

# Co-existence of GM and Conventional Crops in Greece

## Seeds of Distrust: The Co-existence of Genetically Modified and Conventional or Organic Crops in Greece

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**Summary:** *One of the most important problems relating to genetically modified organisms is that of the co-existence of conventional and organic crops with genetically modified crops. Can they co-exist? In this article the author examines the relevant provisions of European, Greek and international environmental law to argue for the adoption of a special legislative regime for dealing with the problems associated with the co-existence of GM and conventional or organic crops before presenting guidelines for responsible legislation on coexistence.*

### I. Introduction

The development of modern biotechnology has given rise to serious questions concerning the adverse effects of genetically modified organisms (GMOs) on health and/or the environment.<sup>1</sup> Precisely for this reason, the EU has enacted a special legislative framework (mainly Directive 2001/18/EC and Regulations 1829/2003/EC and 1830/2003/EC), which is based on the precautionary principle. Said principle, which is included in Art. 174.2, EC Treaty, constitutes a recognised general principle of EC law.<sup>2</sup>

However, one of the most important problems relating to GMOs is that of the co-existence of conventional and organic crops with genetically modified (GM) crops. Can they co-exist? In the affirmative case, what measures must be adopted in order to ensure the aforementioned co-existence? Conversely, in the negative case where co-existence is problematic, since the admixture of GM and non-GM agricultural products is unavoidable, what measures must be taken so that the growers of conventional and organic crops are able to effectively seek compensation in case of contamination?

Scientific evidence is constantly mounting regarding the potential proliferation of GM genes resulting in the contamination of conventional or organic crops by GM crops as well as the admixture (cross-fertilisation) between different GM crops.<sup>3</sup> Growers of organic crops are under the greater risk because, apart from the loss of income, they will also lose certification

because of contamination.<sup>4</sup> But growers of conventional products will also suffer loss of income because of the consumers' fear of acquiring GM products, and (in any case) they will end up cultivating GM seeds without having chosen to do so. Furthermore, because of contamination, they are at risk of being accused by biotechnology corporations of infringing on the rights provided by patents which the corporations already possess.<sup>5</sup> It should also be stressed that GM seed-growers are not free from risk since, because of the seeds' dormancy, it is difficult after cultivating GM seeds to return to non-GM crops, as the land will be deemed as contaminated. The latter event will bring on the additional consequence of the property being devaluated.<sup>6</sup> Finally, the problem becomes even more acute when one considers that the potential of gene proliferation threatens the purity of all existent seeds, which constitute humanity's common heritage.<sup>7</sup>

\* The author is expressing his personal views, and by no means his clients' ones.

<sup>1</sup> *UK GM Science Review Panel, An Open Review of the Science Relevant to GM Crops and Food Based on the Interests and Concerns of the Public* (2003), First Report, available at [www.gmsciencedebate.org.uk/report/pdf/gmsci-report1-pt1.pdf](http://www.gmsciencedebate.org.uk/report/pdf/gmsci-report1-pt1.pdf)

<sup>2</sup> The most important decisions recognising the precautionary principle as a general principle of EC law are: T-74/00, T-76/00, T-83/00, T-84/00, T-85/00, T-132/00 T-137/00, T-141/00 *Artegodan GmbH et al. v. Commission* [2002] ECR *ÉE*-4945 (para. 184 of the decision), C-192/01, *Commission v. Denmark* (decision of 23 September 2003, para.49-52) and C-236/01, *Monsanto Agricoltura Italia SpA v. Presidenza del consiglio dei ministri* (decision of 9 September 2003, paras 110-113 and 133).

<sup>3</sup> Despite the biotechnology corporations' assurances that there is no significant danger, scientific research shows that the danger is not negligible, e.g. the established contamination of conventional maize crops by GM crops, especially Starlink, in Mexico. See Contamination by genetically modified maize in Mexico much worse than feared, available at: [www.etcgroup.org/documents/NR\\_Maize\\_10\\_03ENG3.pdf](http://www.etcgroup.org/documents/NR_Maize_10_03ENG3.pdf)

<sup>4</sup> National Research Council (USA), *Genetically Modified Pest-Protected Plants: Science and Regulation* (2000), p. 90. See also, M. Rosso Grossman, "Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability" *Environmental Law Review* 5 (2003) p. 91 *et seq.*

<sup>5</sup> The best-known example is Monsanto's action against farmer P. Schmeiser for breach of its patent to Roundup Ready canola. It was successful in all three levels, at trial, on appeal, and before the Supreme Court of Canada. See *Monsanto v. Schmeiser*, 2001, *aff'd*, 2004 SCC 34, available at [www.lexum.umontreal.ca/csc-scc/en/rec/html/2004sc034.wpd.html](http://www.lexum.umontreal.ca/csc-scc/en/rec/html/2004sc034.wpd.html)

<sup>6</sup> J. Matthews Glenn, "Footloose: Civil Liability for GMO Gene Wandering in Canada", 43 *Washburn Law Journal* (2004), p. 548.

<sup>7</sup> For an overall appraisal of problems concerning co-existence see, European Economic and Social Committee, *Opinion on the Co-existence between genetically modified crops, and conventional and organic crops*, NAT/244, Brussels, 24-11-2004.

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As regards Greece, the following must be taken into consideration:

- a) 16% of the country's active population is employed in the agricultural sector and this implies that the potential negative socio-economic impacts from the cultivation of GMOs will be heavy and perhaps irreversible; and
- b) the agricultural plot in Greece is very small and consequently the density of properties in cultivated areas is very high.

This can lead to serious and unforeseen disturbance of social cohesion given that the possibility of contamination will lead to numerous cases of litigation and social conflicts.

The answer to this problem lies in the adoption of a special statutory regime, which we propose through the guidelines presented at the end of this article. This need to adopt domestic measures stems from the fact that the issue of co-existence has remained unregulated by the European Community and, therefore, Member States must proceed to enact necessary regulations.<sup>8</sup> Some Member States have already enacted domestic legislation regulating issues of co-existence,<sup>9</sup> which must be understood as the real ability growers and consumers must possess to choose GM, conventional or organic products or crops.<sup>10</sup> It primarily concerns the damage inflicted by the transfer of GM genes to conventional or organic crops, which it is necessary to prevent or restore.<sup>11</sup> It should be noted that this damage cannot be restored *in natura* because, after contamination or admixture of GM and conventional or organic seeds has occurred, their segregation is impossible.

Since the matter under examination entails particular features and circumstances, the provisions of both EU and domestic law are insufficient to address the problem. We will outline the aforementioned provisions, so that those gaps and deficiencies are identified that make problematic the capability to address this specific problem.

## II. European Community law

### Directive 85/374/EEC

This Directive<sup>12</sup> contains provisions on defective products and has been amended by Directive 1999/34/EC.<sup>13</sup> A necessary requirement for it being applied is that the product be considered defective,<sup>14</sup> something extremely difficult in the case of GMOs. Even if a "presumption of harmfulness" is adopted, the difficulty – perhaps insurmountable – remains, since the damage covered by the Directive is that arising from private use, i.e. consumption of the product.<sup>15</sup> However, the case at hand concerns both environmental damage and damage arising from commercial use of the product, which is not covered by the Directive. Furthermore, Art. 7(e) of the above

Directive considers a "state-of-art-defence"; the term (known as the development risk defence) refers to the possibility of an operator to escape liability on the grounds that the state of scientific or technical Knowledge at the time did not allow the defendant to appreciate the potential risk.<sup>16</sup> In the area of GMOs the biotechnology techniques are not yet thoroughly developed and the risks are not foreseeable.<sup>17</sup> Thus, a GMOs producer could rely on this defence and might be absolved of liability. Consequently, the application of the above Directive in the matter of concern is extremely limited and therefore does not lend itself to dealing effectively with the issue of co-existence.

### Directive 2001/18/EC

In the matter of co-existence of crops, harmonisation is incomplete and this arises both from Art. 26a of the Directive itself, as well as from the fact that the legal act concerning co-existence is the non-binding Commission Recommendation 2003/556, which concerns the guidelines on the basis of which co-existence will be ensured.<sup>18</sup> It is necessary to stress that co-existence, as referred to in Art. 26a and the Recommendation, concerns the economic consequences (i.e. damages) that may arise from the admixture of crops with or

<sup>8</sup> Article 26a of Directive 2001/18/EC.

<sup>9</sup> Germany, Denmark, Italy, Austria. It should be noted that nearly all Member States are in the process of adopting legislation.

<sup>10</sup> See, Press Release of the Commission, IP/03/1096. Interestingly, the Council of Europe recommends that Member States, when defining their policies on GMOs, take into account the general principle, among others, "respecting freedom of choices for consumers and producers: maintaining simple access to GMO-free foods is the central objective of GMO regulation. This implies that the viability of an agriculture without GMOs can be safeguarded in the long term". See Council of Europe, *Genetically Modified Organisms (GMOs)*, Resolution 1419 (2005) adopted by the Assembly on 24 January 2005 (para. 19 i. a) available at <http://assembly.coe.int/documents/adoptedtext/ta05/eres1419.htm>

<sup>11</sup> Recital 1 and 2 of Commission Recommendation 2003/556/EC (OJ 2003 L189/36).

<sup>12</sup> OJ 1985 L210/29.

<sup>13</sup> *Ibid.*

<sup>14</sup> Article 6(1) of Directive 85/374.

<sup>15</sup> Article 9b of Directive 85/374.

<sup>16</sup> M. Wilde, *Civil Liability for Environmental Damage. A Comparative Analysis of Law and Policy in Europe and the United States* (Kluwer Law International: The Hague/London/New York, 2002) p. 227 *et seq.*

<sup>17</sup> G.-E Seralini, *Ces OGM qui changent le monde* (Flammarion: Paris, 2004) p. 143 *et seq.*

<sup>18</sup> Commission Recommendation 2003/556/EC of 23 July 2003 concerning the adoption of guidelines for the development of national strategies and best practices in order to ensure co-existence of genetically modified, conventional and organic crops, OJ 29.7.2003 L189/36-47.

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without GMOs.<sup>19</sup> The issue of possible environmental risks concerning co-existence is regulated by Directive 2001/18 and only GMOs approved under of the aforementioned Directive's procedures may be cultivated.<sup>20</sup> However, the uncertainty concerning the risks to the environment and human health,<sup>21</sup> in conjunction with the potential extremely large financial losses to the farmers, make this issue of co-existence into one of the thorniest EU agricultural issues.<sup>22</sup> Therefore, its deficient harmonisation will be completed if supplemented with the proposals contained in the European Parliament Resolution of 18.12.2003 (A5-0465/2003), namely that:

- a) uniform binding rules exist at EU level on the co-existence of crops;
- b) Member States possess legislative measures ensuring co-existence;
- c) there be EU-wide provision for civil liability and insurance towards possible economic damages related to co-existence; and
- d) EU regulations on co-existence must provide Member States with the capacity to completely ban GMO cultivation.

As we have already noted, EC regulations on GMOs are based on the precautionary principle, and through this principle it is intended to achieve a high level of protection of the environment, human health as well as agriculture as a social and economic activity in the context of its "multifunctionality".<sup>23</sup> Member States may, on the basis of the precautionary principle, adopt a higher level of protection than that of EC regulations because said principle, having as its pillars the concepts of risk and scientific uncertainty, gives them the discretion needed to evaluate differently these concepts compared to the evaluation made by EC bodies. In other words, the application of the precautionary principle allows Member States to take domestic measures for the protection of the environment, human health and agriculture outside the framework of the provisions of Art. 95, EC. The EC judiciary seems to be moving in this same direction. In particular, the ECJ in its decision of 5 February 2004<sup>24</sup> stresses that:

"it is clear that risk evaluation may show that there continues to exist a scientific uncertainty regarding the existence or extent of real risks. In this case it must be accepted that a member state may, according to the precautionary principle, take protective measures without waiting for the existence and seriousness of the risks to be proved".<sup>25</sup>

It therefore arises that the precautionary principle is applied when there exists scientific uncertainty without taking into consideration the harmonisation of Art. 95, EC. Furthermore, Art. 26a of Directive 2001/18/EC provides that Member States take appropriate measures "to avoid the unintended presence of GMOs in other products". This reading means that it is different from the provisions regarding the labeling

which permit a certain level of unintended presence of GMOs. In this regard, whereas recitals 24-27 of the Regulation 1829/2003/EC refer to the "adventitious or technically unavoidable presence" of GMOs in food and feed, recital 28, and accordingly Art. 26a, points out that "operators should avoid the unintended presence of GMOs in other products". From the above wordings we may infer that the coexistence is not correlated to the "adventitious or technically unavoidable presence" of GMOs, but to "the unintended presence of GMOs in other products". Thus, based on the precautionary principle which is the apposite principle for the implementation of provisions of Directive 2001/18 (Arts 1 and 4), the appropriate measures concerning GM crops, are those which prevent the unintended presence of GMOs in other products and not to merely minimizing such presence to (acceptable) tolerance levels (i.e. 0.9%). In a nutshell, the aim of the coexistence, as a real ability to make choices, is ensured only by precautionary measures.

In the light of the foregoing, and taking into account that an authorisation under the Directive fails to reflect socio-economic considerations<sup>26</sup> a Member State can regulate the issues relating to co-existence in a manner that is in conformity with its perception of risk and uncertainty. Without dwelling on this very important concern, it must be noted that the lingering controversies over agricultural biotechnology are challenging both scientific objectivity and scientists' autonomy over the definition of standards of evi-

<sup>19</sup> Recital 5 and para. 1.1. of Recommendation 2003/556.

<sup>20</sup> Para. 1.2. of the Recommendation.

<sup>21</sup> D. Winickoff, S. Jasanoff, L. Busch, R. Grove-White, B. Wynne, "Adjudicating the GM Food Wars: Science, Risk, and Democracy in World Trade Law", 30 *The Yale Journal of International Law* (2005) pp. 118-121.

<sup>22</sup> The Scientific Committee on Plants finds that on this issue further research is necessary. See Opinion of the Scientific Committee on Plants concerning the adventitious presence of GM seeds in conventional seeds, SCP/GMO-SEED-CONT/002-FINAL, 13.3.2001.

<sup>23</sup> The term "multifunctionality" indicates that agriculture not only produces food, but also protects the diversity of life, the landscapes, the territory, and the waters, prevents disasters, promotes the vitality of rural areas (favouring employment, strengthening farm-related economies, and maintaining local culture), alleviates their poverty, and offers recreation possibilities to urban people. The multifunctional agriculture has been included into European legislative frameworks since the end of the 1980s. See, V. Negri, "Agro-biodiversity Conservation in Europe: Ethical Issues", 18 *Journal of Agricultural and Environmental Ethics* (2005) pp. 10-11.

<sup>24</sup> C-24/00, *Commission v. France*.

<sup>25</sup> *Ibid.*, para. 56 of the decision.

<sup>26</sup> See, M. Lee and R. Burell, "Liability for the Escape of GM Seeds: Pursuing the 'Victim'?", 65 *Modern Law Review* (2002), p. 528.

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dence.<sup>27</sup> Therefore, the above perception is correlated to the cultural and ethic values<sup>28</sup> which prevail in a Member State and determines its chosen level of protection, including the socio-economic considerations.<sup>29</sup> Moreover every country is entitled to choose even zero tolerance level regarding risks.<sup>30</sup> Besides, what we need is a complex and heterogeneous Europe in which there are different cultures, heterogeneous practices and variable ways of knowing.<sup>31</sup>

### Directive 2004/35/EC<sup>32</sup>

Regarding the issue of civil liability, in Directive 2001/18/EC it is noted that its provisions do not infringe upon domestic legislations on environmental liability,<sup>33</sup> which means that Member States may adopt legislation in this area, which will be complementary to EU legislation<sup>34</sup> to follow and will concern damages arising from GMOs.<sup>35</sup> Although it was initially proposed by the European Parliament that issues of civil liability for damages solely arising from GMOs be also regulated by instituting a special regime, this was not ultimately accepted.<sup>36</sup>

In Appendix III (no. 11) of the Directive it is stated that the deliberate release into the environment and the supply of GMOs to the market is covered by the Directive. However, there are major limitations to coverage of damages from GMOs, mainly the following:

1. The restoration of environmental damage is done *in natura* with the consequence that no compensation is provided for.<sup>37</sup> It is however accepted that the admixture of GM crops with conventional or organic crops makes such *in natura* restoration impossible.
2. It is explicitly stated that under the provisions of the Directive private persons are not accorded the right to claim compensation in the case of damage or imminent threat of such damage.<sup>38</sup> In other words, the meaning of environmental damage in the Directive is very limited and this entails that damage regarding the health or individual's property is not covered by the Directive. In addition, the complex authorisation procedures under Directive 2001/18/EC to which it refers may preclude liability.<sup>39</sup> It must also be noted that only the competent public authority may demand that the party responsible for the damage restore it<sup>40</sup> and this means that private persons – in this case the growers of conventional or organic crops – are not provided with *locus standi*.

The conclusion drawn based on the above is that Directive 2004/35/EC does not regulate the issues of co-existence and even *de facto* excludes GMOs from its scope.<sup>41</sup>

### Recommendation 2003/556/EC

The Commission notes that the intermingling of GMO crops with non-GMO crops may carry economic impacts for producers.<sup>42</sup> Impacts include the reduction

of selling price, additional expenses for acquiring monitoring systems and the cost of measures to reduce admixture.<sup>43</sup> Member States are called on to take

<sup>27</sup> S. Jasanoff, "In a constitutional moment: science and social order at the millennium" in B. Joerges and H. Novotny (eds), *Social Studies of Science and Technology: Looking Back and Ahead* (Kluwer Academic Publishers: Dordrecht/Boston/London, 2003) p. 175.

<sup>28</sup> Y. Tanaka, "Major Psychological Factors Affecting Acceptance of Gene-Recombination Technology" 24 *Risk Analysis* (2004) pp. 1575-1583 (stressing that the ethical concerns are the most important factor in acceptance of plant gene-recombination technology (p. 1575)).

<sup>29</sup> See, e.g., V.R. Walker, "Consistent Levels of Protection in International Trade Disputes: Using Risk Perception Research to Justify Different Levels of Acceptable Risk", 31 *Environmental Law Reporter* (2001) pp. 11317-11325.

<sup>30</sup> Appellate Body, 20-10-1998, WT/DS18, Measures Affecting Importation of Salmon, *Canada v. Australia*, para. 126.

<sup>31</sup> C. Waterton and B. Wynne, "Knowledge and political order in the European Environmental Agency" in S. Jasanoff (ed.) *States of Knowledge. The co-production of science and social order* (Routledge: London, 2004) p. 105.

<sup>32</sup> Directive 2004/35/EC 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 L143/56.

<sup>33</sup> Recital 16 of the Directive.

<sup>34</sup> S. Francescon, "The New Directive 2001/18/EC on the Deliberate release of Genetically Modified Organisms: Changes and Perspectives", 10 *Review of European Community and International Environmental Law* (2001), p. 317.

<sup>35</sup> Recital 16, in the second passage of which it is stated that "To this end the Commission has undertaken to submit a legislative proposal on environmental liability before the end of the year 2001, which will also cover damages from GMOs".

<sup>36</sup> In the first reading, the European Parliament decided to enact special provisions that will regulate civil liability for damages solely arising from GMOs. In the second reading it was chosen (with a vote of 287 to 202) to adopt a directive that will contain generally civil liability from environmental damages, including those arising from GMOs. On this matter, see "EC Environmental Liability Rules Spurred by MEPs Vote on GMOs" ENDS Report, 303, 2000, p. 48.

<sup>37</sup> Appendix II of the Directive.

<sup>38</sup> Article 3(3) of the Directive.

<sup>39</sup> M. Cardwell, "The release of genetically modified organisms into the environment: public concerns and regulatory responses" *Environmental Law Review* 4 (2002) p. 169.

<sup>40</sup> Article 11 of the Directive.

<sup>41</sup> See M. Lee, "Regulatory Solutions for GMOs in Europe: The Problem of Liability", 12 *Journal of Environmental Law and Practice* (2003) pp. 339 *et seq.*; C.P. Rodgers, "Liability for the release of GMOs into the environment: Exploring the boundaries of nuisance", 62 *Cambridge Law Journal* (2003) p. 402.

<sup>42</sup> Preamble, recital 5.

<sup>43</sup> Appendix no. 1.1.

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measures for the prevention of admixture, such as establishing isolation distances and buffer zones, creating oversight systems and records, and designing training programmes and dispute-resolution measures.<sup>44</sup> Furthermore, they are called on to adopt civil liability rules for any damages from the admixture of crops, if existing rules are not sufficient.<sup>45</sup>

On the bases of all the above, it arises that the Recommendation charges Member States with regulating all issues relating to the co-existence of crops, setting but general specifications.

## III. Greek law

### The provisions of the Civil Code

The provisions of the Civil Code (CivC) may apply – albeit in a very limited way – only to part of the more general problem of co-existence, i.e. civil liability, abatement of the harm and future avoidance of the latter. In particular:

1. Article 914 CivC may be applied but with many difficulties, because
  - a) the damage it refers to is the “physical” damage, while in the matter of co-existence the damage is not “physical” but consists of the transfer or otherwise introduction of GM material from GM crops into conventional or organic crops and/or the environment and integrally concerns loss of income; and
  - b) liability is founded upon fault, while in the issue of co-existence there is strict liability because of the problems in proving causality.<sup>46</sup>
 Besides, Directive 2004/35/EC provides for strict liability.<sup>47</sup>
2. The provisions of the CivC on the protection of personality (Arts 57 and 59) may be applied, but the concept of illegal harm is relatively undefined and it is therefore difficult to identify with the damage caused by the co-existence of crops, which possesses totally specific characteristics (see above 1).
3. The provisions of the CivC on the protection of possession (Arts 984 CivC *et seq.*) may be applied, but the concept of illegal nuisance is relatively undefined and it is therefore difficult to identify with the damage caused by the co-existence of crops (see above 1).
4. The provisions of the CivC on neighbor law (Arts 1003, 1004 and 1108 CivC) may be applied, but the concept of significant harassment is relatively undefined and it is therefore difficult to identify with the damage caused by the co-existence of crops (see above 1).

### Act 1650/86

Greece – in contrast to many other EU Member States or other countries – does not possess a comprehensive law on civil environmental liability.<sup>48</sup> Article 29 of Act 1650/86 establishes strict liability for environmental

damage but has not been utilised, mainly because of the indefinite wording.<sup>49</sup> It may be applied to this specific problem, but with difficulties, because the indefiniteness of damage determination<sup>50</sup> is aggravated by the fact that the damage caused by the co-existence of crops possesses totally specific characteristics (see above 1).

## IV. International environmental law

International environmental law can make an important contribution to dealing with the problem of GMOs (therefore also the problem of co-existence), but remains incomplete because it is in the development stage, which will conclude within the next few years. However, it may serve as a source of inspiration for the domestic legislator, since the already existing elaborations assist in this respect and generally in legal certainty.

### The Cartagena Protocol on biosafety<sup>51</sup>

The Protocol addresses four fundamental issues:

- a) the recognition and implementation of the precautionary principle;
- b) the recognition of the particular nature of GMOs;
- c) the adoption of the Advanced Informed Agreement Procedure (AIAP); and
- d) the recognition of the social and economic impact of GMOs.<sup>52</sup>

It is the first binding international environmental agreement establishing a special restrictive regime for GMOs.<sup>53</sup> As regards the socio-economic impact of

<sup>44</sup> Appendix no. 3.2–3.9.

<sup>45</sup> Appendix no. 2.1.9.

<sup>46</sup> For a comprehensive discussion concerning Art. 914 CivC, see I.S. Spyridakis, *The offense as per CivC 914* (Ant. N. Sakkoulas pubs: Athens-Komotini, 1999).

<sup>47</sup> Article 3.1 (a) and Appendix III no. 11 of the Directive.

<sup>48</sup> For a total approach to the issue see, Wilde, *op.cit.* note 16.

<sup>49</sup> I.K. Karakostas, *Environment and Law* (Ant. N. Sakkoulas pubs: Athens-Komotini, 2000) pp. 331 *et seq.*

<sup>50</sup> Article 2 of Act 1650/86.

<sup>51</sup> Cartagena Protocol on Biosafety to the Convention on Biological Diversity, UNEP/CBD/ExCOP/1/3 (20-2-2000); put into force on 11 September 2003; ratified by Greece with Act 3233/2004.

<sup>52</sup> The Protocol comprises of 40 articles and three appendices.

<sup>53</sup> P.E. Hagen & J.B. Weiner, “The Cartagena Protocol on Biosafety: New Rules for International Trade in Living Modified Organisms”, 12 *The Georgetown International Environmental Law Review* (2000), p. 712; G. Balias, “Regulations on GMOs in international and EC law: the interweaving of law, science and politics”, in: T. Vidalis, K. Manolakos and G. Balias, *Genetically modified organisms and sustainable development* (Ant. N. Sakkoulas pubs: Athens-Komotini, 2004) pp. 56–80.

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GMOs, it is stipulated that those must be taken into consideration.<sup>54</sup> It also provides for liability and compensation for damages caused by GMOs,<sup>55</sup> while more specific requirements will be designated by the Parties Conference.<sup>56</sup> To this end, the "technical group of experts on liability and redress in the context of the Cartagena Protocol on biosafety" proceeded to make the first elaborations and proposals.<sup>57</sup> As regards the critical issue of determining the concept of damage by GMOs, it is noted that elements of this damage could be:

- a) damage to the environment;
- b) damage to the maintenance and sustainable use of biodiversity;
- c) damage to human health;
- d) socio-economic damage;
- e) damage in the traditional sense
  1. health damage or death,
  2. total or partial damage to property,
  3. loss of income); or
- f) the cost of measures to deal with it.<sup>58</sup>

It is therefore obvious that the Protocol Parties are oriented towards the adoption of binding regulations for the issues that are the subject of the below guidelines and can serve as a source of inspiration for the domestic legislator until they are finally adopted.<sup>59</sup>

## The relationship between EC legislation on GMOs and the Cartagena Protocol

The Protocol recognises the legality of "regional agreements"<sup>60</sup> regardless of whether these are dated earlier or later than the Protocol, under the condition that these are consistent with the aim of the Protocol and that they do not afford lesser protection compared to that provided by the Protocol.<sup>61</sup> We must note, however, that there are some differences between the two systems, mainly as regards the socio-economic impact of the GMOs. In fact, according to the Protocol, the evaluation of GMO risk must also include socio-economic consequences,<sup>62</sup> while these are not provided for in the EC legislation on GMOs.<sup>63</sup> Therefore, if it is considered that this difference leads to a lower level of protection in EC law compared to that in the Protocol, then according to Art. 14(3) of the Protocol the EC regulations do not apply. However, because the Protocol does not require full compatibility and allows for a large discretionary margin in handling issues, invoking the above provision seems to bear no results. The solution may be sought in the Protocol, but through EC law, since the Community is party to the Protocol, which it enshrined by Decision of the Commission.<sup>64</sup> According to Art. 300(7), EC, since the Protocol was incorporated in the EC legal order, it supersedes derivative law. Therefore, insofar as said provisions of the Protocol are more specific and lead to greater protection, they prevail over the respective EC provisions. The regulations on the

socio-economic consequences of GMOs undoubtedly aim to a higher level of protection than that of EC regulations and therefore it is they that should be applied.

## The Aarhus Convention<sup>65</sup>

The Convention provides for the public being informed by the national authorities on the decisions related to the release of GMOs into the environment.<sup>66</sup> In order to strengthen and clarify the Convention's provisions regarding GMOs, an initial decision was made on "the guidelines on access to information, public participation and access to justice with respect to GMOs".<sup>67</sup> It is noted that there must be provisions in domestic laws for:

- a) the participation of the public during the decision-making procedure regarding the release, marketing and restricted use of GMOs,
- b) informing the public, and
- c) access to justice.

It was further decided to amend the Convention on the basis of the above guidelines at the second meeting of the Parties.<sup>68</sup> The amendment to the Convention

<sup>54</sup> Article 26 of the Protocol.

<sup>55</sup> Article 27 of the Protocol.

<sup>56</sup> For more details, see R. MacKenzie, "The Cartagena Protocol after the First Meeting of the Parties", 13 (3) *Review of European Community and International Environmental Law* (2004), p. 270-278.

<sup>57</sup> Report of the technical group of experts on liability and redress in the context of the Cartagena Protocol on Biosafety, UNEP/CBD/BS/TEG-L&R/1/3, 9-11-2004.

<sup>58</sup> *Ibid.*, Annex (III).

<sup>59</sup> This is foreseen for the year 2007 at the earliest.

<sup>60</sup> Article 14(1) of the Protocol.

<sup>61</sup> Article 14(3).

<sup>62</sup> Article 26.

<sup>63</sup> Article 31(7)(d) of Directive 2001/18/EC merely indicates that the Commission submits a specific report including an assessment "on the socio-economic implications of deliberate releases and placing on the market of GMOs".

<sup>64</sup> Decision 2002/68/EC of the Council and Regulation 1946/2003 of the European Parliament and Council of 15 July 2003, on transboundary movements of genetically modified organisms (OJ 2002 L287/1).

<sup>65</sup> Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 25 June 1998. It was put in force on 30 October 2001 and has already been ratified by 36 states out of 40 that have signed it.

<sup>66</sup> Article 6.11 of the Convention.

<sup>67</sup> Economic Commission for Europe (UN), *Guidelines on access to information, public participation and access to justice with respect to genetically modified organisms*, MP.PP/2003/3, Kiev, 5-5-2003.

<sup>68</sup> Economic Commission for Europe (UN), *Decision II/1 Genetically Modified Organisms*, ECE/MP.PP/2005/2/Add.2, 20 June 2005.

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points to strengthening public participation and information on the issues concerning GMOs.<sup>69</sup>

It is therefore obvious that the provisions of the Convention can serve as a guiding principle for the domestic legislator in order to lay down a regulatory framework enhancing effective information and public participation.<sup>70</sup>

### V. Concluding remarks

Based on that was laid out above, it arises that the adoption is required of a special legislative regime for dealing with the problems associated with the co-existence of genetically modified and conventional or organic crops. This does not concern just the protection of the growers, but also the protection of the environment,<sup>71</sup> as the two are interconnected, given that the transfer of genetically modified material can occur through the environment – understood as not being an object of property – which was contaminated by GM crops, to conventional or organic crops. The legal framework must determine the specific terms and conditions under which co-existence should function, while it is possible to have recourse to provisions of the international, EU and domestic law.

The following guidelines are headed towards the directions described and aspire to successfully cover – to the extent possible – the existing legal void and to establish a responsible legislation on co-existence. We must note that the suited principles underlying the effective implementation of the guidelines are both the precautionary principle and the causality principle. The former is required because the economic and social adverse impacts due to the use of GM crops must be prevented. Taking account of the scientific uncertainty pervading the GMOs, the above prevention, as noted earlier, is attainable uniquely through establishing precautionary measures. In this regard, it is worth noting that the pollen flow is poorly understood but it has a significant effect on how GM crops should be handled.<sup>72</sup> Hence, the requirement of isolation distance or the ban of growing GM crops in Natura 2000 areas or in other sensitive and protected areas are precautionary measures intended to avoid cross-contamination. The latter is required because the above impacts may not be born by the innocent growers of conventional or organic crops, and, consequently, the chosen measures must be taken against the party that generates the cause. In the cases where harm has occurred, the choice of strict liability is preferable because it would be unjust and inappropriate to make injured persons shoulder a heavy burden of proof where risks of an activity, such as GM crops, are still no discernible. Moreover, the injured growers of conventional or organic crops derive no benefit of the GM crops which cause damage. It is important to stress that strict liability is enshrined in

all international liability conventions,<sup>73</sup> and plays (with both penal and administrative liability) a pivotal role in the contemporary risk regulation.<sup>74</sup>

### VI. Guidelines for responsible legislation on coexistence

1. Legislation on coexistence should aim to:
  - a) prevent the possibility of proliferation of pollen, seeds and vegetative propagation material of GM crops to conventional or organic crops as well as to the environment;
  - b) secure economic freedom and the right to free choice of the growers to produce products, especially food and animal feed, in a conventional or organic way or by using GM crops and to market those;
  - c) avoid misleading growers and consumers regarding the make-up and identity of the crops;
  - d) strengthen public information; and
  - e) avoid or reduce the potential negative social or economic effects of the use of GMOs.
2. A Scientific Committee on the Co-Existence of Conventional, Organic and GM Crops must be established, which should consist of persons who do not belong to public administration, are scientists of known authority and have expert knowledge in the area of agricultural biotechnology, society and economy. Other participants would be representatives of producers and consumers. Its make-up would ensure the principle of transparency and adequacy and all scientific views being represented, including minority views.
3. According to the principle of good agricultural practice, the crops must perform in such a way that one does not constitute an obstacle to the other and that one is not favoured over the other through acts of commission or omission. The co-

<sup>69</sup> *Ibid.*, Annex.

<sup>70</sup> *Ibid.*, Annex I bis.

<sup>71</sup> The risk of gene-flow is considered a “major environmental concern”. See, Royal Society of Canada, *Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada* (2001), p. 124, available at <http://www.rsc.ca/foodbiotechnology/GMreportEN.pdf>

<sup>72</sup> G.N. Mandel, “Gaps, Inexperience, Inconsistencies, and Overlaps: Crisis in the Regulation of Genetically Modified Plants and Animals” 45 *William and Mary Law Review* (2004), p. 2226.

<sup>73</sup> A.E. Boyle, “Globalising environmental liability: the interplay of national and international law” 17 *Journal of Environmental Law* (2005), p.13.

<sup>74</sup> C. Noiville, *Du bon gouvernement des risques. Le droit et la question du « risque acceptable »* (PUF: Paris, 2003) pp. 179-217.

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existence of crops should be arranged in such a way that the particular character of each crop is protected. As regards the characteristics of seeds used, the admixture of GM seeds with seeds of conventional or organic crops should be avoided.

4. The GM crops should be planted in land areas that will be discrete and at a safe distance from land areas of conventional or organic crops. It would not be allowed to develop GM crops in national parks, Natura 2000 areas and protected areas.
5. In order to achieve the aims of the legislation, national planning for the protection of crops is required. In such planning the general directions should be designated, including the criteria of co-existence as well as the distances, depending on the type of the GM seeds and GM vegetative propagation material and the particular characteristics of the area in which they would be cultivated.
6. In addition to the above planning, for each Region of the country a regional plan should be drafted for the protection of crops. This would specify the general directions of the national plan and provide for reaching agreement between the growers, on a voluntary basis, through which specific measures would be mutually accepted for ensuring the co-existence of crops.
7. A national register of GM crops must be established. The operator or the grower of GM seeds and GM vegetative propagation material would notify in writing the competent authority on the act of their release.
8. Provisions on strict liability are of high importance and must be established so as whoever uses GMOs is obligated to pay compensation for any damage he has caused because of their use. Damage is understood to mean the transfer or otherwise introduction of GM material into agricultural products or into the environment in general. Furthermore, the damage caused according to the previous paragraph is presumed to be due to the GM material. The previous existence of permit for use of GMOs and the claim that their use was performed according to the existing state of technical and scientific knowledge may not be permitted as defences for escaping liability.
9. In addition to above provisions on civil liability, supplementary provisions regarding fines and penalties must be included.
10. Finally, a guarantee obligation should be included for whoever uses GMOs. This would be made by insurance cover provided by an insurance company, which operates legally or by another insurance agency that is established for this specific purpose and operates legally.



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