability of the producer towards users, consumers, as well as towards third parties (often referred to as innocent bystanders). The core of the claim is a product defect which causes harm to the human body or to property, and liability is typically channelled towards the producer. **70**

In the EU and to some extent even beyond,[113] this area of liability is harmonized by way of the Product Liability Directive (PLD).[114] This instrument was not only introduced to protect consumers, as repeatedly con- **71**

109 PL no. 9; an English translation of the draft can be found on TRIS at http://ec.europa.eu/enterprise/tris/pisa/cfcontent.cfm?vFile=120080581EN.DOC.

110 See infra VI.

111 AT nos. 1–2; DE no. 2.

112 However, those losses may be absorbed by alternative claims which cannot be found in statutory language: The German producer's liability even started with a case that may be of relevance in the GMO context (referred to as "Hühnerpest" or fowl pest case; see the translation of this German Supreme Court case BGH 26.11.1968, VI ZR 212/66, at http://www.utexas.edu/law/academics/centers/transnational/work_new/german/case.php?id=760).

firmed throughout the recitals, but also "because the existing divergences may distort competition and affect the movement of goods within the common market", as stressed in the very first recital of the Directive. The latter argument was reaffirmed by the ECJ and put on at least equal footing as the former argument.[115]

72 The starting point of product liability as envisaged by the Directive is a product defect. Initially, "primary agricultural products and game" were not covered by the Directive, but this exception was given up by way of amendment in 1999[116] after such crises as the mad cow disease. A "defect" is given if the product "does not provide the safety which a person is entitled to expect", thereby taking into account, inter alia, the presentation of the product, its use according to reasonable expectation, and the time when it was put into circulation (Art. 6 PLD). The latter aspect also means that improvements of the product over time do not alter the standard according to which the safety of a product is being assessed that was put onto the market before the better product was developed. The focus on reasonable expectations of use would for example prevent liability of a feed producer whose products are used by another in the food chain, but most likely only for harm that would not have been caused had the feed been used as such, whereas problems of admixture may be seen independent of the use aspect, which aims at the ultimate consumer. One commonly distinguishes between three different types of product defects: design defects (if, for example, an allergy-prone protein is introduced by genetic engineering), manufacturing defects (if a food producer erroneously processes a bag of GM feed maize due to a mixup instead of the usual food product), and warning defects (if inadequate labelling did not alert the buyer of certain risks of use or limits to edibility).

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113 Several non-EU Member States such as Switzerland have adopted the Directive as a model for their own legislation in this field. From the jurisdictions under survey here, this is not only true for the EEA Member States Liechtenstein and Norway (LI no. 24; NO no. 19), but also for Australia (!, no. 30), and Québec seems to have been influenced by the PLD as well (CA no. 29, but excluding primary agricultural products).

114 Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, OJ L 210, 7.8.1985, 29, as amended (see infra fn. 116). Criticism from an economic perspective is raised by EA nos. 18 ff., in particular 29 ff.

115 ECJ C-183/00, *María Victoria González Sánchez v. Medicina Asturiana SA,* [2002] ECR I-3901, no. 26.

116 Directive 1999/34/EC of the European Parliament and of the Council of 10 May 1999 amending Council Directive 85/374/EEC on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, OJ L 141, 4.6.1999, 20.

If an agricultural product is put into circulation without indication of GM content even though it would need to be labelled according to the legal standards, one could well argue that the product is therefore defective not only according to contractual standards defined, e.g., by the buyer's expectations, but also from a delictual point of view, since at least one of the reasons for introducing the labelling threshold was to give consumers an informed choice in order to cope with their concerns about possible health implications of GMOs.[117] The lack of proper information on the transgenic contents might at least lead to a presumption of potentially negative effects on the health of the consumer.[118] Since the whole issue will only fall under the product liability regime if damage was actually caused, the impact of the presumption may be decisive also for assessing causation.[119] **73**

The PLD regime is limited to damage caused to the human body or to property, the latter subject to two limitations: First of all, only property loss worth more than € 500 will be compensated under the Directive's regime.[120] Secondly, only damage to property is covered that is "intended for private use or consumption" and indeed "used by the injured person mainly for his own private use or consumption" (Art. 9 lit. b PLD). Therefore, harm caused by GM feed to farm animals, for example, will not fall under the scope of the implementing statutes.[121] **74**

The Directive imposes strict liability, i.e. liability irrespective of fault (and not just with a presumption thereof), primarily upon the producers. These **75**

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117 Cf. Recital 22 of Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed, OJ L 268, 18.10.2003, 1: "[T]he labelling should give information about any characteristic or property which renders a food or feed different from its conventional counterpart with respect to composition, nutritional value or nutritional effects, intended use of the food or feed and health implications for certain sections of the population, as well as any characteristic or property which gives rise to ethical or religious concerns.".

118 Cf. CA no. 30. But see the Finnish draft bill on coexistence, which, if coming into force, would specifically rule out that a product is defective due to GMO admixture (FI no. 40).

119 Cf. supra III.2(b).

120 This lower threshold is unique to the tort laws of all Member States, which has triggered quite substantial resistance from countries such as France or Greece, who fought the matter with the Commission: ECJ C-52/00, *Commission v. France*, [2002] ECR I-3827; ECJ C-154/00, *Commission v. Greece*, [2002] ECR I-3879. The Court, however, ruled against them, probably unaware of the tort law situation in the Member States. See *B.A. Koch*, European Union, in H. Koziol/B.C. Steininger (eds.), European Tort Law 2002 (2003) 432 (nos. 62 ff., in particular no. 75).

121 However, that case may be resolved by a comparable strict liability rule specifically applicable to feed, e.g. in Finland (FI no. 5). See also FI no. 6 (special regime for seeds with equivalent provision absorbing cases that are filtered out by the PLD).

are defined as manufacturers of a finished product, of raw material or of any component parts, therefore anyone involved in the manufacturing process from the beginning to the end, when it leaves the production process and is circulated on the market. In case more than one "producer" within that meaning can be identified, they are all jointly and severally liable (Art. 5 PLD). In addition, the term is expanded to include those who present themselves as producers on the product without actually being involved in the manufacturing process (e.g. a supermarket's "own brand" food line). Furthermore, if the defective products came into the internal market from outside, the importer is also responsible like the actual producer abroad (Art. 3 PLD). If the producer cannot be identified, the supplier will be liable instead unless he reveals the identity within reasonable time. This applies *mutatis mutandis* to goods imported into the European market, so that the distributors have to compensate those injured unless they name the importer (while the name of the extra-EU producer is irrelevant in this case). Therefore, the local supermarket can be strictly liable for harm caused by GM food produced in, say, the U.S., if the company that imported these products into Europe is not made known to the claimants in due time. Otherwise, if for example tortilla chips contain GMOs that are harmful, the seed producer, the farmer who grew the maize, the producer of the masa flour, the company that processed the flour to chips, and the owner of the brand under whose name they are sold on the market (if separate legal entities) are all jointly and severally liable for losses caused by this defect, and the victims can choose who to go after first.

76 There are, however, limits to such at first sight far-reaching liabilities of all those involved in the manufacturing process:

77 To begin with, a producer as defined above is exempt from liability if he did not put the defective product into circulation, i.e. if it left his premises involuntarily, be it by accident or – even more so – by way of sabotage (Art. 7 lit. a and c PLD). Therefore, a GM farmer from whose fields pollen are blown to a neighbouring conventional field will not be considered a producer of whatever produce is derived from the latter field, since he did not intend to participate in the cultivation of that field. The same is true for testing labs which do not produce for the commercial market. This does not mean that they are completely off the hook – there may be other grounds of action against them, e.g. fault or some special liability standard, but not through product liability as designed by the Directive.

78 The next defence in Art. 7 lit. b PLD relates to the timing of the defect: if the defendant can prove that GMO content did not flow into the manufac-

turing process until after the part product that he produced left his premises, he will not fall into the group of potentially liable producers.

79 Two more defences expressly foreseen in the PLD are important: First, the question is to what extent "compliance of the product with mandatory regulations issued by the public authorities" (Art. 7 lit. d PLD) can really exonerate the producer, or in other words, whether coexistence legislation and permits[122] granted on its basis constitute "mandatory regulations" within that meaning. This may rarely ever – if at all – be the case, as it is meant to designate specific rules of conduct. Also, the producer would have to prove "that the defect leading to the damage is directly due to his observance of these rules and regulations with which he was obliged to comply".[123]

80 Second, but of higher relevance in our context, Art. 7 lit. e PLD contains the so-called development risk defence, which Member States did not necessarily have to include into their implementing legislation, so that a producer cannot rely upon it in these countries (Art. 15 para. 1 lit. b PLD).[124] In the remaining countries, he is not liable if he can prove "that the state of scientific and technical knowledge at the time when he put the product into circulation[125] was not such as to enable the existence of the defect to be discovered".[126] If it therefore turns out that products containing certain GMOs are defective within the meaning of the Directive (i.e. bear certain health risks for consumers, for example), but this is not discovered until after these products have been put into circulation, the producer will not be liable for said defect. The defence does not extend to risks which were known as such but could not be detected according to state of the art technology.[127] There may be a grey zone where there is already a suspicion of harmfulness at the time the products are brought

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122 See infra IX.2.

123 MT no. 32; see also FR no. 42.

124 Finland and Luxembourg have opted against the development risk defence entirely (FI no. 39; LU no. 57), as did Norway (no. 19). It does not apply to food or food products for human consumption as well as to pharmaceuticals in Spain (ES no. 37); the latter also being true in Germany, where the application of the defence on products containing GMOs which were based on the statuory licensing requirement was also abolished (DE no. 40).

125 The ECJ has made clear that "Article 7(e) is not specifically directed at the practices and safety standards in use in the industrial sector in which the producer is operating, but, unreservedly, at the state of scientific and technical knowledge, including the most advanced level of such knowledge, at the time when the product in question was put into circulation."ECJ C-300/95, *Commission v. United Kingdom*, [1997] ECR I-2649.

126 See EA nos. 68 ff. on economic arguments in favour of and against the development risk defence.

127 ES no. 37, 44 (on the question of what constitutes knowledge).

onto the market, but no scientific proof yet. It is hard to imagine, though, how the latter could apply to GMOs approved for cultivation in the EU, which have undergone high-level scrutiny by the authorities and are only admitted to the market if greenlighted after thorough testing and analysis.[128]

81 The producer may still be liable despite the applicability of the development risk defence: while the latter excludes (strict) product liability, the producer may nevertheless have to account for his negligence in monitoring the product safety, for issuing adequate warnings or for failing to recall products.[129]

82 Another escape from product liability is along the timeline: while there are remarkable differences within Europe alone when it comes to the time periods applicable to delictual claims in general,[130] the PLD foresees certain clear-cut limits that have to apply irrespective of the legal system. The last chance to launch a claim against a producer under the Directive's regime is ten years after the latter has put the actual harmful product (not the first of its type) onto the market (Art. 11 PLD).[131] However, in addition to this absolute limit which extinguishes all claims, there is also a relative time limit of three years, which starts to run "from the day on which the plaintiff became aware, or should reasonably have become aware, of the damage, the defect and the identity of the producer" (Art. 10 PLD). If that day was later than seven years after the harmful product was circulated, the claimant has only the remaining time left of the long-stop period.

83 Finally there may also be a monetary limit to recovery: Member States may (but do not have to) cap liability for death or personal injury at € 70 million or any amount higher than that. Of the countries under survey here, Germany and Spain have opted in favour of such limits.[132]

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128 See also IT no. 31.

129 See in particular NL no. 33, arguing why tortious liability for failure to recall can live alongside the PLD regimes and will therefore stand the scrutiny of the ECJ concerning the exclusivitiy of the PLD (infra no. 84). See also SE no. 43.

130 See infra IX.5.

131 It suffices if the producer passes the product on to a distributor, even if the latter is the former's fully-owned subsidiary, see ECJ 9.2.2006 C-127/04 *Declan O'Byrne v. Sanofi Pasteur MSD Ltd et al.* [2006] ECR I-1313.

132 The limit is € 85 million in Germany (§ 10 Product Liability Statute) and slightly above € 63 million in Spain (Art. 141 lit. b of the 2007 Consumer Protection Act; the latter therefore being in obvious violation of the Directive, but the consequence of a mere conversion from ECU to pesetas in the preceding legislation and from there to Euros, without reconsidering the original text of the PLD).

84 While the PLD led a somewhat dormant life in the first two decades after its initiation,[133] a series of ECJ decisions on the substance of the Directive seems to have reanimated the concept in the Member States,[134] above all probably due to the Court's radical view on the possibility (or mostly: impossibility) of other liability regimes to coexist with the Directive's regime, as was the practice in the Member States before, which was also the reason why the PLD was ignored in practice. In *González Sanchez*,[135] the ECJ made clear that the Directive not only sets a minimum standard of liability, but an exclusive one, thereby ruling out even national systems which are more favourable to consumers. The Court opined that the Directive "cannot be interpreted as giving the Member States the possibility of maintaining a general system of product liability different from that provided for in the Directive".[136] The Court conceded, however, that the PLD "does not preclude the application of other systems of contractual or non-contractual liability based on other grounds, such as fault or a warranty in respect of latent defects".[137] This seems to rule out other systems of strict liability for product defects, but does not give any guidance as to what falls under the Court's notion of "strict liability", if it has any. After all, liability without fault is not a closed concept in European tort law,[138] which was even acknowledged by the Commission in the product liability context.[139]

85 This means for the time being that it is somewhat unclear which competing causes of action in the Member States will survive the test that the ECJ has thereby sketched out. While general fault liability may prevail, particularly if the focus is on some misbehaviour of the producer rather than his

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133 See the first two Commission reports on the application of the Directive: COM(95) 617 final and COM(2000) 893 final, the latter admitting expressly that "there is still limited experience", which it traces back to two factors: "the Directive was lately transposed in some Member States and, according to the possibility given to Member States under Article 13 of the Directive, national contractual or extra-contractual law or a specific liability regime is applied in parallel" (at p. 28).

134 This is maybe why the third report on the application of the PLD, COM(2006) 496 final, boldly states "that the Directive works by and large in a satisfactory way and that there is no need for amendments at present" (at p. 4).

135 ECJ C-183/00, *González Sánchez v. Medicina Asturiana SA* [2002] ECR I-03901.

136 *González Sanchez*, para. 30.

137 *González Sanchez*, para. 31.

138 Cf. *B.A. Koch/H. Koziol*, Comparative Conclusions, in: B.A. Koch/H. Koziol (eds.), Unification of Tort Law: Strict Liability (2002) 395 (in particular no. 2).

139 Report on the Application of Directive 85/374 on Liability for Defective Products, COM(2000) 893 final, 30: "[C]ase-law in several Member States tends to interpret the producer's liability under fault-based liability systems in an extensive way with the result that in practice the difference between fault-based and strict liability systems is getting blurred. In this situation and given that fault-based liability systems generally provide for a larger scope of consumer protection parallel applications are a practical consequence.".

quality as such,[140] victims may probably no longer choose strict causes of action alternatively, even if these should be more attractive for them, e.g. due to more far-reaching remedy options, longer periods of limitation or the like.[141]

VII. Environmental liability

1. The Environmental Liability Directive

86 Another act of harmonisation on the European level that has an impact on the loss scenarios under survey in this study is the Environmental Liability Directive (ELD).[142] By its name, it seems to deal with tort law like its namesake for products. However, the use of the word "liability" in the title is a mere leftover from earlier, more ambitious plans, which failed during the drafting process. The result of the extensive bargaining with interest groups is a mere administrative law regime, with the state as the sole actor on the victims' side (via its designated "competent authority"),[143] whereas individual claims are excluded altogether. Compensation for personal injury or damage to property therefore continues to be untouched by the unification process and therefore still falls under each national regime with all its differences.[144]

87 This shift to administrative law is not problematic; however, apart from the fact that language was retained throughout the draft that seems to point to private law without actually doing so: after all, it is virtually impossible to identify any individual who could sue in tort law on behalf of the environment as such.[145] At best, one could imagine certain interest

140 E.g. AT no. 23; DE no. 42; FR no. 39, 41; GR no. 31; HU no. 43; NL no. 32; SE no. 53.

141 E.g. FI no. 41; IT nos. 32–34.

142 Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 30.4.2004, 56; as amended by Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC, OJ L 102, 11.4.2006, 15, and by Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140, 5.6.2009, 114.

143 Art. 12 ELD allows natural or legal persons affected by the threat or actual contamination, but also NGOs pursuing environmental interests, to request action from the competent authority, but the decision whether and how to act on such request stays with the latter.

144 See infra VII.2.

groups or others who seek compensation for work they have spent in restoring damage to the environment.[146] The best representative of the interests of the environment seems to be the state, however, where all these activities can be bundled, and who already is in charge of a series of measures to protect the environment. What the Directive does, therefore, is to try to shift expenditures for remedying specific losses from society at large to those who are responsible for the damage, though not necessarily in a sense of blame, but rather in order to let those who derive benefits for the activities that cause the losses pay. This is the essence of the "polluter-pays" principle, even though it has a negative connotation. It also serves "to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced", as the second recital of the Directive points out.

88 As far as the protection of the environment is concerned, further expectations from the title of the Directive have to be dashed, however: it does not deal with all kinds of harm to the environment, but only addresses specific varieties thereof as defined by its Art. 2 (1), which lists damage to biodiversity (as confined by existing protection under EU or national law[147]), water damage (as regulated by the Water Framework Directive[148]), as well as land contamination that creates significant health risks for humans. Furthermore, the Directive is predominantly focused upon certain risky activities as laid down in Annex III to the Directive. Other conduct not listed explicitly only triggers liability if carried out at least negligently.[149] However, Annex III includes inter alia:

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145 Cf. UK no. 34: "n general tort law, harm to biodiversity and harm to the environment as such – as distinct from harm to the proprietary rights of particular persons – cannot give rise to liability.".

146 Cf. ES no. 72; FR nos. 48 (standing of associations for the defence of the environment), 52–54 (e.g compensation for "moral harm" granted to an association protecting birds); PL no. 65.

147 Apart from habitats or species designated by the Member State, the protection extends to all species and habitats protected under the Habitats Directive (Council Directive 92/43/EEC) as well as most threatened species and birds protected under the Birds Directive (Council Directive 79/409/EEC).

148 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327, 22. 12. 2000, 1.

149 The wording of Art. 3 (1) (b) ELD speaks of activities "whenever the operator has been at fault or negligent", which uses tort terminology in a rather awkward way. Some translators have tried to make sense out of this wording, so the German version speaks of "intentionally or negligently" ("vorsätzlich oder fahrlässig") instead, similarly the Italian translation ("doloso o colposo").

> "10. Any contained use, including transport, involving genetically modified micro-organisms as defined by Council Directive 90/219/EEC of 23 April 1990 on the contained use of genetically modified micro-organisms.
>
> 11. Any deliberate release into the environment, transport and placing on the market of genetically modified organisms as defined by Directive 2001/18/EC of the European Parliament and of the Council."

89 The fact that the Directive is specifically concerned about environmental damage caused by GMOs is further evidenced by its Art. 18 (3) (b), which requires the Commission to specifically report to Parliament and to Council after some time[150] a review of

> "the application of this Directive to environmental damage caused by genetically modified organisms (GMOs), particularly in the light of experience gained within relevant international fora and Conventions, such as the Convention on Biological Diversity and the Cartagena Protocol on Biosafety, as well as the results of any incidents of environmental damage caused by GMOs; . . ."

90 While the main thrust of the Directive is aimed at the prevention of environmental harm, it also considers that it might fail, in which case remedial action[151] comes into play, which is marked by the afore-mentioned "polluter-pays" principle. If there is an immediate threat of harm to the environment, the "operator"[152] has to take necessary preventive measures, and, if the risk persists, inform the competent authority, who then can either order him or someone else at his expense to take further preventive action. In case environmental damage has already occurred, the operator (again) has to notify the competent authority, and also invest all efforts into preventing a deterioration of the situation as well as remedying the harm already sus-

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Note that from an economic perspective, a strict liability approach would have been preferable: EA no. 17.

150 The Directive speaks of 30 April 2014, which may be delayed due to the late implementation of the Directive in the Member States, see infra no. 95.

151 Art. 2 (11) ELD defines remedial measures as "any action, or combination of actions, including mitigating or interim measures to restore, rehabilitate or replace damaged natural resources and/or impaired services, or to provide an equivalent alternative to those resources or services as foreseen in Annex II".

152 Art. 2 (6) ELD defines "operator" as "any natural or legal, private or public person who operates or controls the occupational activity or, where this is provided for in national legislation, to whom decisive economic power over the technical functioning of such an activity has been delegated, including the holder of a permit or authorisation for such an activity or the person registering or notifying such an activity".

tained, i.e. to restore the damaged natural resources either in kind or by way of recreating similar resources (Annex II ELD).

91 One of the problems unresolved by the Directive is the causation issue: environmental damage is one of the casebook examples for difficulties in establishing the causal link between the conduct of the defendant and the harm, even more so in the almost typical case where more than one possible polluter may have contributed to the loss. The list of Annex III is one way where the European legislator tried to indicate typical activities prone to cause environmental harm. However, this list cannot establish presumptions for individual cases. The Directive therefore has to admit in its Art. 4 (5) that it can "only apply to environmental damage or to an imminent threat of such damage caused by pollution of a diffuse character, where it is possible to establish a causal link between the damage and the activities of individual operators". Recital 13 further admits that the Directive does not present "a suitable instrument for dealing with pollution of a widespread, diffuse character, where it is impossible to link the negative environmental effects with acts or failure to act of certain individual actors". The Directive also leaves it to the national laws of the Member States to decide who, in a case of multiple proven causes, has to bear which share of the loss (Art. 9 ELD).

92 The duty of the operator to at least finance preventive and/or remedial measures is limited by exceptions due to external causes (force majeure,[153] armed conflict or the like, third parties) or compliance with mandatory orders.[154] Furthermore, for cases where the operator is not at fault, Member States may optionally recognise the regulatory permit defence[155] or the equivalent of the development risk defence of the PLD, paying tribute to the state of the art.[156] If they do, they will not recover, for example, if the

153 Art. 4 (1) (b) ELD defines this as "a natural phenomenon of exceptional, inevitable and irresistible character".

154 Art. 8 (3) (b) ELD. Cf. supra no. 79.

155 Cf. supra no. 57. Art 8 (4) (a) ELD allows member states to refrain from seeking recourse from the operator if damage was caused by an activity "expressly authorised by, and fully in accordance with the conditions of, an authorisation conferred by or given under applicable national laws and regulations". Of the countries under survey here, the defence was adopted by the Czech Republic, Denmark, England, Estonia, Greece, Italy, Malta and Spain (ES no. 39); with a lesser degree also by the Netherlands and Sweden (discretion). See *H. Lopatta*, The Environmental Liability Directive – Overview and State of Play (Slides for ELD Workshop 10.7.2009, available at http://www.biohost.org/eld/workshop09/docs/ELDWS2009_Lopatta_EC.pdf), Slide 14.

156 According to Art. 8 (4) (b) ELD, Member States can also waive the duty to compensate the costs of remedial actions if the operator can prove that the environmental damage was caused by an activity which "was not considered likely to cause environmental damage according to the state of scientific and technical knowledge at the time when

release of a GMO that later turns out to be harmful to the environment was specifically authorised or if it was not possible to anticipate the damaging effect on the basis of the state of scientific and technical knowledge at the time of release.[157]

93 The limitation period is yet different from the PLD and national regimes – the competent authority has to seek recourse for the costs spent on preventive or remedial actions "within five years from the date on which those measures have been completed or the liable operator, or third party, has been identified, whichever is the later" (Art. 10 ELD).

94 Though it has been vividly demanded by the EESC,[158] the Directive fails to foresee duties to take out insurance or to provide for any other financial cover in advance, claiming that this were not yet available on the market. Nevertheless, some Member States have included such duties into their implementing legislation.[159]

95 In contrast to the PLD, the ELD is meant to set only a minimum, not an exclusive standard: Art. 16 expressly allows "more stringent provisions" on the national level.[160] Seen together with the afore-mentioned optional provisions of the Directive, the legal situation in Europe even after its implementation is not really homogeneous as one would expect from such a legislative project.[161] Compliance with the Directive has not been better than with the PLD – at the end of the period set by the Directive

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the emission was released or the activity took place". Of the countries under survey here, the defence was adopted by the Czech Republic, England, Estonia, France, Greece, Italy, Luxembourg, Malta and Spain; with a lesser degree also by the Netherlands and Sweden (discretion); *Lopatta* (fn. 155) Slide 14.

157 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/157.

158 Opinion of the Economic and Social Committee on the Commission's proposal, OJ C 241, 7.10.2002, 162 (para. 4.4).

159 E.g. CZ no. 64–65; ES nos. 52 ff.; GR nos. 35–37; HU no. 47; SE no. 61. See also UK no. 32 (though no statutory requirement, but authorisations and permits may include financial guarantees within the discretion of the authority); similarly PL no. 58 (financial security optional). A "Study on the Implementation Efficiency of the Environmental Liability Directive (ELD) and related Financial Security issues" published in November 2009 by the European Commission in preparation for its report due under Art 14 para. 2 ELD (available at http://ec.europa.eu/environment/enveco/others/pdf/implementation_efficiency.pdf, subsequently referred to as "ELD Implementation Efficiency Study") inter alia gives an overview of currently available insurance products covering ELD risks.

160 Cf., e.g., the Estonian implementing law, which includes a more stringent definition of "operator" irrespective of the nature of his activity (EE no. 29); or the Italian Single Act which introduces a parallel civil liability regime (IT no. 37). On the impact of this flexibility upon the availability of insurance, see infra fn. 268.

161 On the variations, see the overview by *CEA*, Navigating the Environmental Liability Directive. A practical guide for insurance underwriters and claims handlers (2009, available at http://www.cea.eu/uploads/DocumentsLibrary/documents/1240585425-eld-best-practice-guide-update.pdf) 10 ff. and 56 ff.

itself, only three Member States had passed implementing legislation (Italy, Latvia and Lithuania), and the ECJ just recently ruled on cases filed by the Commission for failure to transpose,[162] with several applications withdrawn in the meantime due to (late) compliance.

2. Environmental liability beyond the scope of the Directive

(a) Environmental harm

Some Member States had already a more or less far-reaching system in force which attributed the costs of remedying environmental harm, thereby overlapping at least in part with the new regime proposed by the Directive. In contrast to the Product Liability Directive,[163] such a duplication of legal measures is admissible.[164] Therefore, in those jurisdictions there may be more than one way for the state to recover the costs of repairing the environment.[165] **96**

(b) Damage to individual claimants

Apart from dealing with harm to the environment as such, several jurisdictions have also special rules in force which foresee the indemnification of losses that are secondary to environmental harm and caused by the latter to individuals. If pollution causes personal injuries or damage to property, the victims do not have to resort to general rules of tort law (even though they could), but have an easier way to receive compensation, typically via strict liability. Many of these systems seem to be limited to specific parts of the environment and/or to certain types of activities that may be harmful,[166] whereas others are not subject to such limitations and respond to secondary environmental harm irrespective of the kind of activity causing **97**

162 ECJ C-368-08, *Commission v. Hellenic Republic*; C-417/08, *Commission v. United Kingdom*; C-422/08, *Commission v. Austria*.

163 Supra no. 84.

164 Supra at fn. 160.

165 E.g. CZ nos. 66 ff.; DE no. 3; EE nos. 31, 34; ES nos. 65 ff.; FI nos. 2, 11, 45 ff.; IT no. 37; UK no. 33 (several specific liability regimes).

166 E.g. DE no. 49 (not covering facilities for genetic engineering); DK no. 24. Cf. US no. 21.

it.[167] Yet others have the option to pursue claims based on general strict liability provisions.[168]

(c) Nuisance/neighbourhood laws in particular

98 Even if a country has not yet foreseen specific liability rules for environmental harm caused to individuals, at least property losses may already be recoverable under that jurisdiction's special rules for losses incurred within a neighbourhood, notwithstanding the general rules of tort law, of course. These provisions aim at resolving disputes arising out of a conflict of interests between owners of adjacent or nearby land. They do not so much focus on the conduct of those interfering with the neighbouring interest, but rather on that outcome as such. Therefore, these rules do not primarily deal with an assessment of behaviour and are thus typically irrespective of fault. Since they are result-oriented, they tend to compare the effect of emissions on neighbouring land with other influences on it from the surrounding area: the more common practice it is and/or the more likely comparable sources in the neighbourhood will lead to similar outcome, the less likely the claimant will prevail under these rules.[169] Conduct may still come into play if the impact on the land was aimed at it specifically by the neighbour, in which case more stringent standards apply to remedy the outcome.[170]

99 Apart from injunctions and similar titles to stop the neighbour from continuing to exert the influence upon the adjacent parcel of land, reparation may be another remedy foreseen under these circumstances.[171] If these claims are not already considered as part of tort law such as in common law jurisdictions,[172] they are thereby at least closely related to the law of delict inasmuch as they also aim at repairing (either in kind or by way of monetary compensation) any impermissible deviation from the *status quo ante*.

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167 E.g. EE no. 31; FI no. 57; NO no. 23. Cf. CA no. 33.

168 HU no. 51; IT no. 39; NL nos. 36, 40 ff.; PL no. 62.

169 See *Koch* (fn. 2) nos. 67 ff. and the country reports cited therein. Another comparative survey is given by *B. Pozzo* (ed.), Property and Environment (2007). See also *Ch. von Bar*, The Common European Law of Torts I (1998) nos. 532 ff.

170 *Koch* (fn. 2) no. 70.

171 This does not seem to be the case in Hungary, where the only claim is an *actio negatoria* (HU no. 51).

172 On the tort of private nuisance, see UK no. 35. A historical overview is given by *B. Pozzo*, Property Rights in the Defense of Nature. From the Historical Evolution to the Contemporary Challenges: A Comparative Law Analysis, in Pozzo (fn. 169) 3, 18 ff. Also the Netherlands place these claims into tort rather than property law.

Most jurisdictions have such special rules in force.[173] While they share the same fundamental approach,[174] there are quite considerable differences which may be decisive in case of actual disputes.[175] For example, the standard applied to weighing what is still common to the area or already unreasonable varies from country to country. The same is true for the relevance of an authorisation for determining the availability of remedies, from a mere piece of fact considered for assessing the reasonableness of the neighbouring activity[176] to an exclusion of the claim altogether or to cutting off the possibility to enjoin it while retaining a claim for reparation.[177] The latter is an expression of the jurisdiction's efforts to preserve the balance of interests between the neighbours – both can pursue activities on their land as they wish, but if one thereby causes losses to the other, the equilibrium is restored by way of compensation.[178] **100**

Claims arising out of neighbourhood conflicts are less relevant to the cases under survey here as compared to the problems addressed in our previous study: while it can be crucial for determining the consequences of GMO admixture between two neighbouring farmers, it will not be helpful for damage caused along the food or feed supply chain which is not confined to a specific limited area in the vicinity of the defendant.[179] Nevertheless, as long as the claimants and the defendants fall within the definition of "neighbours" applied to these special rules, the latter may offer an alternative basis for resolving such disputes. **101**

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173 E.g. AT nos. 31 ff.; CZ nos. 71 ff.; DE no. 51; DK no. 24; ES nos. 75–76 (apart from some regional rules no national statutory provision, but based on general doctrines); FR nos. 55–57 (see in particular the cases cited in no. 57: hormone treatment of crops deteriorating neighbouring lettuce, cement dust on claimant's crops preventing photosynthesis); GR nos. 43, 46; *P. Goergen*, Luxembourg, in Economic Loss 325 (nos. 34–35); HU no, 51; NO no. 25; PL no. 69; UK no. 35; cf. BR 61; CA nos. 35 ff.

174 Cf. *B. Pozzo*, Conclusions, in Pozzo (fn. 169) 355, 357 ("an inherent harmony, more than a gradual convergence").

175 But see *von Bar* (fn. 169) no. 545: "There are differences between the individual legal systems, but these only concern marginal issues, such as which types of emissions are covered, how the quantum of compensation is calculated, and whether the corresponding claim is in tort or property law.".

176 UK no. 35: "Regulatory consent . . . may serve to 'crystallise' what is a reasonable land-use in the area in question.".

177 See *Koch* (fn. 2) no. 72.

178 Cf. *Pozzo* (fn. 172) 6 at the example of Germany; but see *von Bar* (fn. 169) nos. 536–537, who is critical of such claims "akin to that of a land-owner against the state which compulsorily purchases his land" as a matter of principle.

179 See also *von Bar* (fn. 169) no. 532: "The law governing relationships between neighbours does not cover personal injury or rights to personality."

(d) International liability regimes

102 The only project developing public international law rules on liability for changes to biodiversity through GMOs[180] is based upon the Cartagena Protocol on Biosafety, which is described in depth by the report on International Environmental Law.[181] It is still a work in progress, though it seems at present[182] that the path – if anywhere – is leading towards a regime modelled after the Environmental Liability Directive in principle, therefore rather an administrative regime, leaving civil liability matters to domestic law.

VIII. Other bases of liability

1. Vicarious liability

103 The classic term "vicarious liability" typically refers to a principal-agent relationship, out of which the former is liable for harmful conduct of the latter. Some jurisdictions perceive this as a case of strict liability, since fault of the liable person is not of the essence, others see this as at least a mixed regime between fault and strict, since the principal is only liable if the conduct of his agent did not meet the required standard of care, which is defined by duties of the principal, however.[183]

104 Despite these theoretical differences, there is a solid common core throughout Europe that the principal should be accountable for damage caused by

180 The so-called Lugano Convention or – in full – the Convention on civil liability for damage resulting from activities dangerous to the environment (text at http://conventions.coe.int/treaty/en/treaties/html/150.htm) has never reached any viable stage of signatures (9), let alone ratifications (0): http://conventions.coe.int/Treaty/Commun/ChercheSig.asp?NT=150&CL=ENG. An overview over this stillborn regime as it would have applied to GMOs is given, e.g., by *L. Bergkamp*, European Community Law for the New Economy (2003) 245 ff.

181 Supra 661 ff.

182 The latest available document at the time of drafting this comparative report was the Report of the Group of the Friends of the Co-Chairs on Liability and Redress in the Context of the Cartagena Protocol on Biosafety on the Work of its Second Meeting (http://www.cbd.int/doc/meetings/bs/bsgflr-02/official/bsgflr-02-03-en.pdf), which took place in February 2010.

183 "Liability has in effect become 'indirect': the master is responsible for the servant's fault." *Von Bar* (fn. 169) no. 181. Cf. *H. Koziol*, Commentary on Chapter 1, in *European Group on Tort Law*, Principles of European Tort Law (2005) 27 (Art. 1:101 no. 17).

his servants[184] while acting within their duties.[185] The agreement already stops, though, when it comes to the question whether those retaining independent contractors, i.e. persons acting for the former without his immediate control or supervision, but still in his interest,[186] should also be liable for the latter despite the lack of subordination as commonly associated with an employment relationship. "In most of the countries, the general principle is that there is no vicarious liability in tort for harm caused by an independent contractor."[187]

For our purposes, it is not so much interesting whether a farmer should **105**
compensate losses caused by his farm hands, or the operator of a storage facility for his workers, or a shipowner for his sailors – those questions would invariably be answered in the affirmative in most jurisdictions.[188] What really matters, though, is whether someone along the supply chain has to account for wrongs further up or down the chain, where independent operators have set the cause. This is deemed at least doubtful by all reporters,[189] though not entirely unimaginable by some.[190]

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184 A relationship of employment as such is not needed, it suffices if the servant/agent/employee has to follow the instructions of the principal as to the conditions of his tasks (typically what, when, where and how to act). See *von Bar* (fn. 169) nos. 191 ff.

185 See, e.g., the comparative overview by *S. Galand-Carval*, Comparative Report on Liability for Damage Caused by Others, Part I – General Questions, in J. Spier (ed.), Unification of Tort Law: Liability for Damage Caused by Others (2003) 289 (nos. 41 ff.). An exception is Austria, where bystanders and third parties who are not in a contractual or other special relationship of the employer can only sue the latter for wrongdoings of his employees if these were unfit or dangerous (AT no. 38). However, Austrian courts try to circumvent this outdated statutory approach by expanding the notion of contractual duties towards third parties more broadly (see also AT no. 38 on statutory exceptions to this narrow rule, in particular in the GMO legislation: no. 49). Cf. FR no. 62. See also *von Bar* (fn. 169) nos. 179 ff.

186 See *Galand-Carval* (fn. 185) no. 64 (fn. 86) on the problems of defining "independent contractors". Cf. GR no. 51.

187 *Galand-Carval* (fn. 185) no. 64. See also *von Bar* (fn. 169) 201: "[T]he basic rule that others are not liable for damage by independent contractors remains." E.g. DK no. 27; ES no. 80; FI no. 61 (but possible under special circumstances); FR no. 61; HU nos. 57–58; LU nos. 86–87, 90; NO no. 28; UK no. 40 (with exceptions); AU no. 42. But see AT nos. 36–39: principal in contractual relationship with victim liable for independent contractors; equally EE no. 41; PL no. 72; SE no. 68. Further exception: IT no. 42. Cf. NL no. 47.

188 With the aforementioned exception of Austria, see fn. 185. Cf., e.g., CZ nos. 79–80. However, in all these cases the duties of the employee have to be established first; cf. the responses to Case 3.

189 As the Austrian reporter summarises, "the scope of vicarious liability within the feed and food production chain, which typically consists of independent contractors, is limited" (AT no. 42), which is true for all jurisdictions covered.

190 See, e.g., LI no. 37, quoting a provision of Liechtenstein's GMO legislation which holds "the person responsible for the first placing on the market of a GMO . . . liable for those losses as well which are caused to third parties even if all rules of conduct have been respected", which was explained by the legislator's intention to protect "all those

106 One way to hold someone liable for another further *down* the supply chain is if he made the wrong choice in selecting that person, e.g. a producer selecting an unfit wholesale distributor. This may amount to *culpa in eligendo*, but is not a case of vicarious liability, as the producer will be liable (if at all) for his own fault.[191]

107 Another scenario where it merely seems that someone has to account for another *upstream* is in product liability, with e.g. a processor liable for shortcomings of raw materials supplied to him by another.[192] In that case, the processor will not be liable *for* the producer of the raw materials, but *himself* for distributing his own products that are defective,[193] even if only due to the flawed ingredient, which may allow him to sue the supplier in recourse.[194] As clarified by the ECJ,[195] victims of product defects cannot sue anyone else but a producer within the meaning of the Directive;[196] therefore they cannot base their claims against a seller or other distributor along the supply chain upon the product liability regime.

2. General strict liability

108 Some jurisdictions have general strict liability rules which may apply at least in some cases under survey here, provided that the use of GMOs falls under the definitions used, which can only be estimated for the time being as there have not been any actual court cases yet. Such rules address, for example, "hazardous substances",[197] "extremely dangerous activities"[198] or are even broader.[199] Under this condition, these provisions may serve as additional bases of claims to indemnify losses to persons or property. To the extent they compete with general tort law claims, victims are probably tempted to pursue this alternative path which does not require them to prove the tortfeasor's fault. However, it seems rather doubtful that

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actors producing GMO-free products which suffer from a contamination further up the production chain". Cf. further NL no. 48.

191 AT no. 48; DE no. 57; EE nos. 44–45; ES nos. 87 ff.; FI nos. 67 ff.; FR no. 65; GR no. 54; HU no. 61; IT no. 49; LI nos. 39–40; LU nos. 94 ff.; NL nos. 50 ff.; NO no. 31; PL no. 80; SE no. 73; SI no. 29; UK nos. 43–44; AU nos. 46 ff.; CA no. 50.

192 Cf. supra no. 75. E.g. ES no. 85.

193 UK no. 41.

194 AT no. 42.

195 ECJ C-402/03, *Skov Æg v. Bilka Lavprisvarehus A/S,* [2006] ECR I-199. But see CA no. 48 (opposite solution in Québec).

196 Supra no. 75.

197 NL nos. 41 ff. (but "unlikely" that GMOs will be deemed as dangerous).

198 E.g. EE no. 3; HU no. 48; IT nos. 32–34.

199 Cf. the French general strict liability of the *gardien* for inanimate objects (FR no. 59).

courts are willing to subsume GMOs under any notion of ultra-hazardous objects, particularly if they are approved, though the circumstances of the case may ultimately be decisive (e.g. if large-scale bodily injury is at stake).[200]

IX. Defences

The notion of "defence" itself is not entirely identical in all legal systems. **109**
In essence, it denotes counter-arguments that the defendant has to raise and prove in court in order to avoid or at least reduce liability.[201] This would apply to all responses of the defendant in reaction to the claimant's allegations or to presumptions held against him, including efforts to rebut evidence submitted by the claimant in order to support her case. These are reactions to moves by the claimant, however, whereas defences typically identify topics addressed at the defendant's initiative. However, as has been said elsewhere, defences are quite diverse by nature,[202] and only a few have been selected for the following comparative overview.

1. Regulatory compliance/permit defence

The so-called regulatory compliance defence is a rather weak tool – the fact **110**
that one abided by rules prescribing (or prohibiting) certain conduct does not per se equalise the verdict that the defendant's behaviour was at fault.[203] It will at least be considered as one element, however, in the assess-

200 But see Hungary, where the legislator has stepped in and by statute defined such losses as falling under the general strict liability rule: supra no. 65 and HU no. 1.

201 On the problems of defining defences and bringing them together under one heading, see *B.A. Koch*, Commentary to Chapter 7, in *European Group on Tort Law*, Principles of European Tort Law (2005) 144.

202 *W. van Gerven*, Torts (The Common Law of Europe Casebook, 2000) 356: "It is practically impossible to bring these defences within a conceptual framework, which is valid for the ... systems under examination.".

203 E.g. FR no. 33; *Dacoronia* (fn. 65) no. 64; but see DK no. 20; AU no. 28. An economic explanation for this weakness is given by EA nos. 42 f. A comparative view of this defence is given by *W. van Boom*, On the Intersection Between Tort Law and Regulatory Law – A Comparative Analysis, in W. van Boom/M. Lukas/Ch. Kissling (eds.), Tort and Regulatory Law (2007) 419 (nos. 43 ff.). See also *M. Lukas*, The Function of Regulatory Law in the Context of Tort Law – Conclusions, in the same volume, 449 (nos. 24 ff.), arguing that "the more detailed the regulatory law provisions determine the required conduct in a certain situation, the less room naturally is left for an autonomous evaluation of such conduct according to the general standards of tort law".

ment of the latter's conduct.[204] So even if a farmer can establish that he complied with all rules regulating the cultivation of his crops, he may still be found to have acted negligently under further conditions. Equally, a car driver cannot excuse himself by proving that he drove below the speed limit and on the proper lane if he otherwise failed to meet the standard of care required under all circumstances, which is not only defined by written rules.

111 The same is true for permits granted by the authorities: as these are never aimed at allowing the infliction of harm upon others (even though they may take this into account as a side-effect[205]), such permits will at best be considered when assessing in tort law the due standard of care, but the latter can certainly exceed the scope of the authorisation.[206] This is even spelled out in Art. 7 (7) of Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed:[207] "The granting of authorisation shall not lessen the general civil and criminal liability of any food operator in respect of the food concerned."[208] The regulatory permit defence may be specifically excluded in some liability regimes or even generally unavailable.[209]

2. Consent/assumption of risk

112 "As long as GMOs and GM products are considered to have no adverse effects on human health, the knowing consumption of these products by the victim will have no impact on the tortfeasor's liability."[210] Even though most jurisdictions recognise the voluntary assumption of risk as a defence in general,[211] this citation from the Austrian report will prob-

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204 E.g. FI no. 70 ("may be relevant as one factor among others"); GR no. 56; NO no. 32; UK no. 45 ("may be relevant to the determination of fault or, in respect of private nuisance, unreasonableness"); AU no. 28.

205 This may be an unavoidable consequence of deciding upon the balance of interests as mentioned earlier (supra no. 100 at fn. 178). Cf. ES no. 91: "Licences or permits are issued as a rule even though the authorised activity may cause damage to third parties. In fact, authorisations are usually issued including a clause which leaves the rights of third parties in respect of damage caused to them unaffected . . .".

206 On the regulatory permit defence, see *Lukas* (fn. 203) nos. 27 ff.

207 OJ L 268, 18.10.2003, 1.

208 Similarly Art. 19(7) with respect to feed.

209 E.g. EE no. 46; FR no. 66; HU nos. 44, 63; IT no. 50; *B. Askeland*, Tort and Regulatory Law in Norway, in W. van Boom/M. Lukas/Ch. Kissling (eds.), Tort and Regulatory Law (2007) 205 (nos. 37–38: "[A] 'regulatory permit defence' is an unknown concept under Norwegian law."); LI no. 41; LU no. 98; MT no. 43; NL no. 53; PL no. 82; ES no. 91; SE nos. 74–75; AU nos. 6, 50; CA no. 49; US no. 29; cf. also supra at fn. 155.

210 AT no. 47.

ably apply universally, if only because awareness of a vague risk does not necessarily mean that the victim expected it to materialise.[212] Obviously, it would not apply to non-labelled products, or to GMOs not identified by the later victim, unless she deliberately and specifically took this into consideration. After all, consent requires knowledge of what one agrees to.[213]

On the other hand, a conventional farmer moving into an area with widespread GM cultivation will probably not succeed in seeking compensation for the consequences of admixture.[214] **113**

Furthermore, it is also possible to expressly waive the right to compensation in advance, as conventional farmers may do if they consent upfront by way of contract with their neighbour to the latter's GM cultivation.[215] **114**

3. Third-party influence

If damage was caused (in the legal sense) by a third party rather than the defendant, this will generally not be considered as a defence, but exclude liability of the defendant in the first place for lack of causation attributable to the latter.[216] If it was just one of several causal influences upon the bodily integrity of the victim or on other protected interests, the recognition of third-party influence as a defence depends upon the legal system and the models used therein. **115**

Apart from those that consider the impact of an activity upon the course of events according to the (neutral) degree of causation,[217] others recognise qualified fault by the third party as a ground for complete exoneration,[218] again others only if it was the sole cause (and not just one of several)[219] – and all that depending upon the basis of the claim.[220] As a rule of thumb, **116**

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211 Cf. *von Bar* (fn. 10) nos. 512–513 (pp. 534–542).

212 CZ no. 96; DK no. 32; ES no. 93 (assumption of risk "blurry concept under Spanish law"); FI no. 74; FR no. 68; GR no. 58; LI no. 42; LU no. 100 ff. (defence only if abnormal risk); NO no. 33; PL no. 84 (public policy exception); SE no. 76 (consent no defence if harm "atypically more severe than could be expected"); UK no. 46; AU no. 51; CA no. 50. Cf. IT 50, arguing that knowingly distributing harmful products will outweigh the victim's assumption of risk.

213 Cf. FR no. 68.

214 See, e.g., US no. 15. An exception is France, where "coming to a risk" is no defence in neighbourhood cases: FR no. 69.

215 E.g. DE no. 59.

216 Cf. IT no. 51; UK no. 47.

217 E.g. FR no. 70; IT no. 51; LU no. 106; NL no. 55; SE nos. 81 ff.

218 E.g. GR no. 59; LI nos. 1, 43; NL nos. 44, 55.

the stricter liability gets, the more carefully will the effect of the third party's behaviour on the liability of the operator be scrutinized.

4. Prescription

117 The defence of prescription allows the defendant to escape liability despite all substantive requirements fulfilled, just because of the lapse of time.[221] A survey of the prescription periods in tort law and their scope of application throughout the jurisdictions covered in this study shows remarkable differences, however, when it comes to defining how much time must have passed, and what marks the start of the relevant period.[222] To the extent substantive tort law was harmonised including rules on prescription, there is no diversity, however, at least within the EU. This is true in particular for the respective provisions of the PLD.[223]

118 Apart from such singular unified solutions, most legal systems apply a combination of a shorter and a longer period, with different triggers. Typically, the short period starts with subjective elements such as the victim's (actual or imputed) knowledge of damage and/or tortfeasor, whereas the long period is set off with objective events such as the harmful conduct. The short period ranges from one[224] to ten years,[225] with a clear

219 E.g. AT no. 48; ES no. 94 (if third party intervention amounts to force majeure); FR no. 71 (like Spain – if equivalent of force majeure); HU no. 66; NO no. 34 (if defendant's influence was "unsubstantial" or "unimportant" in comparison); PL no. 86.

220 The line will be drawn more narrowly in cases of strict liability, where the impact of third-party conduct may be tested against stricter standards, e.g. FI no. 77. See also Art. 8 (1) PLD: "Without prejudice to the provisions of national law concerning the right of contribution or recourse, the liability of the producer shall not be reduced when the damage is caused both by a defect in product and by the act or omission of a third party.".

221 *Von Bar* (fn. 10) no. 545, therefore calls it "the morally weakest defence".

222 See generally *von Bar* (fn. 10) nos. 545 ff. and *R. Zimmermann/J. Kleinschmidt,* Prescription: General Framework and Special Problems Concerning Damages Claims, in H. Koziol/B. Steininger (eds.), European Tort Law 2007 (2008) 26.

223 Art. 10 (1) PLD provides: "Member States shall provide in their legislation that a limitation period of three years shall apply to proceedings for the recovery of damages as provided for in this Directive. The limitation period shall begin to run from the day on which the plaintiff became aware, or should reasonably have become aware, of the damage, the defect and the identity of the producer." See also Art. 11 PLD (claim extinguished 10 years after the actual product was put into circulation); supra at no. 82.

224 ES no. 97.

225 FR no. 73 (personal injury claims); SE no. 86.

majority opting for three years.[226] The long period varies from 3 to 30 years.[227]

The idea of the double time span is to strike a compromise between the interests of the victim on the one hand in preserving her claim, which she cannot pursue if she is unaware of it (yet), and the interests of the alleged tortfeasor on the other hand to have the file closed, also in light of the fading availability of evidence. "After all, prescription constitutes an essential means to defeat claims that may be unfounded."[228] Furthermore, there is "public's need for legal certainty as well as the courts' need for relief from overwork".[229] In light of the gravity of the harm, however, several jurisdictions extend their long-stop period[230] or do not apply it at all[231] in cases of personal injury or death, thereby shifting the focus exclusively onto the victim. Some jurisdictions have no long-stop period at all also in cases other than bodily harm.[232] **119**

The applicable rules on prescription are crucial for the cases examined here: Particularly in light of the uncertainties regarding potential hazards originating from GMOs, which may materialise far in the future, the key question is how such risks are being dealt with, and whether those applying and implementing agri-biotechnology today have to fear being sued in decades to come, for dangers they themselves do not even know yet.[233] A quick escape would be by raising the defence of prescription, but it may not be available, particularly not in future cases of bodily harm. Experi- **120**

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226 AT no. 49; DE no. 61; DK no. 34; EE no. 49; FI no. 80; HU no. 67 (strict liability); LI no. 44; NO no. 35; PL no. 88; UK no. 48 (personal injury claims); BR no. 75; CA no. 52 (Québec).
Two years: CZ no. 100; MT no. 48; CA no. 52 (common law provinces).
Four years: CZ no. 104 (in business relationships); BR no. 75 (environmental crimes).
Five years: FR no. 73 (property damage or financial loss); HU no. 67 (fault); IT no. 52; NL no. 56; BR no. 75 (consumer claims).
Six years: UK no. 48 (other than personal injury).
Eight years: BR no. 75 (crimes related to GMOs).

227 3 years: CZ no. 100.
10 years: CZ no. 100 (if damage caused intentionally or in a business relationship); DE no. 61 (after injury other than bodily harm); EE no. 49; FI no. 80 (not bodily injury or environmental harm); PL no. 88 (standard); UK no. 80.
20 years: DK (no. 34); NL no. 36; NO. no. 36; PL no. 88 (crime or misdemeanour).
30 years: AT no. 49; DE no. 61 (after personal injury; in other cases after the harmful act); LI no. 44; NL no. 56 (contamination).

228 *Zimmermann/Kleinschmidt* (fn. 222) no. 51.

229 *Von Bar* (fn. 10) no. 545.

230 E.g. DE no. 61.

231 CZ no. 102; FI no. 80; NL no. 56; PL no. 89.

232 E.g. CA no. 52; ES no. 97; IT no. 52; SE no. 86.

233 One substantive counter-argument could be a state-of-the-art defence or the equivalent, see supra nos. 80 and 92.

ence with asbestos[234] and similar long-tail risks may serve as examples. So if, say, 31 years from now an approved GM crop turns out to be the overriding cause for a certain disease of the human body, the case will not proceed in jurisdictions such as Austria or England, but does not stop for being time-barred in the Netherlands, for example, where the victims have five years to pursue their claims.[235]

X. Remedies

1. Damages

121 All country reports are in accord that GMO loss scenarios are not treated differently to other tort cases when it comes to determining type and amount of monetary compensation. The only exception is Germany, where liability under the Act on Genetic Engineering is capped at € 85 million per event (as in the Product Liability Act and other German strict liability statutes).[236] The existing differences between the tort laws of the various legal systems as far as damages is concerned, in particular for non-pecuniary losses, are therefore equally true for the specific cases covered here.[237]

122 Non-compensatory awards such as punitive damages are not recognised at all in continental legal systems, while possible in common law jurisdictions subject to specific conditions.[238]

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234 See e.g. the RAND report by *St. Carroll et al.*, Asbestos Litigation (2005), in particular 25 f., available for download at http://www.rand.org/pubs/monographs/2005/RAND_MG162.pdf, and the recent Munich Re publication Asbestos. Anatomy of a mass tort (2009), available at http://www.munichre.com/publications/302-06142_en.pdf.

235 Unless the basis of the claim is product liability, in which case the 10 year prescription period applies. See also the responses to Case 2, which are in accord that no liability attaches to such long-tail risks, even though the justifications may slightly differ.

236 DE no. 63.

237 See, e.g., *B.A. Koch/H. Koziol*, Compensation for Personal Injury in a Comparative Perspective (2002).

238 UK no. 55; AU no. 62; CA no. 59; US nos. 8, 22. See also BR no. 86; EA no. 103. A recent comparative survey is provided by H.Koziol/V. Wilcox (eds.), Punitive Damages: Common Law and Civil Law Perspectives (2009).

2. Non-pecuniary remedies

In many legal systems, reparation in kind is the prime response to losses in tort law.[239] In some of them, it is also the first option, while monetary compensation is (at least in theory) only available subject to further conditions, e.g. if reparation is unreasonable or too expensive.[240] In other systems, claimants can choose between both types of remedies, while allowing the defendant to avoid excessive efforts by payment of the money equivalent.[241] Again other jurisdictions start with monetary compensation as the prime remedy, with reparation in kind as the exception.[242] **123**

Particularly neighbourhood-related claims are not immediately linked to compensation, but first aim at enjoining the neighbour from intruding upon one's land. Such injunctions are the standard remedy in the above-mentioned special regimes designed for conflicts concerning neighbouring land.[243] **124**

3. Advance cover

While there is no general requirement to take out liability insurance or seek any other form of advance cover against potential future losses, some of the special liability regimes mentioned above provide for such a requirement, linked to the conditions of the scheme.[244] **125**

XI. Specific aspects of cross-border claims

As far as tort claims are concerned, a special report in this volume[245] deals with questions of cross-border litigation and presents the regimes of jurisdiction and choice of law as harmonized within the EU.[246] It is therefore not necessary to analyse these matters in detail here. However, it may be useful to repeat the key findings of that report with an eye to risks associated with GMOs. **126**

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239 But see NO no. 44; SE no. 103; UK no. 56.
240 AT no. 60; DE no. 70; HU no. 77; LI no. 53; LU no. 122.
241 NL no. 65.
242 EE no. 59; GR no. 72; IT no. 63.
243 Supra VII.2(c). See, e.g., AT nos. 3, 31 ff.; DE no. 30; FI no. 96; UK nos. 35, 56; cf. MT no. 62; AU no. 63; CA no. 60; US no. 40. Cf. EA nos. 105 ff.
244 AT no. 63; FR no. 89; DE no. 73; ES nos. 52 ff.; LI no. 56; LU no.129.
245 Supra 687 ff.
246 In case of Rome II with the exception of Denmark, JC no. 48 fn. 29.

127 In a cross-border tort claim, the victim can choose to sue in one of up to three different jurisdictions – at the defendant's domicile or principal place of business, in the country where the damaging event took place, or where the harmful result manifests.[247] Once the proper court under the Brussels I Regulation[248] is identified, the Rome II Regulation[249] will then determine which law to apply to the case at hand. In a standard tort case, the prime focus when it comes to resolving a conflict of laws is on the place where the (first) damage occurred, so on only the last of the three afore-mentioned aspects that are relevant for deciding upon jurisdiction.[250] The place of the damaging conduct comes into play again as an optional alternative at the choice of the claimant if she builds her case upon environmental liability.[251] If the basis of the claim is product liability, however, a rather complex multi-level checklist has to be worked through,[252] unless the Hague Product Liability Convention applies instead.[253]

128 No matter how complex the solutions offered by these regulations may be, they have certainly achieved their prime goal – to let the same rules decide upon these apparent "formalities", which have a crucial (and previously often underestimated) impact upon the solution of a case, throughout the EU. Therefore, concerns that cross-border contamination with GMOs may effectively lead to a collapse of the legal order due to the complexity of the matter and the diversity of solutions are completely unfounded – Community law already provides for a stable framework to place such claims and also identifies which laws apply, irrespective of where the cases are filed. This leads to a predictable regime, even if the target jurisdiction whose laws govern may foresee a solution that is not identical to expectations of the claimant in his own country. Cross-border lawsuits by definition leave the realm and shelter of one single jurisdiction, and there is no foundation whatsoever for a claim to be protected by one's own (domicile's) laws wherever one acts or causes effects, or wherever one is harmed. It is naïve to

247 JC nos. 15 ff. Obviously the choice is less if two or more of these places are within the same jurisdiction.

248 Council Regulation (EC) No 44/2001 of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters, OJ L 12, 16.1.2001, 1; JC nos. 4 ff.

249 Regulation (EC) No. 864/2007 on the law applicable to non-contractual obligations, OJ L 199, 31.7.2007, 40; JC nos. 48 ff.

250 JC nos. 55–57.

251 JC nos. 75 ff. This amelioration of the claimant's position is somewhat odd, considering that someone suffering personal injury or property damage only indirectly via some environmental harm has a choice which another person injured directly has not.

252 JC nos. 58 ff.

253 JC no. 52.

assume that one's own laws will apply if one causes harm to another in a different legal system, as it is to expect that exactly the same degree of protection is awarded by each jurisdiction worldwide. As an Englishman cannot expect to be allowed to drive on the left while on holidays in Spain, he can equally not expect to receive the same kind and amount of compensation like at home if injured on the road there. Equally, a Spanish GM farmer cannot grow GM maize on a field right on the French border[254] and expect to be completely immune against claims e.g. by French farmers whose conventional maize ends up being contaminated.

Other cross-border aspects which cannot be elaborated here are, for example, questions of claims against or recourse by or between social security carriers in cases of personal injury caused in one country and having financial implications in another; or international environmental damage falling under the scope of the ELD, which foresees international cooperation between the Member States for such cases.[255] **129**

XII. Alternatives to tort law

1. Insurance regimes

(a) Social insurance

While its cross-border dimensions cannot be analysed here, as just indicated, it is nevertheless important to at least highlight in principle the role of social security, which cushions the immediate financial consequences of harm to the human body irrespective of the cause, at least in all European systems covered. The question whether and under which conditions social security carriers are prepared to seek recourse for the amounts they paid out, at least in their own jurisdiction, obviously has an impact of the frequency and type of claims brought in tort law.[256] At any rate, one should bear in mind that, say, illnesses and other negative health conditions triggered by GMOs, whether directly or indirectly, will first be an issue for social security benefits in Europe, so victims will not suffer an immediate financial loss to the full extent when seeking treatment. This is clearly one prime difference to the economic losses examined **130**

254 Assuming for the sake of the argument that this is agronomically feasible anywhere along the borderline.

255 Art. 15 ELD.

256 An extensive comparative survey is provided by U. Magnus (ed.), The Impact of Social Security Law on Tort Law (2003).

in our first study, which also reduces the need for immediate external action such as state intervention.

(b) Private insurance

(i) General aspects

131 As already outlined in the comparative report to the previous study,[257] private insurance allows the pooling of risks among a larger group of risk-prone individuals, who thereby reduce the full impact of a loss on their assets by spreading the risk among all those who are equally exposed. "Insurance enables risk taking."[258] There are two approaches which need to be distinguished: first-party liability brings together those who are potential victims of a risk and who want to protect themselves against their own losses, whereas those who cause losses to others and therefore may be bound to indemnify these third parties will join in sharing this risk of being secondary payors of losses in what is referred to as third-party liability.

132 Either way, "the basic principles for underwriting include assessability (measurability, quantification); economic efficiency (profitability); randomness (fortuity); and mutuality (solidarity)."[259] As elaborated further by the special report on insurance aspects,[260] insurers need to have sufficient information to estimate how often a risk will materialise, and how much damage it will cause, while at the same time being confident that the loss is not certain to occur. They need to be able to calculate how high the premiums need to be priced in order to accumulate sufficient funds to pay the aggregate losses and to cover administrative costs with a certain margin of profit for the insurer, while at the same time taking into account that the higher the premium, the less demand there will be for the product. This in turn would weaken another important aspect of insurability, the size of the risk pool: the more insured participate, the better the risk can be spread, unless the additional customers are more risk-prone than average, so if only people living near a river buy flood insurance, the mere number of clients does not improve the mutuality aspect.

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257 *Koch* (fn. 2) nos. 115 ff.
258 IN no. 20.
259 IN no. 24.
260 IN nos. 25 ff.

While the immediate prospects of having a range of suitable insurance products for the risks of cross-pollination and ensuing economic losses offered on the market are rather slim, as examined in our previous study,[261] the risks covered by this follow-up project may more likely be underwritten, even if at present mostly excluded. **133**

(ii) First-party insurance

If it is not a purely economic interest, but rather one's life or health one wishes to provide for, existing private insurance products, which cover 22% of the population,[262] are seemingly capable to meet this demand and are readily available. After all, these risks are buffered by social insurance irrespective of the cause, which leaves the buffer overflow that still needs to be absorbed individually relatively well calculable, so that even risks posed by terrorism remain covered.[263] **134**

While this is not equally true for property insurance, it still seems to be easier to underwrite in comparison to lost profits due to GMO admixture because the extent of the latter is much less foreseeable than the affected value of land or cattle, for example, even though type and frequency of harm are still not as predictable as in case of other risks. Furthermore, particularly in the farming industry, there are already existing insurance bundles to which these risks could be attached, which include insurances against natural hazards or diseases (e.g. multi-peril crop insurance). These do not yet cover such losses even if they lack an explicit exclusion of GMO risks, because traditional agricultural insurance limits coverage to certain named hazards.[264] **135**

(iii) Third-party insurance

More recent product and environmental liability policies for farmers "usually have an explicit GMO exclusion".[265] However, this rather seems **136**

261 *Koch* (fn. 2) nos. 115 ff.

262 CEA, The European Health Insurance Market in 2006 (CEA Statistics N° 35, 2008, available at http://www.cea.eu/uploads/DocumentsLibrary/documents/1222087447-cea-statistics-nr-35-european-health-insurance-2006.pdf) 35.

263 *Ch. Lahnstein*, Liability Insurance for Acts of Terrorism? in B.A. Koch (ed.), Terrorism, Tort Law and Insurance (2003) 252 (no. 3).

264 *I. Ebert/Ch. Lahnstein*, GMO Liability: Options for Insurers, in Economic Loss 577 (no. 5).

265 *Ebert/Lahnstein* (fn. 264) no. 7. Cf. *CEA* (fn. 161) 12: "Some policies exclude ... genetically modified organisms." See also the ELD Implementation Efficiency Study (fn.

to be an overcautious reaction to the lack of experience with existing liability rules. After all, liability insurance is dependent upon tort law, which defines its insured events, and tort law in turn lives with the experience accumulated in practice, which is presently low or entirely missing with respect to commercially cultivated GM plants.

137 If other product defects or environmental risks of novel technology can be covered,[266] however, if only with a financial limit in the policy, one wonders why this should not equally be possible for GMOs.[267] One of the prime arguments raised against covering the financial losses of non-GM farmers due to adventitious admixture – uncertainty with respect to applicable liability rules – does not equally count for the cases covered here, as both product and environmental liability are already established concepts in all jurisdictions under survey.[268]

138 In order to (re-)enable the insurance industry to offer cover for liability risks of GMO operators, at least one step forward would be a clarification of the duties of care, in particular by legislating on good farming practice. Otherwise "insurers will have to impose well-defined rules of good professional practice in cultivating GM plants as a prerequisite for covering cross-polli-

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159) 59 ("general unavailability of insurance for environmental damage caused by GMOs"). A few years ago, one of the world's largest reinsurers did not yet expect such a large-scale exclusion apparently: *Munich Re* (fn. 19) 99: "Although there are exceptions, … Munich Re does not see any general trend to exclude losses attributable to genetically modified organisms from public liability, product liability and environmental impairment liability covers in general, nor to impose any limits on them." They recommended "to exclude genetic engineering risks from the liability section" of property insurance policies, however, if these cover laboratories or other R&D installations with dangerous GMOs that could contaminate the environment or pose unknown health risks (103).

266 See the ELD Implementation Efficiency Study (fn. 159) 52: "Although the ELD-related insurance market remains small, it is growing and most insurers state that there is good cover available. In many MS national insurers compete with international groups and competition is described as healthy, at least across Western Europe.".

267 See also the ELD Implementation Efficiency Study (fn. 159) 59: "The concern regarding the lack of insurance cover for any harm caused by GMOs is partially offset by the limited number of companies that carry out activities that involve GMOs in the EU and the large size of a substantial proportion of these companies. The companies, therefore, should be able to obtain other evidence of financial security such as letters of credit and trust funds.".

268 Due to the flexibility of the ELD with respect to national deviations, however, the insurance industry insists that the alleged uncertainties of the times before the Directive continue to exist, cf. *CEA* (fn. 161) 9: "The manner in which the ELD has been transposed means that there is no harmonised liability system. This means that there is a strong possibility that there will be variations in enforcement. These issues pose quite significant challenges for the insurance industry for both underwriting and claims. At European level there is now an absence of one of the most important prerequisites for insurability, ie legal clarity and certainty.".

nation losses, at least where adequate state regulations are missing".[269] Either way, uncertainties about what farmers, transporters, warehouse operators, food or feed producers, etc. have to do in order to avoid liability could at least be substantially reduced.[270]

Another question peculiar to third-party liability is whether the legislator should channel liability towards one player along the supply chain in order to improve insurability. If all claims are aimed at one addressee, the risks are bundled, clarifying where a loss will be placed ultimately, thereby reducing uncertainties who along a chain of distribution will have to provide for cover. At the same time, the addressee of all claims will more easily be in a position to redistribute the costs of insurance. This has been acknowledged by the ECJ in support of channelling product liability onto the producer, thereby releasing interim suppliers from parallel litigation;[271] it is equally true for environmental liability and other scenarios.[272] Preselecting one out of several potential defendants by way of tort law steering also has an impact on cross-border scenarios if these potential addressees of claims are domiciled in different jurisdictions. There is a further, purely pragmatic reason speaking in favour of channelling liability in cases of damage caused by GMOs: if there are, for example, several farmers using the same GM seeds, it may be impossible to identify one out of them as the tortfeasor, but the transgenic traces will always lead back to the producer of these seeds, who could spread the risk (the insurance premium) via the price.[273] In the case of product liability, the PLD did not exhaust all possible advantages inasmuch as it fails to focus claims onto one out of several producers in a multi-step manufacturing process,

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269 *Ebert/Lahnstein* (fn. 264) no. 14.

270 Cf. supra no. 57.

271 "While acknowledging that the possibility of holding the supplier of a defective product liable in accordance with the provisions of the Directive would make it simpler for an injured person to bring proceedings, there would – it was observed – be a high price to pay for that simplicity, inasmuch as, by obliging all suppliers to insure against such liability, it would result in products becoming significantly more expensive. Moreover, it would lead to a multiplicity of actions, with the supplier seeking recourse in turn against his own supplier, back up the chain as far as the producer. Since, in the great majority of cases, the supplier does no more than sell the product in the state in which he bought it and only the producer is able to influence its quality, it was thought appropriate to concentrate liability for defective products on the producer." *Skov Æg* (fn. 195) no. 26.

272 But see *M. Faure/D. Grimeaud*, Financial Assurance of Environmental Liability, in M. Faure (ed.), Deterrence, Insurability, and Compensation in Environmental Liability (2003), 7, 165 f.: "Channelling ... creates a greater risk exposure for the operator and therefore creates higher uncertainty for the insurer. If the channelling has any effect on insurability it is more likely that it decreases insurability ...".

273 EA no. 50.

by allowing claims against both the producer of a defective component as well as against the manufacturer of the final assembled product where the defect persists.[274]

140 A further argument occasionally raised when discussing options to improve insurability is a call for mandatory insurance[275] – by forcing a certain risk group to provide for advance cover of potential losses, the legislator can create demand, which should be ample incentive for insurers to offer suitable products. However, as elaborated by the insurance report, a "legal request for compulsory insurance or other financial guarantees is not suited for convincing hesitant insurers to put economic concerns on hold".[276] They will continue to calculate their options as before, these may be too costly for their involuntary clients, so that the latter are prevented from proceeding with the activity to which the insurance requirement is linked. Ultimately, this is yet another way to steer market behaviour.[277] Apart from that, requiring insurance by law does not produce the data missing for a proper assessment of the insurability criteria.

2. Compensation funds

141 Some countries have set up compensation fund regimes in order to assist farmers who have suffered an economic loss due to the involuntary admixture of GM crops with their own.[278] Neither these nor any other separate funds are currently established that shall offer compensation for bodily injuries or property damage caused by GMOs to third parties. This seems strange at first sight in light of the fact that the by far higher ranking legally protected interests[279] are not considered at all to fall within the scope of the fund. The latter invariably offers easier access to compensation than the tort system, whereas purely economic interests are detoured from the classic route and assigned the fast track through the fund system.

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274 Supra no. 75.

275 EA nos. 112 ff. See also *Faure/Grimeaud* (fn. 272) 180 ff.

276 IN no. 11. See also IN no. 28: "Particularly with compulsory insurance, a large number of insurance takers is required – the large majority of which do not incur losses. … [T]he more a liability regime targets a few industrial operators, the more unbalanced a risk portfolio becomes. This affects both insurability and premium".

277 An economic analysis of this question is provided by *M. Faure*, The View from Law and Economics, in G. Wagner (ed.), Tort Law and Liability Insurance (2005) 239 (nos. 5 ff., in particular no. 17, warning that insurers thereby "become the licensor of the industry").

278 See *Koch* (fn. 2) nos. 174 ff. with further references; cf. DK no. 2; IT no. 7; LU no. 129.

279 *Koch* (fn. 2) no. 32.

This curiosity is not as odd as it appears, however, if one considers that losses compensated by said funds are more or less clearly defined, with an equally narrow scenario in which they may arise. This makes a compensation regime substantially easier to devise as one that should cover a much broader range of legally protected interests. There are simply too many constellations imaginable out of which damage to persons or property may arise, no matter how speculative they are. Furthermore, with product liability well established, the core areas of realistically conceivable third party losses caused by GMOs seem to be covered, with further potential claims along the food or feed supply chain primarily falling under a contractual regime instead. Environmental harm is addressed by the administrative regime of the ELD in Europe. Also, the political interest to construct an alternative redress scheme is much higher if it needs to fill an apparent gap in the traditional compensation systems in order to stimulate a desirable economic activity. This is not equally true for losses that may affect individuals much more directly: by installing a special compensation scheme for bodily harm caused by GMOs, for example, the state seems to signal to its citizens that it wants to push a technology regardless of the expense – not necessarily a wise message sent out by a politician, even if misunderstood. Furthermore, any other industry would claim equal treatment, and ultimately one might ask why not all attacks on the human body, including, e.g., those in road traffic, are absorbed by some alternative compensation scheme rather than sent to the tort system. Ultimately, one may also wonder why the state should get involved at all – concerns about undesirable state aid also play a significant role in this context.[280] **142**

There are a few funds established in the countries under survey for the protection (and ultimately restoration) of the environment.[281] However, these funds rather serve as an interface between the state, who is in charge of taking measures to restore the environment, and private individuals who are called to contribute financially to these measures, typically ex post. **143**

280 *Koch* (fn. 2) nos. 210 ff.

281 E.g. ES no. 39; HU no. 48; MT nos. 12, 35, 51, 60; PL no. 9. See *Faure/Grimeaud* (fn. 272) 235 ff. on the pros and cons of compensation funds in the context of environmental liability.

XIII. Harmonisation needed?

144 As in the previous study,[282] let us briefly consider whether the current state of the laws in the EU calls for harmonisation of at least certain segments of tort law.

145 An assessment of the existing situation undeniably shows quite a colourful picture – there are ample differences between the tort laws of the Member States which seem to indicate that cross-border cases in particular will meet considerable difficulties.

146 However, unlike the scenarios examined in the first project, two core areas of liability that are relevant for the cases under survey here are already harmonised anyhow. This is particularly true for product liability, where the ECJ never tires of insisting that the PLD provides for an exclusive regime with no permissible national deviations.[283] But also the consequences of environmental harm caused by identifiable individuals have been subjected to a harmonised regime, even though it was shifted from private to administrative law, at the same time disregarding secondary losses caused to third parties. The solutions foreseen by the ELD are much more flexible than the PLD regime, which has led to quite some diversity between the Member States that have already implemented it.[284] However, one could at least argue that the EU legislator has crossed off this item on its agenda, after exhaustive and exhausting political wrangling. Seen through rose-coloured spectacles, one could also claim that this is what the legislator actually wanted to achieve. In any case, there is no indication that this discussion will be resumed in Brussels in the nearer future.

147 As to the remaining areas, the question marks indicated in the previous study are also valid here: To begin with, one would have to ask whether harmonisation is feasible at all.[285] If the solution strived for is anything less than a full unification of tort law as a whole, which is entirely unlikely for the time being in light of the recent failure of contract law harmonisation, any singular scheme only applicable to GMO-related losses will necessarily be an alien element to most jurisdictions, as it will have to disregard certain peculiarities of the local regimes which are crucial to the national claims and compensation culture.[286] This inevitably lays the

282 *Koch* (fn. 2) nos. 222 ff.
283 Supra no. 84.
284 Supra no. 95.
285 *Koch* (fn. 2) nos. 233 ff.
286 "A failure to thoroughly examine existing legal standards can lead to internal conflicts in the law, unjustified discrimination against particular activities, and general confu-

groundwork for a differing application of any supposedly unified European regime. The use of unavoidable terminology alone is a predetermined breaking point[287] – not to mention procedural differences which can have a decisive influence on the outcome of a case despite substantive law parallels.

Furthermore, also in this context it is at least questionable whether the **148**
internal market is truly negatively affected by the existing diversity.[288] While there admittedly is more international activity along the food and feed supply chains as compared to the rather local problem of economic losses caused to neighbouring farmers, these transnational legal problems for the most part seem to lie in the domain of product liability, and if not, the remainder primarily seems to be a question of contractual liability which is being disregarded here. Since the general set-up for cross-border tort claims is dominated by EU regulations in the meantime, one can no longer argue that, say, the applicable law in a given lawsuit is unpredictable – in contrast, it is clearly foreseeable which law under Rome II will govern the non-contractual liability matters addressed in this study, and even though the target jurisdictions may not provide for entirely uniform solutions, they are at least identifiable upfront, which allows for sufficient planning for all participants in cross-border trading. There is no apparent reason why the food or feed supply chain differs so dramatically from other industries (or why its participants deserve more protection) that it should call for special treatment.

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sion." *R. Lattimore*, Guide for Countries Considering Liability and Redress for LMOs, in CropLife International (ed.), Compilation of Expert Papers concerning Liability and Redress and Living Modified Organisms: A Contribution to the Article 27 Process under the Cartagena Protocol on Biosafety (2004, available at http://www.croplife.org/library/attachments/1da4b9ac-a8ec-48d3-a896-686c375b8b0a/7/2004 1 26-DOC-Independant Handbook-draft-e.pdf) 43.

287 See e.g. fn. 149. Cf. IN no. 16: "Harmonisation, however, is disadvantageous for liability and redress, since there are too many definitions of harm, understandings of hazard manifestation and admissible causes of action.".

288 *Koch* (fn. 2) nos. 242 ff. See also the outcome of an economic study submitted in preparation for the Environmental Liability Directive, which concluded that "[i]t seems unlikely ... that existing liability systems in EU Member States are currently creating any significant distortion of trade": *ERM Economics*, Economic Aspects of Liability and Joint Compensation Systems for Remedying Environmental Damage (Summary Report), Annex 2 to the Commission's White Paper on Environmental Liability, COM(2000) 66 final, 9.2.2000 (available at http://ec.europa.eu/environment/legal/liability/pdf/el_full.pdf) 37, 39.

XIV. Conclusions

149 "A survey of all EU Member States shows considerable differences between the various ways how non-GM farmers may be compensated for their economic losses resulting from the admixture of their crops with GMOs stemming from an adjoining field."[289] The same holds true for other losses that GMOs may cause along the food or feed supply chain.

150 However, as in the previous study, the combined country reports show that there are no lacunae in the laws regarding losses caused by GMOs. All provide ample solutions for such problems; they are simply not equally favourable for the victims. Success for the latter, however, is not an indispensable requirement of tort law after all. The question remaining therefore is whether there is a true need for an enhanced protection of potential victims. This is above all a political question, even though there are objective arguments that can be raised in favour of shifting losses, starting with unfavourable conditions for proving causation and the special qualities of GMOs in agriculture.

151 In core areas for the purpose of this study, the European legislator has already answered this question by introducing the Product Liability Directive, and by providing for a special administrative regime handling losses to the environment. Further uniform rules deviating from the respective national liability standards do not seem to be imperative in order to provide for the protection of third parties that may be harmed by GMOs in the future, particularly not for GMOs that have already been approved for food or feed production. After all, this would have to extend to all food- or feedstuffs, and ultimately to all commercial activities and their output, which all may some day turn out to be the source of a risk that presently seems to be speculative at best.

152 A few countries currently foresee strict liability specifically for the commercial use of GMOs,[290] although surprisingly not the countries which probably have some of the strictest liability regimes for potential economic losses of neighbouring farmers due to admixture.[291]

153 There are indeed several arguments that would speak in favour of doing without the requirement of fault when establishing liability for GMOs, not just economic ones.[292] Strict liability is the "classic" response by tort

289 *B.A. Koch,* Conclusions and Recommendations, in Economic Loss, 653 (no. 1).
290 Supra nos. 62 ff.
291 Austria and Germany only foresee strict liability for the R&D application of green biotechnology, but not for the commercial cultivation and distribution; see supra no. 69.

law to novel technologies, ever since the Industrial Revolution. In exchange for permitting activities whose consequences are not yet entirely foreseeable and which might entail risks to third parties, those who profit from the activity in turn have to compensate losses should they materialise[293] even if they did all that could be expected from them in light of the state of knowledge at the time of their conduct. A related argument is that also others who benefit at least indirectly from the advancement of science and technology should contribute to losses that individuals sustain, which is achieved by way of insurance cover that the user of the technology buys and whose costs are spread evenly by way of the price mechanism.[294] Furthermore, those who are allowed to conduct an activity whose risks are not entirely foreseeable yet are at the same time presumed to have the best knowledge and control of the technology; they are under a duty to monitor it in practice and are the first who could intervene if a specific danger becomes evident.[295] All this would only be relevant if the victims can prove that their losses indeed originated from the activity pursued by the defendant, so causation is an indispensable element of the claim even if fault is not of the essence.[296]

154 The more common the use of modern technology gets and the more information is gathered on potential hazards it may bring about, the more one can do to prevent the materialization of those risks, which in turn makes the technology safer. In those cases, one might reconsider applying strict liability, and the fault requirement may be reintroduced over time. This is actually the experience in the U.S., where, for example, airplanes were originally subjected to a strict liability regime, whereas meanwhile, "as aviation became a safer activity, the trend toward strict liability is reversed, and in most states liability for aviation ground damage is now subject to a negligence standard".[297]

155 Irrespective of which liability model a jurisdiction selects for the use of GMOs in agriculture, including the choice not to deviate from the classic

292 See EA nos. 5 ff.

293 "The old tort law principle of *cuius commodum, eius damnum* can certainly be regarded as an equally traditional rule underlying strict liability". *Koch/Koziol* (fn. 138) no. 71.

294 *Koch/Koziol* (fn. 138) nos. 72, 76.

295 *Koch/Koziol* (fn. 138) nos. 58 ff.

296 Depending on the circumstances, however, courts or legislators might be willing to soften the requirement of proving causation as described supra nos. 38 ff.

297 *G. Schwartz*, United States, in B.A. Koch/H. Koziol (eds.), Unification of Tort Law: Strict Liability (2002) 351 (no. 17). This is also one of the explanations for the "common usage" requirement of strict liability under the Restatements on Torts: Restatement (Third) of Torts: Liability for Physical Harm (Basic Principles), § 20 cmt. j.

fault regime, the call for legislative action is louder when it comes to technical or administrative regulations that define standards of care for operators along the supply chain. Such rules undoubtedly have a much more significant impact upon promoting coexistence than liability rules or alternatives thereto.[298] Even though these only set minimum standards from the perspective of tort law,[299] they are still important criteria for a judge who may have to retroactively define duties of care when called upon in the future to determine who shall bear the risk of GM farming in the past. For the time being, such rules are also useful to clarify the boundaries of permissible conduct at present, thereby also helpful to avert pleas for injunctions.

156 While both first- and third-party insurance options may seem desirable, the lack of experience with GMOs, but also the lack of clarity with respect to the application of liability standards at the moment still seems to prevent insurers from offering a range of suitable products that might satisfy the needs (and concerns) of those who are willing to produce, distribute or process transgenic crops.

157 Compensation funds do not seem to be useful to fill this evident gap on the insurance market, as the same uncertainties apply to their setup. In contrast to existing funds covering economic losses, the range of imaginable damage scenarios and the types of potential losses are too broad to allow devising a similarly tailor-made alternative redress scheme.

298 *Koch* (fn. 289) no. 12. There are also economic arguments in support of the finding that "a much more important role will in practice be played by safety regulations than probably by liability rules . . ." (EA no. 39).

299 Cf. supra nos. 57 and 110.