International Monsanto Tribunal In The Hague - October 2016

International Tribunal on Monsanto

Terms of reference 6: Ecocide Crime

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Could the past and present activities of Monsanto constitute a crime of ecocide, understood as causing serious damage or destroying the environment, so as to significantly and durably alter the global commons or ecological system upon which rely human groups?

I- On the admissibility of the claim

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1.1. Competence/Jurisdiction

Under the proposed amendments of End Ecocide on Earth, the ICC is the jurisdiction to know about the crime of ecocide. This which is said to be the fifth crime against peace along with the crimes of Genocide, the crime against humanity, the war crime and the crime of aggression. The people's tribunal here established, for the purpose of the ecocide crime, would be applying the Rome Statute creating the ICC, including the proposed ecocide amendments.

Under the Rome Statute (art.12 al.2(a)), the Court may exercise its jurisdiction over the State on the Territory of which the conduct in question occurred. The victims here present in this case are from Columbia, Argentina, etc. countries that have ratified the Rome Statute or accepted the jurisdiction of the ICC.

1.2. Standing

Under the Forum Non Convenience and Forum Necessitates principles, the People's tribunal here established has the standing to rule on the ecocide cases as no more appropriate forum is available to the parties at this date: the Rome statute has not been amended to include the ecocide crime at the time the victims filed this lawsuit.

1.3. Interest

The victims in their individual capacity have interest in this procedure as they have been harmed and deprived of their fundamental rights in many ways by the impacts of Glyphosate and the crops genetic engineering general speaking.

The associations of victims (NGO, indigenous people coalitions, or other victim groups) have also interest to bring the ecocide action, as they represent and promote the right of their members, and therefore have interest in this action.

2. On the merits of the claim: Monsanto liability for the crime of ecocide

Issue Statement: Whether the past and present activities of Monsanto constitute a crime of ecocide, understood as causing serious damage or destroying the environment, so as to significantly and durably alter the global commons or ecological system upon which rely human groups?

2.1. Understanding the elements of the crime of Ecocide

Under EEE proposed amendments, is guilty of ecocide crime, one who causes a significant and durable damage to any part or system of the global commons, or to an ecological system relied upon by any human population.

2.1.1. The elements of Ecocide crime

2.1.1.1. An act or omission

The act referred to here is a positive act, generally material acts undertake by an author. This is a ***positive act because the author should refrain to do something that would otherwise lead to the damage***, such as the release of chemicals or waste into the environment, the discharge, emission or introduction of quantity of substances or ionizing radiation into the atmosphere, soil or water, the production, manipulation or use of dangerous substances or radioactive materials. The act of the author can also be a violation of an international treaty covering the global commons.

The omission is a negative act, an ***abstention or a failure to do something prescribe by the law***. This can most of time result in a passive violation of norms, permit of exploitation, or some negligence or recklessness action in taking security or preventive measure to avoid a damage to occur. Among other omissions are the failure to install sewage or waste treatment station according to an administrative directive, or the omission to internalize externalities arising from a dangerous industrial exploitation.

2.1.1.2. A damage

To be considered as elements of the crime of ecocide, the act of the author should have caused a damage to part or system of the global commons or ecological system relied upon by a

group of population. The nature of damage required for the qualification of the crime of ecocide is the one that is a ***significant and durable***.

According to the EEE, a ***damage is significant***, if it results in the modification of substance, biomass, life form, genetic material, element, chemical compound, mineral, or amount of energy, ***to the extent that exceeds planetary boundaries***.[2] The proposed Ecocide law by EEE clearly specifies that the extent and magnitude of planetary boundaries (limit or quota beyond which the qualification of the crime of ecocide can be retained) shall be determined by the United Nations Environmental Programme, or other internationally recognized institutions specializing in global environmental sustainability science.[3] The ***planetary boundary is exceeded*** *when the damage interferes with or alters any part of the environment in a manner that destroys or depletes natural ecosystems or the biodiversity of ecosystems, perturbs surface hydrology or groundwater resources, changes natural biogeochemical cycles, including greenhouse gas, nitrogen, or phosphorus balances, or releases chemicals or waste into the environment, including ozone-depleting chemicals and radioactive particles.*

On the other hand, and with regards to the impacts on the ecological system, a ***significant damage*** can also result in an elimination, obstruction, or reduction ***to an extent that undermines, or creates an increased risk of undermining, the continuing survival or well-being of the population.***[4] Polly Higgins here refers to an extensive damage to, destruction of or loss of ecosystem(s) of a given territory, ***to such an extent that peaceful enjoyment by inhabitant has been or will be severely diminished***.

Another qualification of damage for an ecocide crime under EEE proposed amendments is its ***durability***. A "durable damage" is defined as ***the persistence of the significant damage, or of the consequential environmental effects arising from the significant damage, or of an increased risk of consequential environmental effects arising from the significant damage***. One key factor to retain here is ***the persistence of the damage or its apparently continuing ecological consequence***. The court or the judges should have the ability to appreciate the durability of a damage with regards to the practice when it comes to environmental damages.

[2] EEE proposed amendments to the Rome Statute, article 8ter (3)
[3] See EEE supra note 17, article 8ter (12).
[4] See Id.

2.1.1.3. Intentionality and knowledge

Under the proposed amendments of End Ecocide on Earth and the Ecocide Model Law of Polly Higgins, knowledge and intent are not required for the crime to be constituted, but can be referred to for sentencing purposes. The crime of ecocide is a crime of ***strict liability***. However, it is important to understand this position.

The crime of ecocide as envisioned by EEE does not require knowledge or intent. The ***knowledge and intent of the defendant are irrelevant to the qualification of the crime of ecocide but would be considered in the determination of the appropriate sentencing***. This means that an author could not exclude his/her responsibility by arguing he/she never intended to cause the damage, or did not have the knowledge that the dangerous product been used could have caused such damage. A ***person is said to have knowledge when this person has reason to know or should have known***. The required knowledge should ***not be an actual knowledge but one relying on inherent danger or highly risky activities that would more likely cause the incriminated offense (crime of ecocide in our case)***. Therefore, the author would be liable not for his intent or actual knowledge, but because he has reason to know or should have known that his actions could have caused the damages. The knowledge or the "reason to know" induce a general duty of care in the absence of which one should be liable for her/its "non-intentional" action that has caused significant and durable damage to part or system of the global common or to an ecological system relied upon by any human population or sub-population.

The general principles embodied by the amendments proposed by End Ecocide sustain precisely this consideration.

2.1.2 General principle embodied

With regard to the principles embodied by the proposed ecocide law proposal, the liability for the crime of ecocide is carried out by considering among other a ***general duty of care*** and ***the precautionary principle***. An operator or individual owe a duty of care when undertaking an activity that may potentially undermine the wellbeing or a diminish the peaceful enjoyment by inhabitant. And according to the precautionary principle, the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environment degradation, where there are threats of serious or irreversible damage.

Three elements should then be considered when determining the liability of an author:

- the defendant owes a general duty of care;
- the defendant has (not) taken reasonable standard of care or acted with prudence in carrying out or omitting to carry out the activities that have caused the damages; and
- the damage caused was reasonably foreseeable as result of actions or omissions.

The foreseeability element implies respect for the general duty of care or the obligation of vigilance, and the precautionary principle embodied by the EEE amendments proposal. Under this circumstance, the occurrence or manifestation of damages is generally the proof that a reasonable due care was breached. However, ***in some cases, the liability is retained regardless of the author's performance of reasonable care***. This is the case when the activities undertaken by their authors are ***dangerous***. Under the European Commission (EC) Directive 2004/35/EC,[5] operators carrying out dangerous activities and listed in Annex III of the directive fall under strict liability.[6] ***Genetically modified organisms are classified as dangerous activities*** under the aforesaid Annex III.[7] Therefore, the occurrence of damages resulting from the manipulation or dissemination of GMOs is sufficient to establish liability.

2.2. Ecocide law and Monsanto past and present activities

Under EEE proposed amendment, one who causes a significant and/or durable damage to any part or system of the global commons, or to an ecological system relied upon by any human population or sub-population, is guilty of the crime of ecocide. Significant damage is defined as a disruption, an elimination, obstruction or reduction [affecting the ecological system], ***to an extent***

[5] See 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.

[6] See EC Report on the Directive 2004/35/CE (http://ec.europa.eu/environment/legal/liability/, consulted on June 9th, 2016) ; see also article 3(1) of the Directive 2004/35/EC: "the Directive shall apply to environmental damage caused by any of the occupational activities listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities".

[7] See Annex III (10) of Directive 2004/35/EC referring to "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" (OJ L 117, 8.5.1990, p. 1. Directive as last amended by Regulation (EC) No 1882/2003); see also Annex III (11) of Directive 2004/35/EC referring to "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" (OJ L 106, 17.4.2001, p. 1. Directive as last amended by Regulation (EC) No 1830/2003 (OJ L 268, 18.10.2003, p. 24).

that undermines, or creates an increased risk of undermining, the continuing survival or well-being of the population.[8]

Monsanto Company is a multinational agrochemical and agricultural biotechnology corporation, and a leading producer of genetically engineered seed and Roundup, a glyphosate-based herbicide. Its past activities involved agent orange, herbicide and defoliant used by the U.S. during the Vietnam war, and the polychlorinated Biphenyls (PCB).

The question to be answered is whether the past or present activities of Monsanto are likely to meet the elements of the crime of ecocide as defined above?

With regards to the elements of ecocide crime discussed above, Monsanto has committed the crime of ecocide if there is:

a- **An act or omission**: the production and/or dissemination of the Genetically Modified Organisms (GMO), glyphosate/rou*ndup, or the past activities Monsanto involving agent orange and PCB*

b- ***Damages****: the act or omission of Monsanto results in* ***damages that undermine or create a risk of undermining the continuing survival or the well-being of a group population (significant damages)***, and

c- ***Intentionality and knowledge:*** knowledge and intent not being a required element for the crime of ecocide under EEE proposed amendment, but can be used for sentencing purpose, it would only be demonstrated that ***the authors (Monsanto in occurrence) has reason to know, or should have known that there was a high likelihood that their actions could have caused the damages***. This will lead at showing that the damage caused was reasonably foreseeable (reference to the principles embodied: duty of care, precautionary principle), with the precautionary principle reminding that the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environment degradation, where there are threats of serious or irreversible damage.

[8] See art. 8ter (4) of EEE proposed amendments to the Rome Statute, (https://www.endecocide.org, consulted on May 30, 2016)

2.2.1. Ecocide Law and Monsanto present activities

2.2.1.1. ***Genetically Modified Organism***:

a- Toxicity and irremediable impact on the ecosystems and living organisms

- Many studies have shown that long term exposure to pollen from GM insect resistant maize causes ***adverse effects on the behavior[9] and survival[10] of the monarch butterfly***.

- Studies also found that Bt crops ***secrete toxins from their roots into the soil***,[11] and other (Saxena et al.,) observed that toxins in Bt crops persist in the soil for 234 days, allowing the toxins to keep their insecticidal characteristics and, thus, preventing them from being degraded by soil microbes.[12] The accumulation of toxins, released into the soil as farmers incorporate plant material into the ground after harvest, has the potential to create ***serious environmental and health problems*** in the future.[13]

- an experiment performed at Cornell University showed that large amounts of pollen from Bt corn… ***could kill larvae***…"[14].

b- Allergenicity, and antibiotic resistance, and impacts on human health

- Since GM pest-resistant are designed to be toxic to the target organisms, studies found that their potential ***adverse effect on human health*** is of obvious concern.[15]

- Although some studies have reported no adverse effects of toxic protein Bt on human health, because the mode of toxicity to insects may not be

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[9] Greenpeace, Environmental and Health impacts of GM crops- The science, 2011, consulted on http://www.greenpeace.org/australia/PageFiles/434214/GM_Fact%20Sheet_Health_%20and_Env_Impacts.pdf, last visited July 17, 2014

[10] See Id.

[11] See Greenpeace, citing Saxena, D., Flores, S. & Stotzky, G. *Soil Biology and Biochemistry* 34: 133-137, 2002. 'Bt toxin is released in root exudates from 12 trangenic com hybrids representing three transformation events'.

[12] See Michael Faure and Andri Wibisana, Liability for Damage Caused by GMOs: An Economic Perspective, 23 Geo. Int'l Envtl. L. Rev. 1, 2010, citing Deepak Saxena et., Insecticidal Toxin in Root Exudates from Bt Corn, 402 NATURE 480, 480 (1999).

[13] See Id.

[14] Valery Federici, Genetically Modified Food and Informed Consumer Choice: Comparing U.S. and E.U. Labeling Laws, 35 Brook. J. Int'l L. 2010.

[15] Thomas McGarity citing FDA Policy Statement: Foods Derived From New Plant Varieties, 57 Fed. Reg 22,984, 22986 (Food & Drug Admin., May 29, 1992).

relevant to human exposures,[16] other scientists have shown that genetic engineering techniques produce resistant genes that express toxic proteins at higher levels than naturally occurring in host plants, and ***food plants containing such genes could pose a risk to human health***.[17]

- With regard to the allerginicity, even though no harm has yet been reported, the use of genetic engineering in seeds or plants grown for human consumption does pose potential risks to human health.[18] These risks include the possibility that the plants may produce new allergens or toxins, or unexpectedly increased levels of naturally occurring toxicants or allergens found in crops.[19]

- A primary concern with food allergies is that genetically engineered encoded proteins are of unknown allergenicity, and an allergic reaction can be life threatening.[20] Food allergies are a very complex health problem because any protein can trigger an immune response.[21]

- Although the gene coding for antibiotic in a plant variety that has been isolated and reproduced no longer perform any useful function, *the GM plants instead continue to produce the antibiotic resistance enzyme, and anyone who eats the plants will consume the enzyme as well.*[22] Indeed, *the enzyme could deactivate the same antibiotic in human beings, thus reducing the drug therapeutic value to persons who consume the GM food.*[23]

c- Gene pollution, contamination, and loss of biological diversity

- When genetically modified organisms are allowed to breed with the non-genetically engineered organisms, they can pollute them, and therefore affect the whole ecological system.[24] Pollution can easily happen accidentally through

[16] Lavrik P.B. et al. Safety Assessment of Potatoes Resistant to Colorado Potato Beetle, in Genetically Modified Foods: Safety Issues 134 (Karl-Heinz Engel et al eds.), 1995.
[17] See McGarity, supra note 134.
[18] See Valery Ferderici, supra 124.
[19] See Id. citing Center for Science in Public Interest,
[20] See Id.
[21] See Id.
[22] See Id.
[23] See Id.
[24] Godheja, J. 2013, Impact of GMOs on Environment and Human Health, Recent Research in Science & Technology, 5,5, pp. 26-29, EBSCOhost, viewed on July 15, 2014.

pollination, when wind, insects, and other natural vectors are the channel of the cross pollination.

- Over the past decades, many organic farmers have been systematically contaminated and this situation puts the genetic biodiversity at serious risk. The decreased biodiversity increases vulnerability of crops to disease and pests, meaning that a single blight or pest could potentially decimate hundreds of thousands of acres of crops.[25] This situation leads to crop failure and subsequently induces loss of economic benefit, starvation, and affect the wellbeing of small holder farmers' families.

d- ***Witnesses statements and evidences****:*

Conclusion on Genetically Modified Organisms

- *The serious environmental and health problems resulting from genetically engineering organism would likely undermine or create a risk of undermining the well-being of the human population.*
- *Monsanto should have known or has reason to know, based on different scientific studies, that there is high likelihood that their activities/actions would have caused these serious environmental and health damages.*
- *In case of doubt about these scientific studies, the precautionary principle (embodied by the ecocide amendment) provides that the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environment degradation, where there are threats of serious or irreversible damage.*
- ** *Another demonstration of the ecocide crime here would be on the nature of GMOs, which are* ***dangerous products/activities per se****, leading to the application of the strict liability rule. According to* the European Commission (EC) Directive 2004/35/EC,[26] operators carrying out dangerous activities and

[25] See Altieri, supra note 108.
[26] See 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.

listed in Annex III of the directive fall under strict liability.[27] Genetically modified organisms are classified as dangerous activities under the aforesaid Annex III.[28] It results that the occurrence of damages arising from the manipulation or dissemination of GMOs is sufficient to establish liability. Monsanto is liable for the crime of ecocide on that basis because it has manipulated and/or disseminated GMOs, ***dangerous product per se, that present a high likelihood of undermining or creating a risk of undermining the continuing survival or the well-being of a population, or the peaceful enjoyment by inhabitant***.

- ***Glyphosate/Roundup***

a- Impacts on animal and human health

- According to the American Medical Association, **glyphosate** cannot be used on plants that have not been genetically modified to be tolerant to it, because as a broad-spectrum herbicide, it will kill them.[29] It result from studies that the use of Roundup would likely ***devastate the entire surrounding biosphere or soil ecosystem*** unless the soil is treated along with its living organisms to be tolerant to it.

- In 2015 glyphosate was reported by the World Health Organization (WHO)'s International Agency for Research on Cancer as ***probably carcinogenic to human*** (Group 2A).[30]

- There are convincing evidences that glyphosate can also ***cause cancer in laboratory animals***. Glyphosate also ***caused DNA and chromosomal***

[27] See EC Report on the Directive 2004/35/CE (http://ec.europa.eu/environment/legal/liability/, consulted on June 9th, 2016) ; see also article 3(1) of the Directive 2004/35/EC: "the Directive shall apply to environmental damage caused by any of the occupational activities listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities".

[28] See Annex III (10) of Directive 2004/35/EC referring to "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" (OJ L 117, 8.5.1990, p. 1. Directive as last amended by Regulation (EC) No 1882/2003); see also Annex III (11) of Directive 2004/35/EC referring to "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" (OJ L 106, 17.4.2001, p. 1. Directive as last amended by Regulation (EC) No 1830/2003 (OJ L 268, 18.10.2003, p. 24).

[29] See Id. citing American Medical Association, Report 10 of the Council on Scientific Affairs (I-00) Full Text: Genetically Modified Food and Crops (2000).

[30] IARC, Evaluation of Five Organophosphate Insecticides and Herbicides, Monographs Vol.112, March 2015 (https://www.iarc.fr/fr/media-centre/iarcnews/pdf/MonographVolume112.pdf, consulted on June 7th, 2016).

damage in human cells, although it gave negative results in tests using bacteria. One study in community residents reported increases in blood markers of chromosomal damage (micronuclei) after glyphosate formulations were sprayed nearby.[31]

- the European Parliament members recently faced a urine test that revealed couple weeks later the finding of Glyphosate in their urine at a rate seventeen (17) times higher than the European drinking water (on average 0.1 microgram/liter).[32]

b- ***Witnesses Statements and evidences ….***

Conclusion on Glyphosate/Roundup

- *In the case In Re Agent Orange[33], brought by the Vietnamese nationals against manufacturers of herbicides, the Court found that the herbicide spraying complained of did not constitute a war crime pre-1975; that the Hague Convention (IV) respecting the Laws and Customs of War on Land[34], did not provide a basis for recognizing a cause of action against the military use of herbicides during the Vietnam War; and that no treaty or custom affecting environmental protection created a rule effective before 1975 making illegal the use of herbicides as used in Vietnam. This position is justified by the fact that before 1975 there was no legal framework regulating the use of herbicide in war time, the Endmod convention being signed in 1976 and the Rome Statute in 1998.[35] Even if those treaties were enacted before 1975, they are strictly related*

[31] See Id.
[32] See July Fidler, EU Parliament Members Test Urine For Gluphosate Ahead of Vote on The Herbicide Chemical, Natural Society, April 2016 (http://naturalsociety.com/eu-parliament-members-give-urine-ahead-glyphosate-vote-7208/, consulted on June 7th, 2016).
[33] See Nguyen Thang Loi v. Dow Chem. Co. (In re Agent Orange Prod. Liab. Litig.), 373 F. Supp. 2d 7, 2005 U.S. Dist. LEXIS 3644, CCH Prod. Liab. Rep. P17,342 (E.D.N.Y. 2005)
[34] See The Hague Convention (IV) respecting the Laws and Customs of War on Land, Oct. 18, 1907, art. 23, 36 Stat. 2277, 2301-02.
[35] See Article 8(2)(b)(iv) of Rome Statute creating the International Criminal Court, signed on July 17 1998 (https://www.icc-cpi.int/resourcelibrary/official-journal/rome-statute.aspx, consulted on May 11th, 2016).

the war period. Today Ecocide amendment proposal has set up the legal framework for addressing similar situation arising during peace or war time.

- *Glyphosate being demonstrated to be carcinogenic, it would result in undermining or creating a risk of undermining the continuing survival or wellbeing of the human population. Therefore, it clearly falls under the qualification of ecocide.*
- *Monsanto should have known or has reason to know, based on different scientific studies, that there is high likelihood that their activities/actions would have caused these serious health and/or environmental damages.*
- *In case of doubt about these scientific studies, the precautionary principle (embodied by the ecocide amendment) provides that the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environment degradation, where there are threats of serious or irreversible damage.*

2.2.2. Ecocide Law and Monsanto past activities

a- Agent Orange

Monsanto was one of the producers of Agent Orange, the defoliant used by the United States military during the Vietnam War which caused disastrous ecological and human health consequences.[36] While this particular activity ceased with the end of the Vietnam War over 40 years ago, the ecological and health impacts remained till this day. The consequences of this product continue to affect the Vietnamese civilians, as "the contaminated soil and sediment" are "poisoning their food chain and causing illness, serious skin diseases and a variety of cancers"[37].

The action brought by Vietnamese nationals against manufacturers of herbicides, was

[36] *See, e.g.*, T. Fuller, '4 Decades on, U.S. Starts Cleanup of Agent Orange in Vietnam', *New York Times* (9 August 2012), available online at www.nytimes.com/ 2012/08/10/world/asia/us-moves-to-address-agent-orange-contamination-in-vietnam.html (last visited June 8th 2016) (stating that a ' chemical contaminant in Agent Orange […] has been linked to cancers, birth defects and other diseases'); See also A. D. Ngo *et al.*, 'Association Between Agent Orange and Birth Defects: Systematic Review and Meta-Analysis', 35 *International Journal of Epidemiology* (2006) 1220, ("concluding that 'parental exposure to Agent Orange appears to be associated with an increased risk of birth defects");

[37] END ECOCIDE ON EARTH, *History of ecocide,* https://www.endecocide.org/history-of-ecocide/#1 (05-18-2016)

dismissed on the ground that the Torture Victim Protection Act of 1991, the War Crimes Act of 1996, and the Hague Convention (IV) Respecting the Laws and Customs of War on Land, did not provide a basis for recognizing a cause of action for the use of herbicides during the Vietnam War.[38] The Court found that the herbicide spraying complained of did not constitute a war crime pre-1975[39], and no treaty or custom affecting environmental protection created a rule effective before 1975 making illegal the use of herbicides as used in Vietnam.[40] However, the Court approved settlement of class action and ordered the settlement fund be distributed according to the plan set out in its prior judgment on distribution.[41] The court also dismissed all class members' claims, and permanently barred class members from instituting or maintaining future actions arising from Agent Orange exposure.[42]

The position of the Court is justified by the fact that before 1975 there was no legal framework regulating the use of herbicide in war time, the Endmod convention being signed in 1976 and the Rome Statute in 1998.[43] Even if those treaties were enacted before 1975, they are strictly related the war period. Today Ecocide amendment proposal has set up the legal framework for addressing similar situation arising during peace or war time.

The EEE proposed ecocide law defined a ***"durable damage"*** as the persistence of the significant damage, or of the consequential environmental effects arising from the significant damage, or of an increased risk of consequential environmental effects arising from the significant damage, on the date one year following the initial introduction or removal as determined by the United Nations Environmental Programme, or other internationally recognized institution specializing in global environmental monitoring science.[44] Agent orange being introduced in the environment many years ago, their persistence and continuing consequential environmental effects are well established. They fall under durable damages with regard to the

[38] See Nguyen Thang Loi v. Dow Chem. Co. (In re Agent Orange Prod. Liab. Litig.), 373 F. Supp. 2d 7, 2005 U.S. Dist. LEXIS 3644, CCH Prod. Liab. Rep. P17,342 (E.D.N.Y. 2005)

[39] See article 8(2)(b)(iv)) of the Rome Statute creating the International Criminal Court ("intentionally launching an attack in the knowledge that such attack will cause … widespread, long-term and severe damage to the natural environment…")

[40] See Nguyen Thang Loi v. Dow Chem. Co., opt.cit.

[41] See *In re "Agent Orange" Prod. Liab. Litig*., 618 F. Supp. 623 (E.D.N.Y. 1985).

[42] See Id.

[43] See Article 8(2)(b)(iv) of Rome Statute creating the International Criminal Court, signed on July 17 1998 (https://www.icc-cpi.int/resourcelibrary/official-journal/rome-statute.aspx, consulted on May 11th, 2016).

[44] See EEE proposed amendments, art. 8ter (5) (https://www.endecocide.org/wp-content/uploads/2015/10/ICC-Amendements-Ecocide-en.pdf, last visited June 3rd, 2016)

Ecocide proposed amendment.

Moreover, in such circumstance, the continuous crime doctrine is applicable. Continuing crimes[45] are offenses that extend over time. This is the case of offenses that are constituted and therefore continue as long as the situation that defines the offense will last (e.g. the fact of assisting and harboring members of an illegal organization or sequestration).[46] In the case of the Agent orange or the subsequent PCB case to be discussed further, the situation is more about the persisting impacts of instantaneous actions which do not amount to crime at the time they were committed. We would refer to these actions as continuous or permanent offenses. ***The European Court has recently taken this differentiation between continuing crime and continuous or permanent crimes[47].***

Under many environmental statutes, the continued existence of the contamination is classified as a new crime each day.[48]

In the cases where the offense extends over time, the courts apply the new law, even more severe since the offense was prolonged in duration under the influence of the new law. Therefore, while this particular activity ceased with the end of the Vietnam War over 40 years ago, the continued contamination and other ecological and health impacts, likely trigger the application of the ecocide law. These actions clearly resulted in a significant and durable damage to part and system or to an ecosystem function relied upon by a group of population or sub-population.[49]

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[45] A crime continues beyond the first moment when all its substantive elements are satisfied. *See Toussie v. United States*, 397 U.S. 112, 115, 25 L. Ed. 2d 156, 90 S. Ct. 858 (1970); *United States v. De La Mata*, 266 F.3d 1275, 1288 (11th Cir. 2001) ("A continuing offense is one which is not complete upon the first act, but instead continues to be perpetrated over time.")

[46] The Oxford English Dictionary defines "continuing" (adjective) as "abiding, lasting; persistent, persevering;" it defines "continuous" (adjective) as "extending in space without interruption of substance." Oxford English Dictionary 829, 830 (2nd ed., 1989). "Continuing" refers to more of a temporary state of affairs; whereas "continuous" describes a more permanent condition.

[47] See ECHR Jan 21. 2015, c Rohlema / Czech Republic. Opposes this type of behavior, the offense called "permanent" crime doctrine, which is defined as an instant offense whose effects are prolonged in time, because of the passive attitude of the author (eg. bigamy). This distinction has interests, for example, as the starting point of the limitation of public action. In the case of continuing offense, this period begins from the day the act is committed (in case of bigamy: from the day the second marriage is contracted), while in the case of a continuing offense the time begins to run from the day the unlawful state has ended "in its constitution and in its effects" (Crim. May 20, 1992).

[48] See Irma S. Russell, *CRIES AND WHISPERS: ENVIRONMENTAL HAZARDS, MODEL RULE 1.6, AND THE ATTORNEY'S CONFLICTING DUTIES TO CLIENTS AND OTHERS*, 72 Wash. L. Rev. 409; see also 33 U.S.C. 1319(c)(1)(B) (1994) (providing penalty of between $ 2500 and $ 25,000 per day and imprisonment of up to one year for negligently introducing hazardous substances into sewer system or publicly owned treatment works); 33 U.S.C. 1319(c)(2) (1994) (providing penalty of between $ 5000 and $ 50,000 per day for knowing violations of Act); 42 U.S.C. 6928(d)(1) (1994); see also Roger M. Klein, The Continuing Nature of Notification Violations Under Environmental Statutes, 26 Envtl. L. 565 (1996).

[49] See Id. at art. 8ter (1).

b- Polychlorinated Biphenyls (PCB)

PCB is a chemical component obtained from the mixture of benzene and chlorine, and were used in numerous products, including industrial equipment, food packaging and paint. Monsanto was the primary U.S. manufacturer of PCBs from 1930 until 1977.

In 1979, PCBs have been found to cause cancer, decreased fertility, still births, and birth defects in test animals.[50] Also, the U.S. Environmental Protection Agency (EPA) has noted a "well-documented human health and environmental hazard of PCB exposure"[51]. Because of PCBs' environmental toxicity and classification as a persistent organic pollutant, PCB production was banned by the United States Congress in 1979 and by the Stockholm Convention on Persistent Organic Pollutants in 2001[52].

Many years after the ban of the PCBs, populations are still exposed to serious health issues and many ecological impacts such as contamination of rivers and their inhabitants, contamination of soil, and pollution of the atmosphere. Volatilization of PCBs in soil was thought to be the primary source of PCBs in the atmosphere, but research suggests ventilation of PCB-contaminated indoor air from buildings is the primary source of PCB contamination in the atmosphere.[53]

Today, many cities and municipalities in the United States have been filling lawsuits against Monsanto for the PCBs' environmental contaminant which are found in all natural resources including water and plants as well as tissues of marine life, animal and humans.[54] PCBs

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[50] See *Environmental Defense Fund v. Environmental Protection Agency*, 636 F.2d 1267, 1270, 205 U.S. App. D.C. 139 (D.C. Cir. 1980).

[51] 40 C.F.R. § 761.20 - PROHIBITIONS AND EXCEPTIONS, (See https://www.gpo.gov/fdsys/granule/CFR-2011-title40-vol31/CFR-2011-title40-vol31-sec761-20, last visited June 13, 2016)

[52] See Porta, M; Zumeta, E, *Implementing the Stockholm Treaty on Persistent Organic Pollutants*, Occupational and Environmental Medicine, 2002, 10 (59): 651–2.

[53] See amshidi, Arsalan; Hunter, Stuart; Hazrati, Sadegh; Harrad, Stuart, *Concentrations and Chiral Signatures of Polychlorinated Biphenyls in Outdoor and Indoor Air and Soil in a Major U.K. Conurbation,* Environmental Science & Technology, 2007, Vol. 41 (7): 2153–8.

[54] The City of San Diego and San Diego Unified Port District want chemical agricultural giant Monsanto to pay for its role in polluting San Diego's bay and tidelands with polychlorinated biphenyls, commonly known as PCBs (http://www.sandiegoreader.com/news/2015/mar/16/ticker-monsanto-pay-damaging-san-diego/, last visited June 12, 2016); see also in recent case, a Saint Louis jury awarded $17.5 million in damages to three plaintiffs and assessed $29 million more in punitive damages against Monsanto and three other companies in a suit here alleging negligence in the production of PCBs (http://www.nbcbayarea.com/news/local/Berkeley-Joins-Others-in-Suing-Monsanto-Over-PCB-Pollution-in-San-Francisco-Bay-364423031.html#ixzz4EC5qHjPq, last visited June 12, 2016); Berkeley joined the cities of Oakland, San Jose, San Diego and Spokane, Washington, in filing suits against Monsanto to recover costs of cleaning up PCBs and seek compensatory and punitive damages for the continuing presence/impacts of PCBs; (http://www.nbcbayarea.com/news/local/Berkeley-Joins-Others-in-Suing-Monsanto-Over-PCB-Pollution-in-San-Francisco-Bay-364423031.html, last visited June 12 2016)

bioaccumulate in the food chain and are associated with illnesses and cancer in human.[55]

In the case United States v. Alcan Aluminum Corp,[56] filed by the United States and the State of New York, plaintiffs, against ALCAN ALUMINUM CORPORATION et al., defendants, the Court found that the soils, surface water, and sediments at the site at issue were contaminated with Volatile Organic Compounds (VOCs)[57] and metals[58] and the soil was contaminated with PCBs.[59] The investigation also determined that the site was significantly contaminated.[60] The judge held defendant Alcan Aluminum Corp. liable for cleanup costs at two hazardous waste sites. However, defendant, Alcan, was able to trace this contamination to the use of PCB hydraulic oils in the remelt operation in the late 1960s and 1970.[61] Monsanto being the U.S. sole domestic manufacturer of PCBs, the Court ordered a ***joint and several liability*** with regard to the cleanup of contamination, despite the fact that Monsanto ceased production of PCB containing fluids, and that PCB fluids were not commercially available in the United States[62] at the time the lawsuit is filed. This is a great illustration of the continuous or permanent offense doctrine discussed previously in the agent orange case[63]. Also the "durable damage" rule proposed by EEE also fulfilled this situation and there was a persistence damage and continuous consequential environmental impacts.

In a similar case, *Solutia, Inc. v. McWane*[64], the Court found Solutia liable for the clean-up of the area where hazardous substances, including PCBs associated with releases or discharges as a result of the operations, including waste disposal by Solutia. Like in United States v. Alcan

[55] See Id.
[56] See United States v. Alcan Aluminum Corp., 97 F. Supp. 2d 248, 2000 U.S. Dist. LEXIS 5689, 50 ERC (BNA) 1772 (N.D.N.Y 2000)
[57] See Id. at note 6: "Surface water testing found concentrations of 0-150 parts per billion ("ppb") of 1,1 dichloroethane; 0-6.9 ppb of 1,1 dichloroethylene; 0-51 ppb of 1,1 trichloroethane, and 11-80 ppb of vinyl chloride; see also Government Ex. 73, at Table 4-11. Results of sediment testing are listed in Table 4-12 of Government Exhibit 73. Soil sampling results can be found in Government Exhibit 77 Table 5-1."
[58] See Id. note 7. "Metals found in soil samples included chromium (range 9.8-2.5 [mu] g/g); copper (range 8.4- 64 [mu] g/g); lead (range 2.9 - 9.1 [mu] g/g); nickel (range 6.6-27 [mu] g/g); and zinc (range 19- 61 [mu] g/g); see also Government Ex. 73, at Table 4-10; see also Government Ex. 77, Table 5-5. Complete metal results for surface water are located in Table 4-11 of Government Exhibit 73. Results of sediment testing are listed in Table 4-12."
[59] See Id. note 8. "PCB contamination in the soil ranged from 300-22,000 ppb. See also Government Ex. 73, at Table 4-10 (Government Ex. 77, at Table 5-4.)".
[60] See Id.
[61] See Id. note 18. "In 1987, Alcan did an in-house study of the extent of contamination, analyzing approximately 100 samples of sludge and concrete throughout the hot line. The results of this analysis indicated that PCBs had contaminated the concrete floors and walls beneath the hot line."
[62] See Id.
[63] See supra 3.2.1. "Agent Orange".
[64] See Solutia, Inc. v. McWane, Inc., 726 F. Supp. 2d 1316, 2010 U.S. Dist. LEXIS 90853 (N.D. Ala. 2010).

Aluminum Corp, Monsanto Company, and their predecessors have come to be located and must join the clean-up effort.[65]

All the aforementioned cases demonstrated liability of Monsanto over the PCBs ecological damages and health issues, even though PCBs activities ceased 40 years ago. The defenses of Monsanto in most of the cases are that it has ceased the PCB activities years ago and after studies determined that PCBs do not readily break down and can remain in the environment, its predecessor company decided to stop manufacturing them.

Under Ecocide law as proposed by EEE, knowledge and intent are not required for the determination of the crime of ecocide.[66] Monsanto would be strictly liable because PCBs are dangerous and toxic products.[67] Not knowing and not having the intent are not proper defenses under the Ecocide amendments. The likelihood that the activities of the author would undermine or create a risk of undermining the continuing existence or wellbeing of a population is sufficient. It would also be asserted whether defendant has taken reasonable standard of care or acted with prudence in carrying out or omitting to carry out the activities that have caused the damages.
In the PCB situation, the dangerous nature of the activity and the chemical components involved are indications that the ***damage was foreseeable***. Moreover, it appeared that defendant has not observed reasonable care because it should not wait until "after studies determined that PCBs do not readily break down and can remain in the environment" to "stop manufacturing them". As set out by the ***precautionary principle***, the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environment degradation, where there are threats of serious or irreversible damage. Ecocide law as proposed by EEE embodied the precautionary principle and other relevant environmental principles.

[65] See Id.
[66] See EEE proposed ecocide amendment, annex I(2) (https://www.endecocide.org/wp-content/uploads/2015/10/ICC-Amendements-Ecocide-en.pdf, last visited June 3rd, 2016).
[67] See Id. EEE proposed amendments; see also U.S. Toxic Substances Control Act ("TSCA"), 15 U.S.C. §§ 2605 (e), 1976; see also the European Commission (EC) Directive 2004/35/EC: "operators carrying out dangerous activities fall under strict liability."