

The liability of Monsanto and Dow Chemical for the spraying operation of Agent Orange during the Vietnam war

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Introduction

During the Vietnam War, the United States (“US”) resorted to Agent Orange as a means of warfare. Agent Orange is an effective defoliant that the US army spread on the South Vietnam territory from 1961 to 1971 (Bouny, 2010). The spraying operation, called operation “Ranch Hand”, officially aimed at defoliating vegetation in order to clear the perimeters of communication lines and to destroy crops, as a tactic for decreasing natural cover and food supplies of the Vietcong and North Vietnamese troops (Curtis, 1986).

Besides its toxic effects on plants, Agent Orange contains high concentrations of dioxin, a poison whose toxic effects on human health are severe and longstanding (Curtis, 1986). Consequently, approximately 4.8 million Vietnamese still suffer from health problems caused by exposure to the herbicide, and untold thousands have already died (Stellman et al., 2003).

However, the liability of the US government for the spraying operation could hardly be incurred considering that Vietnam diplomatically renounced to settle claims against the US arising out of the use of herbicides during Vietnam War¹. Besides, an action against the US government would be barred by doctrines of governmental immunity and discretion developed by the US Supreme Court². Consequently, this paper will focus on the liability of the chemical companies that manufactured and provided Agent Orange to the US during Vietnam War. We will focus on the case of Monsanto and Dow Chemical considering that, despite the fact that their CEOs were aware of the toxic effects of Agent Orange on human health, these companies agreed to become the main providers of the herbicide to the US and collaborated closely with the Pentagon to develop its military use (Robin, 2008, p. 45).

¹ The damages and related claims arising from the Vietnam War were subject to long negotiations between the two countries, which resulted in two main agreements: an Agreement between the Government of the United States of America and the Government of the Socialist Republic of Vietnam concerning the Settlement of Certain Property Claims ("1995 Property Agreement", *I.L.M.*, 1995, 685) and a Memorandum of Understanding between the United States (represented by the Department of Health and Human Services) and Vietnam (represented by the Vietnamese Ministry of Science, Technology and Environment) (Memorandum of Understanding with Vietnam. March 10, 2002. available at <http://usembassy.state.gov/vietnam/www/wh020310ii.html>).

² Though it should be noted that governmental immunity is not irrevocable. In this respect, it is interesting to refer to the class action introduced in 1980 by former US veterans and their families against the chemical manufacturers of Agent Orange. In this context, these companies called the US government as a third-party defendant. In reaction, the US government argued that it could not be held liable on the basis of sovereign immunity, according to which a governmental body is immune to civil lawsuits. Referring to the US Supreme Court case *Feres v. United States* (1950), which held that the US government was protected by federal law against actions introduced for injuries sustained during military service, the New York district Court first dismissed the US government from the case (though without filing a formal dismissal). However, after a change in the composition of the Court, the replacing judge readdressed the government's liability and held that even if military service claims of injury against the US government were barred under federal law, the claims of veteran's children for genetic defects caused by their parent's exposure to Agent Orange were not barred.

In 2005, the Vietnamese victims of Agent Orange introduced a civil action against these chemical companies in order to seek damages for their injuries caused by the herbicide (*Agent orange product liability*, 2005). They filed a suit in front of a District Court of New York, on the basis of the *Alien Tort Statute* (“ATS”). The ATS grants US District Courts jurisdiction over any civil action introduced by an alien claiming damages for a tort committed in violation of international law or a treaty of the US. Nevertheless, the District Court of New York dismissed the Vietnamese claim on the ground that no universally accepted norm of international law prohibited the wartime use of Agent Orange with the degree of specificity required by US jurisprudence (*Agent orange product liability*, 2005). According to the New York Court, Agent Orange was used to protect U.S. troops against ambush, and “not as a weapon of war against human populations” (Id). Considering that Agent Orange was not used for the purpose of injuring people, the Court determined that it was not a poison nor a toxic weapon. Moreover, the New York judges found that the causal link between the defoliant and the diseases of the Vietnamese victims was not sufficiently proven. Such causality was nevertheless recognized by the High Court of Seoul, which condemned Monsanto and Dow Chemical to compensate former South-Korean veterans for their diseases caused by exposure to the defoliant (*Kim-Yong Dae et al. v. Monsanto and Dow chemical*, 2006). It must also be stressed that these companies concluded a generous compensation settlement with former US veterans for their health damages caused by Agent Orange (Abboud, 2017 ; *Agent Orange Act*, 1991).

The judgment of the New York District Court was appealed and heard by the US Court of Appeals for the Second Circuit. In 2008, the Court of Appeals upheld the dismissal of the case on similar grounds, finding that even if Agent Orange contained dioxin, it was used as a defoliant and not as a poison designed for or targeting human populations (*Vietnam Association for Victims of agent orange/Dioxin v. Dow Chemical Co.*, 2008). On this basis, it considered that the wartime use of Agent Orange did not constitute a violation of international law as required under the ATS (Id). As a last resort, the Vietnamese victims filed a petition to the US Supreme Court (which has discretionary review authority to decide which cases it deems worthy of hearing (US Judiciary Act, 1891)). In 2009, the Supreme Court refused to reconsider the ruling of the Court of Appeals without any justification (*Vietnam Association for Victims of agent orange v. Dow Chemical Co.*, 2009).

Considering that the New York Courts dismissed the Vietnamese claim on the ground that the wartime use of Agent Orange did not violate any binding norm of international law, we will first examine the

compliance of the wartime use of Agent Orange with international norms and treaties that were binding on the US (section A). We will further determine whether, and in what capacity, the chemical companies that provided Agent Orange to the US can be held liable for these violations of international law (section B).

Section A : The wartime use of Agent Orange violates International Law

Agent Orange is an effective defoliant that has direct toxic effects on plants. On this ground, it will be shown that Agent Orange can be qualified as a toxic or chemical weapon prohibited by international law (1). In addition, the herbicide contains high levels of dioxin, a poison that has numerous toxic effects on human and animal health. Therefore, and despite the US qualification of Agent Orange as an herbicide aimed at defoliating vegetation, Agent Orange could be qualified as a poison whose wartime use is firmly condemned by international law (2). Finally, because of its effects on Vietnamese civilians' health and environment, we will see that Operation Ranch Hand violated numerous general principles of International Humanitarian Law (3).

1. Agent Orange is a toxic or chemical weapon because of its toxic effects on plants

Agent Orange is an herbicide whose chemical components have direct toxic effects on plants (1.a). On this behalf, it constitutes a toxic or chemical weapon prohibited by the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating Poisonous or Other Gases (Geneva Protocol) and international customary law (1.b).

1.a. Agent Orange is an herbicide that has direct and longstanding toxic effects on plants

Agent Orange was developed as a chemical herbicide in the late 1930s (Abboud, 2017). Its military use was first tested during World War II, when the US military began experimenting herbicides to restrict enemy food supplies and ground cover (Bouny, 2010, p. 57). But it is not until Vietnam war that it was massively used by the US as a powerful mean of warfare. The operation "Ranch Hand", launched by the US in 1961, consisted in the spraying of Agent Orange on South-Vietnam territory in order to defoliate its vegetation and to destroy crops (Id), thereby expecting to starve the Vietcong and to destroy its natural cover (RAND Corporation Memo, 1967). In this context, approximately 2.6 million hectares of Vietnamese vegetation were sprayed (Westing et al., 2002). Today, more than 40

years after the end of Operation Ranch Hand (1971), mangroves and forests still haven't recovered. It can thus be asserted that Agent Orange had severe and longstanding chemical effects on plants and vegetation.

1.b. The use of Agent orange as a toxic weapon violates international law

Due to its toxic effects on plants, Agent Orange can be qualified as a toxic or chemical weapon whose use is prohibited by international law, notably the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating Poisonous or Other Gases and of all analogous liquids, material or devices ("Geneva Protocol"). However, the US ratified this Protocol in 1975, thus after Operation Ranch Hand (1961-1971). Therefore, based on the principle of non-retroactivity of treaties, the New York Courts concluded that the Geneva Protocol was not binding upon the US at the time of the Vietnam War (*VAWA/Dioxin v. Dow Chemical Co*, 2008).

Nevertheless, it is argued that the prohibition of toxic weapons was already binding on the US, as a norm of customary international law. Such prohibition was provided in the 1899 Hague Gas Declaration, the 1919 Versailles Treaty and the 1922 Washington Treaty on Submarines and Noxious Gases (ratified by the US but never entered into force). The accepted character of this prohibition is also emphasized by the preamble of the Geneva Protocol, which provides that "[T]he use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the *general opinion of the civilized world*".

Though it must be determined whether this customary prohibition encompassed herbicides. In this respect, the concept of chemical or toxic weapon has not been defined by an international binding instrument, leaving states a large margin of appreciation to determine what it covers. According to the US position at the time of Vietnam War, both the customary prohibition and Geneva Protocol would only cover chemical agents that are toxic to humans or animals, but not to plants³. Consequently, it would not apply to herbicides. The New York Courts relied on this narrow interpretation to conclude that Agent Orange was not a prohibited weapon (Agent orange product liability, 2005). However, it will be shown that such position is not consistent with the general opinion of the international

³ See for instance: Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare: *Message from the President*. 1970. US. Exec. J, 91st Congress, 2d Sess ; *The Geneva Protocol of 1925*. Hearings Before the Senate, Testimony of Secretary of State Rogers. 1971. Comm. on Foreign Relations, 92nd US Cong.

community. In this respect, the UN General Assembly adopted a resolution in 1969 (*Question of chemical and bacteriological weapon*, Res. 2603-A), declaring “as contrary to the generally recognized rules of international law the use in international armed conflicts of : (a) Any chemical agents of warfare [...] which might be employed because of their direct toxic effects on man, animals or *plants*”. By including agents that have toxic effects on plants, this UN resolution clearly encompasses herbicides in the definition of prohibited chemical agents. Even though a UN General Assembly resolution does not have binding legal effects as such, it may provide some evidence of customary international law when it is worded in normative terms for States that accept the resolution (David, 2004) or when it is unanimous (or nearly so) and reflective of actual state practice (*Agent orange product liability litigation*, 2005). Resolution 2603-A was adopted by a vote of 80 against 3 (including of course the US whose spraying operation of Agent Orange was still ongoing), with 36 countries abstaining, arguably for political reasons for not contesting the position of the US. This illustrates that the great majority of states considered that herbicides are toxic agents and framed the prohibition to use them in normative terms. This international position was confirmed by a report issued by the World Health Organization (WHO) in 1970, which expressly qualified Agent Orange as phyto-toxic agent (World Health Organization, 1970). Later on, the preamble of the 1993 Chemical Weapons Convention explicitly recognized “the prohibition, embodied in the pertinent agreements and relevant principles of international law, of the use of herbicides as a method of warfare” (Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, 1993, § 7 of the Preamble).

It can thus be asserted that the US position excluding herbicide from chemical or toxic weapons does not comply with international customary law. Besides, this narrow interpretation is also inconsistent with US traditional military doctrine. For instance, the US military manual of 1959 defined chemical attack as « an attack [...] directed at man, animals, or crops » (US Department of the Army, 1959, p. 23), thereby including the use of herbicides. Similarly, the US Dictionary of military terms of 1961 defined biological warfare as « the employment of living organism, toxic biological products and plant growth regulators [...] » (US Department of the Army, 1961, p.56). But the US reversed their interpretation with the launch of Operation Ranch Hand. In 1969, they voted against the GA resolution 2625-A prohibiting chemical weapons having toxic effects on plants and in February 1970, President Nixon announced the new US definition of chemical weapons, excluding herbicides (Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare: *Message from the President*. 1970). In 1975, the US government ratified the

Geneva Protocol but specified that the use of herbicides during Vietnam war had not violated that treaty and that the Protocol should be only prospective in effect. However, under the pressure of the scientific community and of public opinion denouncing the “chemical warfare” in Vietnam, President G. Ford renounced to first use of herbicides in war “as a matter of national policy” (Executive Order 11850, 1975). Yet he specified that such declaration did not change the US position that the Geneva Protocol does not cover chemical herbicides.

It can thus be concluded that the US position excluding herbicides from the notion of toxic or chemical agents is part of a context closely related to the launch of Operation Ranch Hand. Besides, this narrow interpretation does not comply with the definition of chemical weapons accepted by the international community, which includes agents having direct toxic effects on plants.

In any event, no controversy exists on the fact that the 1925 Geneva Protocol prohibits chemical weapons because of their toxic effects on humans or animals. Likewise, it will be shown that Agent Orange contains high doses of dioxin, a poison whose toxic effects on human and animal health have been established by numerous epidemiological studies (Stellman, 2003 ; US National Academy of Science, 1994).

2. Agent Orange is a poison whose wartime use is firmly condemned by international law

Agent Orange contains high concentration of dioxin, a harmful poison that bio-accumulates as it moves up the food chain (Id). It is estimated that 4.8 million Vietnamese currently suffer from health problems caused by the herbicide and thousands have already died (Bouny, 2010). Nevertheless, the New York judges considered that the causation between the diseases of the Vietnamese plaintiffs and exposure to Agent Orange was not sufficiently proved and that it should be characterized as an herbicide, and not as a poison prohibited under international law (*VAVA v. Dow Chemical Co.*, 2008).

However, it will be demonstrated that the concentration and health effects of dioxin contained in Agent Orange are sufficiently high to qualify it as a poison (2.a). Besides, it will be shown that the international prohibition to use poison also applied to chemical herbicides such as Agent Orange (2.b).

2.a. Agent Orange contains high concentration of dioxin, a poison that has toxic effects on human beings

Agent Orange is composed of 2, 4-D and 2,4,5-T, which was found to be contaminated with the manufacturing by-product 2,3,7,8-tetrachlorodibenzo-p-dioxin (“Dioxin TCDD”). Dioxin TCDD is one of the most toxic forms of dioxin ; 50 to 500 mg per kilos bodyweight constitutes a 50% lethal dose (Johansson, 2001). A study from the Yale University showed that reindeers died after having ingested food contaminated by TCDD (Id). Very low concentrations of dioxin may have very serious effects on the reproductive system and it is transmitted through conception and breast milk (Stellman, 2003; US National Academy of Science, 1994). Today victims of Agent Orange are third generation victims who are suffering similar health problems as their parents and grandparents who were directly exposed to the spraying of the herbicide (Fawthrop, 2004).

According to the New York judges, “A poison is a substance that through its chemical action kills, injures or impairs human or animal health. [Characterization as herbicide or poison, or as both] depends upon design, dose and degree” (*VAVA v. Dow Chemical Co.* 2008, at 152-153). It is estimated that the concentration of dioxin contained in Agent Orange was close to 13 parts per million (i.e. 13 mg/kg), with a total of 600 kilograms of pure dioxin sprayed during Operation Ranch Hand (Curtis, 1986). The maximum safe concentration of 2, 4, 5-T is 0, 1 mg per kg (Le Cao D. et al., 1990). In Vietnam, a pregnant woman could have been exposed to 600 times this safe concentration after a single normal spray mission of Agent Orange (Id). A study realized on one Agent Orange hot spot (a former US airbase in Danang (South Vietnam) which was massively sprayed) found dioxin levels 300 to 400 times higher than internationally accepted limits (Bouny, 2010). In this respect, the argument of the New York judges who concluded that Agent Orange could not be toxic since it was used domestically in the US is irrelevant. Firstly, it must be stressed that, while in the US, the rate of herbicide allowed was ½ kg per hectare, the average rate used in Vietnam was 33 kg per hectare (US chemical warfare policy, 1970). Secondly, the dioxin concentrations contained in Agent Orange used for military purpose were more than 10 times higher than the ones used in the US for weed control function (Mirer, 2008). Thirdly, the US government prohibited the use of the defoliant domestically as soon as the toxicity of Agent Orange on human health was publicly revealed (in 1969), while they continued the spraying operation in Vietnam until April 1970 (Id).

International epidemiological studies have further confirmed the link between exposure to Agent Orange and a series of diseases, including birth defects⁴ (such as encephalocele (a neural tube defect resulting in babies with two heads) or the Fraser Syndrome (a genetic disorder characterized by completely fused eyelids, webbed fingers and toes and genital malformations)), immune system deficiencies, skin diseases (such as chloracne) and cancers (Research Centre for Gender, Family and Environment in Development, 2006). In 1997, the WHO's International Agency for Research on Cancer qualified as carcinogenic the dioxin TCDD contained in Agent Orange. Even the US Environmental Protection Agency established a list of diseases associated with exposure to the herbicide, including immune system deficiencies, skin diseases and cancers (Environmental Protection Agency, 2001). In October 1980, a similar list of diseases related to Agent Orange was issued by a National Commission established by the Vietnamese government in order to investigate the effects of chemicals used in the Vietnam War (the “10–80 Commission”).

Based on these numerous scientific evidences, it can be asserted that Agent Orange, whose high concentrations of dioxin caused serious health damages to millions of people, can be qualified as a poison. Nevertheless, the New York Courts determined that the toxicity of Agent Orange on human health was not sufficiently proved (*Agent Orange Product liability*, 2005, at 134-136; *VAVA v. Dow Chemical Co.* 2008). They discounted all scientific evidence furnished on the ground of insufficient large-scale epidemiological study of the Vietnamese population (*Id.*). It must however be stressed that the causal link between the toxicity of Agent Orange and a list of diseases associated with it was found sufficient to establish a \$180 million compensation settlement for the benefit of former US veterans exposed to the herbicide (*Agent Orange Product Liability Litigation*, 1980). According to it, the main chemical companies having manufactured and provided Agent Orange during Vietnam War agreed to compensate any US veterans suffering from diseases listed by the US National Academy of Science (more than 45% of the sum having to be paid by Monsanto alone) (*Id.*; Harrington, 2005). Though the New York judges justified the difference of treatment between the Vietnamese victims and US Veterans on ground that “[US] veterans’ protections are much greater than any the Vietnamese might possess” (*VAVA/Dioxin v. Dow Chemical Company*, 2005, at 111). They relied on the fact that US veterans enjoy generous administrative protections and that the compensation settlement was merely “a substantial term policy”, thereby not creating any binding judicial precedent. It must nevertheless be stressed that this compensation settlement was initiated by a legal action and received judicial

⁴ Testimonies and pictures of these birth defects can also be found at the War Remnants Museum in Ho Chi Minh City (Vietnam), as well as in multiple reports (see for instance: <https://www.news.com.au/world/asia/vietnams-horrific-legacy-the-children-of-agent-orange/news-story/c008ff36ee3e840b005405a55e21a3e1>).

approval. Indeed, it was the result of a class action introduced by former US veterans against the manufacturers of Agent Orange (*Agent Orange Product Liability Litigation*, 1980). After an initial ruling in 1980, Federal Judge Jack B. Weinstein himself, the same who dismissed the Vietnamese class-action later in 2005, is the one who recommended to end the 1980 case in settlement. In this view, he drafted a settlement statement just before the trial date settled to examine the causation between Agent Orange and diseases of the veterans (Abboud, 2017). Considering that the compensation settlement (signed in May 1984) allowed the manufacturers of Agent Orange to deny any wrongdoing or liability, many US veterans who participated in the class-action contested this settlement, which was appealed and subject to Court approval (*Agent Orange Product Liability Litigation*, 1980, 506). Again it is the same judge, Jack B. Weinstein, who approved the compensation settlement in 1984, claiming that it was "fair and just" (Chambers, Whiteclay, Anderson, Fred, 1999). In accordance with this settlement, a compensation fund was set up in 1984. When it ran out of money, the Agent Orange Act was issued in 1991 in order to provide compensation to US veterans based on recognition of a causal link between exposure to Agent Orange and the development of a series of diseases (*Agent Orange Act*, 1991). According to this Act, the US Department of Veteran Affairs has the authority to provide medical care and compensation to US veterans and children of veterans who were exposed to the herbicide (Id ; U.S. Department of Veteran Affairs, 2014). The Agent Orange Act also required the National Academy of Sciences to periodically review (until 2015) the presumptive list of diseases associated to exposure to Agent Orange and to provide it to the US Department of Veteran Affairs (*Agent Orange Act*, 1991; National Academy of Science, 1994). Through this process, this list has grown since 1991 and by 2014, the US Department of Veteran Affairs had recognized fourteen different types of diseases including leukemia, Parkinson's disease, respiratory cancers, diabetes, etc.) and nineteen birth defects (Id; Birth Defects in Children of Women Vietnam Veterans (Id ; U.S. Department of Veteran Affairs, 2014).

It can also be noted that, in the context of the 2012 US undertaking to clean up Agent Orange contamination in Danang, the US government acknowledged that the defoliant had disastrous consequences on millions of Vietnamese, including 150 000 children born with severe birth defects (Anon., 2012). According to some Members of US Congress, the US should help Vietnamese people to address the health and environmental problem caused by Operation Ranch Hand⁵.

⁵ For instance, Senator John McCain declared in April 2008 : "I think we need to continue to address the issue both in the compensation for the victims as well as cleanup of areas which are clearly contaminated." (Agent Orange Victims Needs More Support : John McCain, *Thanh Nien News*, 8 April 2008).

Finally, it must be stressed that the causal link between exposure to Agent Orange and the development of a series of diseases was also recognized by foreign authorities. This is the case in Canada where a compensation settlement was arranged by the Canadian Government for the soldiers of the Canadian military base Gagetown (New Brunswick) which was exposed to Agent Orange during herbicide tests by the US in 1966 and 1967 (Federal Government of Canada, 2009). According to this settlement, the Canadian Government offered a \$20,000 compensation for health damages caused by exposure to Agent Orange. Australian and New Zealand former veterans also received compensation under out-of-court settlements reached on the condition that no liability was recognized (Eide, 2010).

At judicial level, the South Korean Appeals Court ordered Dow Chemical and Monsanto to pay a \$62 million compensation to thousands of Korean veterans and their families suffering from health damages caused by exposure to Agent Orange (*Kim Jong-Dae et al. v. Monsanto and Dow chemical*, 2006). In that ruling of January 2006, the South Korean Court declared that the chemical companies failed in their duty to ensure safety considering that the defoliant they manufactured contained higher levels of dioxins than standard. It also recognized that there was a causal relationship between Agent Orange and 11 diseases (including cancers and severe birth defects) (Id, at 123-124).

Based on the above, it can be concluded that the New York Courts position that toxicity of Agent Orange on human health is not sufficiently proved cannot be accepted. On the contrary, it has been shown that the concentration and health effects of dioxin contained in Agent Orange are sufficiently toxic to qualify it as a poison.

2.b. The wartime use of poison (including herbicides) violates international law

Since the beginning of 20th century, the use of poison or poisonous weapons is firmly condemned under international law. Article 23(a) of the Annex to the 1907 Hague Convention IV Respecting the Laws and Customs of War on Land (Hague Convention) forbids employing *poison or poisoned weapons*. The US ratified this convention in 1908. However, the New York Courts considered that it did not apply to poisonous gases such as Agent Orange as they did not exist at the time of the drafting of the convention (*Agent Orange Product liability*, 2005, at 134-136). Though it must be noted that, according to the International Court of Justice, treaties that affect human rights cannot be violated on the basis that “by the standards of the time it was concluded”, the action at issue did not constitute a violation of the treaty (*Gabcikovo-Nagymaros (Hungary v. Slovakia)* 1997 ICJ). Besides, Article 31§1

of the 1969 Vienna Convention on the Law of Treaty, representing international customary law (Villiger, 1985), prescribes the principle of good faith. Accordingly, Article 23(a) of The Hague Convention should be interpreted in consideration of the evolution in states' practice, in accordance with its object and purpose, which is the ban on substances that are toxic to health. In view of the above, modern biotechnology developments, including new kinds of poisons such as Agent Orange, should be taken into account and covered by the prohibition provided by the Hague Convention.

More generally, the New York judges argued that the prohibition to use poison or poisonous weapons does not encompass the use of herbicides that are designed to have toxic effects on plants and not on human beings, at 134-136). However, both domestic and international general opinion seem to indicate that the prohibition to use poison applies to any type of poison. At international level, Article 8(a) of the 1880 Manual on The Laws of War on Land provides that "It is forbidden ... to make use of poison, in any form whatever". At national level, the US Military manual itself specified in 1863 that "The use of poison in any manner, [...] is wholly excluded from modern warfare » (US Military manual, cited in Verwey 1977, p.57). In 1945, the US Judge Advocate General Cramer wrote a legal opinion regarding a military proposal to use herbicides against the Japanese during World War II. He concluded that, because of their toxic effects on plants, the use of herbicides would violate the ban on poisons provided by Article 23(a) of The Hague Convention IV (Mirer, 2008).

The New-York judges also invoked the controversial character of the subjective element of Article 23(a) (*Agent Orange Product liability* 2005). There is indeed a controversy as to whether Article 23(a) prohibits the use of poisons as soon as they have collateral harmful consequences for humans, or if the intentional element to injure humans is required (Goldblat, 1970). In this regard, the International Court of Justice ("ICJ") noted that "different interpretations exist" as to what the term "poison or poisoned weapons" used in the Hague Convention means (Advisory Opinion No. 95 1996, at 248). According to the New-York Courts, the prohibition to use poison only applies to poisons that are designed for or targeting human populations necessarily and not to chemical agents that cause harm to humans only secondarily. Based on this narrow interpretation, they considered that Agents Orange did not constitute a poison prohibited under international law, considering that it was intended for defoliation and for destruction of crops only (*Agent Orange Product liability*, 2005). It must however be stressed that US jurisprudence also contains cases where it was established that chemical agents are prohibited whether they poison directly *or* indirectly, for instance by ingestion of contaminated vegetables or plants (Mirer, 2008). At international level, the Commission on Responsibility for

crimes committed during First World War established that indirect poisoning such as “poisoning of wells” constitutes a violation of the laws and customs of war which should be subject to criminal prosecution (Commission on the Responsibility of the Authors of the War and on Enforcement of Penalties, 1919). It is thus asserted that compelling arguments exist to conclude that, even if the toxic effects of Agent Orange on human health were not primarily and officially intended, Agent Orange can be considered as a poison whose wartime use violated international law.

However, US jurisprudence requires that any claim introduced under the Alien Tort Statute (ATS) should rest on a norm of international character universally accepted and defined with a sufficient degree of specificity and certainty (*Sosa v. Alvarez-Machain* 2004, at 62). Considering the controversial character of article 23(a) of The Hague Convention IV, the New York Courts considered that article 23(a) was too indeterminate and imprecise to set forth a sufficiently definite and universal prohibition on the military use of Agent Orange⁶. Therefore, they concluded that the use of the herbicide was not outlawed with the degree of specificity required under the ATS jurisprudence and declared that the Vietnamese action was not receivable (*Agent Orange Product liability*, 2005; *VAVA v. Dow Chemical Co.* 2008). Nevertheless, it has been shown that Agent Orange contains high concentration of dioxin, a poison whose severe and longstanding toxic effects on plants and human beings have been massively proved. Based on these effects, it will be shown that the spraying operation violated a series of general principles of International Humanitarian Law, regardless of the qualification of Agent Orange as a toxic agent or poison.

3. The compliance of the spraying operation with International Humanitarian Law

The Operation Ranch Hand extended to more than 80% of the South-Vietnamese environment and approximately 4000 civilian villages were sprayed, causing massive damages to Vietnamese civilians’ health and environment (Quy, 1997, p. 7). Moreover, the crop destruction program had the primary effect of starving the civilian population, which was consequently forced to move to camps organized by the US Army (Bouny, 2010).

Considering that the spraying operation of Agent Orange was part of a warfare strategy in an international conflict, it was subject to the general principles of International Humanitarian Law. In

⁶ In this regard, it should be noted that in *Sosa v. Alvarez-Machain*, the US Supreme Court already found that the imprecise scope of the Hague Convention IV’s prohibition on the use of “poison or poisoned weapons” does not provide a sufficiently definite prohibition on military use of herbicides that could be enforced under the ATS.

view of the above, we will examine compliance of the spraying operation with the following principles: Principle of distinction and Principle of precaution (a); Principle of necessity and Principle of proportionality (b); Protection of objects indispensable to the survival of the civilian population, protection of the environment, prohibition of forced transfer and Crime against Humanity (c).

3.a. Principle of distinction/prohibition of indiscriminate attacks and principle of precaution

Despite the existence of several studies warning against the toxic dangers of Agent Orange, the US government decided to proceed to the massive aerial spraying of the defoliant anyway. Operation Ranch Hand resulted in the aerial spraying of millions of hectares of Vietnamese territory, thereby destroying civilians crops and environment but also contaminating thousands of civilian villages (Quy, 1997). Due to its toxic effects on human health and vegetation, millions of Vietnamese civilians still suffer from the spraying operation.

At the time of the Vietnam War, the principle of distinction was binding on the US, as part of international customary law (Henckaert & Doswald-Beck, 2005). This principle stems from the core principle of protection of civilian population, which requires distinguishing between military objectives and civilians or civilian objects. Only the former can be the object of attacks, implying that indiscriminate weapons or attacks are prohibited (Id; Articles 51 and 52 of Additional Protocol I to the Geneva Conventions, 1977).

According to the principle of precaution recognized at the time of the Vietnam War, those who plan or conduct an attack “must take constant care to spare the civilian population” (Article 57(1) of Additional Protocol I to the Geneva Conventions, 1977). Accordingly, they must choose the means and methods of warfare in view of avoiding and minimizing incidental damage to civilians or civilian objects. If these damages are expected or happen to be excessive in relation to the military advantage, they must refrain from launching the attack or cancel it.

Despite the lack of large-scale epidemiological studies regarding the toxicity of Agent Orange before the launch of Operation Ranch Hand, several toxicological studies existed on the toxic dangers of 2-4-5-T contained in the defoliant. According to the principle of precaution, the US government should have read these and undertaken more serious epidemiological study of its own before launching the attack. In any event, the principle of precaution requires that it should have cancelled the spraying

operation as soon the “Bionetics Study”, a study done by Bionetics Research Laboratories on the health effects of Agent Orange, uncovered evidence of toxicity of the herbicide on animals. Launched in 1965 by the US government, the Food and Drug Administration publicly released the report of the study in 1969. According to it, dioxin contained in Agent Orange is the cause of deaths and abnormal births in laboratory animals (Hatfield Consultants Ltd, 1999). Upon the public release of the study, the government prohibited the use of the defoliant in the US. However, it was not before 1971 that the Department of Defense suspended its military use in Vietnam (Mirer, 2008).

Besides, the principle of precaution implies that the US government should have proceeded to a thorough assessment of the environmental consequences of Agent Orange and refrained from resorting to the herbicide based on the evidence that it would have excessive disastrous consequences for Vietnamese civilians environment (Hatfield Consultants Ltd, 1999).

While the long-lasting toxic effects of the herbicide contaminated Vietnamese soil and forests for decades (Palmer, 2007), the US could have opted for other options offering more focused, limited and targeted solution to clear the communication perimeters. Especially in 1965, the Army established that using a giant bulldozer was far more efficient to deprive ambushers of their natural cover while it would not have had the widespread longstanding environmental and health effects of the spraying operation (Id). But instead of opting for this solution, the US decided to continue resorting to massive aerial spraying of Agent Orange, which, by nature, does not permit to target military objectives with sufficient precaution and precision to avoid, or at least minimize, damages on civilians or civilian objects. Military archives themselves reveal that accidents were frequent, with more than 4000 civilian villages accidentally sprayed (RAND Corporation Memo, 1967). In this regard, it is relevant that the US Air Forces Manual of 1966 prohibited chemical weapons because “their nature means that [...] they can hit both combatants and civilians, creating necessarily the risk of an excessive number of civilian casualties” (US Department of the Army, 1966). Besides, the spraying operation should have been aborted as soon as it became clear that it was primarily affecting the civilian population who suffered from starvation caused by the operation.

Considering the massive and severe effects of Operation Ranch Hand on Vietnamese civilians health and environment, it can be concluded that it was not strictly limited to military objectives and that the US did not take the necessary precautions in the planning and conduct of the spraying operation.

Therefore, it is asserted that the spraying operation may be qualified as an indiscriminate attack, violating both the principle of distinction and the principle of precaution.

3.b. Principle of necessity and Principle of proportionality

The official aim of Operation Ranch Hand was twofold: to starve the Vietcong (by destroying crops) and to destroy its natural cover (by defoliating vegetation on strategic zones). However, according to military records, the spraying operation was having minimal effects on the enemy. A series of memoranda uncovered in the National Archives, now declassified, indicate that defoliation itself was successful but had little effect on military goals (Hatfield Consultants Ltd, 1999). On the contrary, it had severe effects on civilian population and environment. While the crop destruction program had not the expected effects on the Vietcong, millions of civilians were affected by starvation. Besides, the total surface sprayed by Agent Orange was far greater than the one used for natural cover and it will take several decades and lots of investment to clean up the dioxin contaminated soil. In this respect, a memorandum written on October 3, 1968 by the chief of the Chemical Operations division of Military Assistance Command, Vietnam ("MACV"), titled "Advantages and Disadvantages of the Use of Herbicides in Viet Nam", provided that: "The effect of defoliation on the enemy, in itself, is of little military value. Its military potential is realized only when it is channeled into selected targets and combined with combat power ... The herbicide program carries with it the potential for causing serious adverse impacts in the economic, social, psychological fields [...] Semi-deciduous forests [...] have been severely affected. The regeneration of these forests could be seriously retarded by repeated applications of herbicide."

The principles of military necessity and proportionality were well-accepted norms of international law at the time of the Vietnam War. The principle of necessity requires that attacks must be directed strictly towards military objectives, which must make "an effective contribution to military action and whose [...] destruction [...] offers a definite military advantage" (Henckaert & Doswald-Beck, 2005). It also implies that one cannot launch an "attack which may be expected to cause unnecessary suffering on human beings or property" (Article 23(g) of the Hague Convention IV). According to the principle of proportionality, it is prohibited to launch an attack that may be expected to cause "incidental damage to civilians or civilian objects, which would be excessive in relation to the concrete and direct military advantage anticipated" (Art. 51(5b) of Additional Protocol I to the Geneva Conventions, 1977).

Operation Ranch Hand was firstly aimed at preventing ambush and destroying the natural cover of the North-Vietnamese troops. Even though forests may represent a legitimate military objective when they are used to cover combatants in strategic zones (Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons, 1980), it is very doubtful that the spraying of 2.6 million of hectares was necessary to reach this goal. It was indeed established that the operation extended to numerous zones that were not located near military perimeters or lines of communication, including to civilian zones. Besides, a US Congressional study group observed that the operation did not prevent enemy troops to be covered and that, in case of ambush, defoliation increased the exposure of the US troops as they sought shelter from attack (Verwey, 1977, p. 87). From that moment, it became doubtful that vegetation defoliation still constituted a legitimate military objective. In addition, because of contamination by dioxin, the damages caused to Vietnamese civilians' environment will require many decades of industrious labour and investment to recover. In this respect, it is relevant to note that the clean-up program undertaken by the US to detoxify one Agent Orange hot spot (a former US airbase in Danang) required a \$43 million investment (Anon. 2012). This illustrates the huge investment and work required to detoxify only one hot spot, while many other zones remain highly contaminated (Id). Moreover, it has been shown that Agent Orange caused widespread and severe health damages to millions of Vietnamese civilians. It can thus be concluded that these massive and longstanding effects on civilians' health and environment were certainly not necessary for the military aim pursued and were clearly disproportionate compared to the expected military advantage.

Regarding the crop destruction program, aimed at starving the Vietcong, the principle of necessity permits dual-use crop destruction if it does not lead to disproportionate damages on civilians or civilian objects and if it does not cause unnecessary suffering. In this respect, the US military department itself acknowledged that starvation of the Vietcong would have required destroying more than 60% of the rural economy of Vietnam (RAND Corporation Memo, 1967). Moreover, it realized quickly that the spraying operation did not have the expected effects on the communist rebels (Id). By contrast, more than six million civilians had to move into US organized camps because of starvation. Therefore, it is difficult to argue that Vietnamese crop constituted a legitimate military objective necessary to offer a definite military advantage. Moreover, the massive number of civilians suffering from starvation as a result of the crop destruction program clearly constitutes a disproportionate and unnecessary damage to civilian population compared to the controversial military advantage. In this respect, it is relevant to note that the US Secretary of State Dean Rusk had himself advised President Kennedy that the use

of defoliants for any other purposes than clearing lines of communication would be illegal (Mirer, 2008).

It can thus be concluded that the spraying operation caused excessive “unnecessary sufferings on human beings or property” compared to minimal military effects on the enemy, in violation of the principles of necessity and proportionality. However, the New York Courts rejected this argument, on the ground that the purpose of Operation Ranch Hand was to protect US interests, and not to injure human populations. They acted on the principle that only weapons that are “intended to cause unnecessary suffering” are prohibited (*VAVA v Dow Chemical et al.*, 2005, at 89). Such an element of intentionality is nevertheless not required by the principle of necessity or proportionality as accepted under international customary law (Henckaert & Dolswald, 2005). Moreover, it is very doubtful that Operation Ranch Hand was necessary to protect US interests. Indeed, it has been shown that the expected military advantage of starving the Vietcong and destroying its natural cover was far from being guaranteed and happened to be way smaller than the damages caused to Vietnamese civilians.

3.c. Protection of objects indispensable to the survival of the civilian population, Protection of the environment, Prohibition of forced transfer and Crime against Humanity

The damages caused by Agent Orange to the South-Vietnam environment are considerable. Mangroves and forests were completely destroyed and will take several decades to recover (Westing et al., 2002). Approximately 20% of the total Vietnamese crop land was affected by the herbicide, destroying more than 20% of the production (Westing, 1970). In total, the crop destruction program resulted in the destruction of more than 300 000 tons of food, causing severe starvation among the Vietnamese civilian population (Bouny, 2010). Besides, the dioxin contained in the defoliant contaminated drinking water installations and fish, which represent a major part of Vietnamese diets (Dwernychuk et al., 2002). Over one million people were contaminated by food, and very high levels of dioxin continue to be recorded in agricultural soil, blood and breast milk (Id). In addition, because of starvation, more than six million of civilians were forced to move into “strategic hamlets” organized by the US troops (Bouny, 2010).

According to the principle of protection of the environment, it is prohibited to use means or methods

of warfare (including herbicides⁷) that have “widespread long-lasting or severe effects on the environment”⁸. Operation Ranch Hand clearly caused longstanding and severe damages to Vietnamese environment. Nevertheless, at the time of Vietnam War, the US had not ratified any of the conventions providing this rule, which had not yet acquired the status of international customary law (Lazarus, 2004). Consequently, even though the spraying operation does not comply with the principle of protection of the environment, this principle was not binding on the US at the time of the operation.

However, it was already prohibited to destroy objects indispensable to the survival of the civilian population, such as food-stuffs, crops or drinking water installations (Henckaert & Dolswald, 2005). By destroying more than 20% of the food production and contaminating drinking water, the spraying operation did not comply with the prohibition to destroy objects indispensable to the survival of civilian population. In such perspective, it might also be argued that the US used starvation as a method of warfare, which is strongly condemned by international customary law (Id).

In addition, the displacement of millions of civilians - who had to move into US organized camps because of the crop destruction operation (Bouny, 2010) - could be qualified as a forced displacement of population. While forced displacement of civilians was firmly condemned by international customary law at the time of Vietnam War (Werle, 2009), the massive character of the Vietnamese civilians’ displacements may also question the existence of a Crime against Humanity.

A Crime against Humanity is defined as inhumane acts _ such as deportation or forcible transfer _ committed as part of a widespread or systematic attack against any civilian population (Article 5 ICTY Statute; Article 3 ICTR Statute ; Article 7 Rome Statute). The attack must be widespread *or* systematic, with an alternative choice between these two criteria (*Prosecutor v. Omar Hassan Al Bashir* (2009) ICC, at 81; *Prosecutor v. Milomir Stakic* (2003) ICTY, at 315). The widespread criterion refers to a quantitative requirement, which can be achieved either by the cumulative effect of a series of inhumane acts, either by the singular effect of a single act of great magnitude (*Prosecutor v. Milomir Stakic* 2003, at 233-224). The forced displacement of more than six million Vietnamese civilians undeniably possesses that massive character.

⁷ See for instance: Article II of the 1976 Convention on the Prohibition of Military Use of Environmental Modification Techniques (“ENMOD Convention »); Resolution adopted by the UN General Assembly in 1992 following the Second Review Conference of the Parties to the ENMOD Convention, 81st plenary meeting, A/RES/47/52, 9 December 1992.

⁸ Article I (1) of the ENMOD Convention, 1976 and Articles 35(3) and 75(1) of Additional Protocol I to ENMOD Convention, 1977.

Concerning the notion of *civilian population*, it is widely understood that the presence of some military does not deprive the population from protection (*Prosecutor v. Jean-Pierre Bemba Gombo* (2008) ICC, at 81; *Prosecutor v. Kunarac* (2001) ICTY, at 425). Nevertheless, the civilian population must be the main target of the attack, and not incidentally be the victim (*Id*, at 430). Even though the crop destruction program was officially aimed at starving North Vietnamese troops, the US could quickly realize that the spraying operation did not have the expected effects on the communist rebels, while more than six million civilians had to move because of starvation (Bouny, 2005; RAND Corporation Memo, 1967). Civilian victimization seems thus hardly incidental and it can easily be argued that it became the main consequence of the spraying operation. However, in order to qualify it as the main target of the operation, we should also analyse the subjective element of Crime against Humanity, which requires that the perpetrator of the attack intended to produce the prohibited result. Even if it might be difficult to prove that the spraying operation was aimed at displacing civilians, it is admitted that the subjective element is fulfilled when the author of the attack knew or had to be aware of the risks the attack poses to civilian victims and that his actions took place within the context of a widespread attack against civilians (Triffterer, 2008). Besides, it is recognized that this knowledge can be inferred from the circumstances of the case showing that the author could not but know (*Id*). Very soon after the launch of Operation Ranch Hand, the U.S. forces could observe waves of Vietnamese civilians taking refuge into their camps because of the starvation caused by the spraying operation (Verwey, 1977). Based on these circumstances, it can be asserted that the US government knew or had to know that the spraying operation mainly affected civilians, forcing them to move into their camps. It is possible to deduce from this detailed knowledge that the US government intended to encourage such a massive displacement, which facilitated US military operations. For all these reasons, strong arguments exist to qualify the crop destruction program as a Crime against Humanity.

4. Conclusion

It can be concluded that the wartime use of Agent Orange violated several core norms of international law that were binding on the US at the time of Vietnam war. Firstly, because of its toxic effects on plants, Agent Orange can be qualified as a toxic or chemical weapon prohibited by international law. Secondly, the herbicide contained high concentration of dioxin, a poison that has severe and longstanding effects on human health. On this behalf, Agent Orange can be considered as a poison whose wartime use is firmly prohibited. Thirdly, it has been shown that the massive aerial spraying of Agent Orange by the US violated numerous general principles of International Humanitarian Law :

principles of distinction, of precaution, of proportionality, of necessity, of protection of the civilian population and of objects indispensable to their survival. Moreover, the crop destruction program had the primary effect of starving the civilian population, forcing massive displacement of Vietnamese civilians, which is firmly prohibited by international customary law and may constitute a Crime against Humanity.

Based on the above, it can be concluded that the position of the New York Courts who dismissed the Vietnamese class action on the basis that the wartime use of Agent Orange did not violate any international norm must be rejected. This paper will further assess whether the multinationals Monsanto and Dow Chemical, which manufactured and provided Agent Orange to the US during the Vietnam War, may be held liable for these international crimes.

Section B : The liability of Monsanto and Dow Chemical as manufacturers and suppliers of Agent Orange to the U.S. during Vietnam War

During Vietnam War, the multinationals Dow Chemical (“Dow”) and Monsanto became the main manufacturers and providers of Agent Orange to the US government (Robin, 2008). Besides, the US military archives reveal that the managers of the multinationals closely collaborated with the Pentagon in order to develop the military use of the herbicide (Id). It must also be stressed that, unlike the US government, the companies’ officers were totally aware of its toxic effect on health. Indeed, following a 1949 accident in one of Monsanto company specialized in the manufacture of the defoliant, an internal medical report on their employees identified a list of diseases related to the herbicide (Suskind, 1950). Likewise, internal corporate records report Dow employees began suffering from skin disease after a similar industrial accident in 1964 (Doyle, 2004, p.63-64). Besides, their own laboratory testing of rabbits revealed several diseases linked to the herbicide (Anon, 1965, p. 5). In this regard, messages sent by the companies’ officers were found, revealing that they knew about the toxic effects of Agent Orange before manufacturing it⁹. Nonetheless, the chemical companies, which sought to protect a lucrative government contract, never reported that information to the US government. On the contrary, Dow CEOs objected to the 1965 Bionetics study showing that 2,4,5,-T was teratogenic, arguing that this governmental study was based on a dirty sample (Doyle, 2004).

⁹ These messages were found during the class action introduced by US former veterans against these companies (Abboud, 2017).

This paper will thus examine whether these chemical companies and their officers can be held liable for having manufactured and provided Agent Orange during Vietnam War. After assessing whether the multinationals can incur civil liability (1), we will examine the international criminal liability of their managers (2). Finally, we will determine whether Monsanto and Dow, as corporations, could be held criminally liable under international law (3).

1. Monsanto and Dow Chemical can incur civil liability for the spraying operation

It is recognized that legal entities can incur civil liability, implying an obligation to repair and compensate (Joseph, 2004; Kamminga, 2000). We will therefore examine if and how Vietnamese victims of Agent Orange could incur the civil liability of the multinationals that are located in the US. Considering that the spraying operation of Agent Orange took place in Vietnam, it must first be determined whether US Courts have jurisdiction to hear the case (a). We will further examine civil liability requirements developed under ATS jurisprudence (b). Based on it, we will determine whether the participation of the multinationals in Operation Ranch Hand was sufficient to incur their civil liability (c).

1.a. US jurisdiction for torts committed abroad

When damages that occurred outside the *forum* State are at stake, it must be determined whether this *forum* state is competent to judge a foreigner's action. In the US, the Commerce Clause (United States Constitution, Article I, Section 8, Clause 3) prohibits states from regulating conduct taking place outside their borders. Interpreting the Due Process¹⁰ and Commerce Clauses, the US Supreme Court has repeatedly underscored that the Constitution strictly limits the applicability of a state's damage regime to "vindicating the legitimate interests of the *forum* state" (*State Farm Mut. Auto. Ins. Co. v. Campbell*, 2003). In *BMW of North America Inc. v. Gore*, the Court held that the constitutional principles prohibiting states from seeking to regulate conduct taking place outside their borders apply with particular force to damage awards. In *White v. Ford Motor Company*, the Ninth Circuit Court emphasized that "a state cannot impose damages for conduct that affected other states but had no impact on the plaintiff's state or its residents (*White v. Ford Motor Co* 2002, at 125)." According to the Supreme Court in *Edgar v. Mite Corp*, a "State has no legitimate interest in protecting nonresident[s] (*Edgar v. Mite Corp*, at 644)."

¹⁰ Fifth and Fourteenth Amendments to the United States Constitution

It can thus be concluded that, in principle, the US Constitution does not give US states the power to impose damages for conducts that occurred outside their borders and that had no impact on the state or its residents. By exception to this rule, the Alien Tort Statute (“ATS”) grants US District Courts jurisdiction over any civil action by an alien claiming damages for a tort committed in violation of international law or a treaty of the US, even if it occurred outside US territory.

Apart from a few dissident decisions¹¹, US jurisprudence shows that corporations can be held liable for a violation of international law in a civil action brought under the ATS¹². The only connecting factor required to establish US Courts’ jurisdiction under the ATS is the presence of the defendant on the US soil when the suit is brought. Plaintiffs must also demonstrate that the defendant maintains “minimum contacts” with the forum state (*International Shoe v Washington*, 1945, at 135). Where corporations are concerned, this criterion is usually fulfilled if the company’s headquarters are located in the state of the *forum* court, or if the company has its head office in another state but is conducting ongoing and systematic business in the *forum* state (*Wiwa v. Royal Dutch Petroleum Co.*, 2009). Considering that Monsanto and Dow Chemical conduct most of their activities and have their headquarters in the US, the civil action introduced before the US Courts by the Vietnamese victims of Agent Orange was found receivable.

It must nevertheless be stressed that the doctrine of *forum non conveniens* may constitute another obstacle to US Courts jurisdiction under the ATS, which Monsanto and Dow invoked against the action of the Vietnamese victims (*Agent orange product liability litigation*, 2005, par. 145). According to this doctrine, cases should be heard in the most appropriate venue, which usually is the jurisdiction in which the tort occurred. However, US courts must still consider whether they are best placed to hear the case, or whether a foreign court seems more appropriate, given the circumstances of the case (Fédération Internationale des Droits de l’homme, 2010, p. 206). Irrespective of the location of the tort, US Courts have generally recognized that foreign courts in developing countries were defective or incomplete and did not provide optimal solution for the legal pursuit of multinationals (Id). In accordance with such jurisprudence, the New-York Courts concluded that Vietnamese jurisdictions

¹¹See *Kiobel v. Royal Dutch Petroleum* 2010, at 123, finding that “the concept of corporate liability [...] has not achieved universal recognition or acceptance” for the ATS to be applicable to corporations.

¹² See for instance *Kadic v. Karadzic* 1995: the reach of international law is not limited to state actors; *Wiwa v. Royal Dutch Petroleum Co.* 2002: private corporations can be held liable for “joint action” with state actors ; *Iwanowa v. Ford Motor Co* 1999: No logical reason exists for allowing private individuals and corporations to escape liability for universally condemned violations of international law merely because they were not acting under color of law.

were not the most appropriate to hear the *Agent orange product liability* litigation, even if the tort occurred in Vietnam (*Agent orange product liability litigation*, 2005, par. 145).

From the Vietnamese victims' perspective, acting before Vietnamese Courts to obtain judicial compensation from the companies was not the best option considering that the recognition of the Vietnamese judgment would have depended on the US State where it should have been executed. Indeed, the *Uniform Foreign Money Judgments Recognition Act* (1986, title 10), which allows US court to enforce a foreign judgment, only applies to recovery of a sum of money actions. Regarding civil damages, the US did not ratify the Hague Convention on Foreign Judgments in Civil and Commercial Matters, which provides the recognition of foreign judgments in civil and commercial matters. Neither did they sign an exequatur agreement with Vietnam. Therefore, it is unlikely that a Vietnamese judgment would receive recognition in the US, where the companies are located. For these reasons, it seems that the ATS provided the most appropriate option for the Vietnamese victims to get compensation from Dow and Monsanto.

1.b. Civil liability requirements under ATS jurisprudence

Irrespective of the case analysed, we will first examine the criteria and conditions required to incur civil liability of corporations under ATS jurisprudence and international standards. First of all, the ATS application requires the violation of a "well-accepted and precisely defined norm of international law" (*Sosa v. Alvarez-Machain*, 2004, at 62). Once such violation is established, it must still be determined how corporations may incur their liability for these offences under ATS criteria.

ATS jurisprudence includes a series of cases where companies were condemned not for having directly violated international law, but rather for having provided the principal offender with equipment, logistics, financing, or for having incited the use of forced labour, torture or other abuses (*Id* ; *Bowoto v. Chevron Texaco* 2004 ; *Doe v Unocal* 2002 ; *Presbyterian Church of Sudan v. Talisman Energy* 2003). In such cases, the manufacture or supplying of products used in the perpetration of the crime was found sufficient to incur the aiding and abetting liability of the participating companies. For instance, a French bank was convicted of complicity for having helped and assisted the Nazi regime by plundering Jewish assets under the Vichy regime (*Bodner v. Banque Paribas* 2000)¹³. Similarly,

¹³In this case, the plaintiffs claimed damages for the unlawful seizure and retention of their looted assets and the unjust enrichment of the bank.

in *Presbyterian Church of Sudan v. Talisman Energy* (2003) and in *Bowoto v. Chevron Texaco* (2004), oil companies were accused of having aided and abetted war crimes and other gross human rights violations.

According to US courts, the objective element (*actus rea*) of aiding and abetting liability under the ATS consists of practical assistance, encouragement, or moral support which has a substantial effect on the perpetration of the crime” (*Doe v Unocal* 2002, at 10).

Even though the subjective element (*mens rea*) is not required for civil liability under international and even US standards, such an “extra-requirement” is usually required for civil actions introduced under the ATS, which is more perceived as a specific advantage offered to foreigners rather than a right that those would automatically possess under US law. In cases where civil actions were introduced against companies, US Courts found that the lack of physical state of mind was not an obstacle to establish the *mens rea*. They considered that legal entities act through individuals who are “acting as the company and [their] mind which directs [their] acts is the mind of the company” (*Tesco Supermarket v Natras*, 1971). According to that jurisprudence, establishing the state of mind of a company entity should be done with reference to the state of mind of the persons associated with the company.

If the ATS jurisprudence clearly recognizes that legal entities can meet the *mens rea* criteria, what this latter cover is not clearly established and depends on the case. For instance, in *Presbyterian Church of Sudan v. Talisman Energy* (2003), an oil company had provided money, airfields and other infrastructures to the Sudanese Government, despite the awareness that those would be used for attacks on civilians. The US Court determined that the *mens rea* required for aiding and abetting liability was the one of Article 25(3)(c) of the ICC Statute, requiring to show that the defendant acted with the purpose of facilitating the crime (*intention standard*) (Id, at 320-324). The Court also held that there was no international law consensus recognizing the *Pinkerton* doctrine, under which conspirators may be liable for reasonably foreseeable acts of co-conspirators that they did not intend (Id.; *Pinkerton v. United States*, 1946). Accordingly, it concluded that this doctrine does not apply in ATS cases and that, despite Talisman’s clear *knowledge* of the effect of its assistance, these facts were insufficient because they did not “support[...] an inference that Talisman acted with the ‘purpose’ to advance the Government’s human rights abuses” (*Presbyterian Church of Sudan v. Talisman Energy* 2003, at 260, 263). By contrast, in *Doe v. Unocal*, the US Court for the ninth circuit determined that the *mens rea* required for aiding and abetting liability is “the knowledge that these acts assist the commission of the

offence” and that “the accomplice need not share the principal’s wrongful intent” (*Doe v. Unocal*, 2002, at 13-15). Accordingly, it found that the oil company could be held liable for having hired Burmese military to secure its pipeline, knowing that these soldiers were committing war crimes on civilians. Similarly, in *Mehinovic v. Vuckovic* (2002, at 1356), the Court referred to the ICTY jurisprudence (*Prosecutor v. Furundzija*, 1998) to establish that the *mens rea* required is the knowledge that the acts assist the commission of the offence without necessarily sharing the principal’s wrongful intent.

It will be shown that this second interpretation must be preferred under international customary law. According to the International Commission of Jurist (ICoJ), civil liability requires “intentional or *negligent* conduct that harms legally protected interests” (International Commission of Jurist, 2008., p. 10). In some jurisdictions, civil liability requires the actor to have acted with the intention and desire to cause harm and commit the crime (Tunc, 1983). Nevertheless, the ICoJ points out that the concepts of intention and negligence have particular meaning for corporations, which rarely wish to commit crimes. Therefore, the ICoJ states that in such instances, a court’s inquiry as to whether conduct was intentional or negligent must not focus on whether there was a desire to cause harm, but rather consider what a company knew about the likelihood that its conduct would cause harm (in the case of intention) or what it should have known (in the case of negligence) (International Commission of Jurist, 2008, p.13). According to this *knowledge standard* criteria, companies can incur civil liability when they acted with the knowledge of the likelihood that harm would result from it (*dolus eventualis*) or when they should have foreseen it.

In common law countries, the *mens rea* required varies with each tort and for the torts designed to protect interests such as life, bodily or human integrity (which is the case for the damages caused by agent orange), the knowledge of *dolus eventualis* is generally sufficient to incur civil liability (*Bradford Corporation v. Pickles*, 1895 ; *Daily Mirror Newspaper Ltd v. Gardner*, 1968 ; *Lloyds of London v. Scalera*, 2000). For instance, various jurisdictions have upheld civil liability of companies for health damages caused to their employees due to exposure to asbestos at work, on the basis that the companies’ managers knew or should have known the risk of such effects (*Wren v. Csr Ltd and Another*, 1997; *John Piper v. Cape*, 2006).

Based on this *knowledge standard*, it can be concluded that legal entities can incur civil liability for violations of international law committed abroad provided that their participation had a substantial

effect on the commission of the crime (*actus rea*) and that they were aware of such risk or when they should have foreseen it (*mens rea*).

1.c. Civil liability of Monsanto and Dow for the spraying operation

Irrespective of the New-York Courts' decisions in *re Agent orange product liability* litigation (2005, 2008), we will examine whether Dow and Monsanto can incur civil liability under ATS jurisprudence.

Regarding the existence of a violation of a “well-accepted and precisely defined norm of international law” (*Sosa v. Alvarez-Machain* 2004, at 62), it has been demonstrated that the spraying operation of Agent Orange violated several core norms of international character (section A).

It must still be determined whether the manufacture and supplying of Agent Orange by the companies constitute a sufficient participation to incur their civil liability for these violations of international law committed by the US. Considering the circumstances of the case, aiding and abetting liability seems the most appropriate. Therefore, we will examine whether both the *actus rea* and *mens rea* requirements for aiding and abetting liability under ATS jurisprudence are fulfilled.

Regarding the *actus rea*, Monsanto and Dow agreed to produce as much Agent Orange as they could, and to promptly deliver it to the US government. The amount of herbicide they delivered represents over 75% of the total quantity of defoliant provided by the 37 chemical companies involved (*Agent Orange Product Liability* 2005, at 345-347). In addition, the managers of these companies worked closely with the Pentagon to develop the military use of the defoliant (Robin, 2008). It is thus asserted that they provided practical assistance that had a substantial effect on the perpetration of the spraying crime, thereby meeting the *actus rea* requirements (*Doe v. Unocal* 2002, at 10).

Regarding the *mens rea*, Monsanto and Dow were totally aware that the defoliant they provided to the US would be used in Operation Ranch Hand (Robin, 2008). In addition, they knew that the defoliant had severe toxic effects on human health and plants (Abboud, 2017). Despite this information, they continued to massively produce Agent Orange and convinced the US government that it had no adverse effects on humans while advising him on the spraying operation (Doyle, 2004 ; Hatfield Consultants Ltd, 1999). Therefore, no doubt exist that the *mens rea* required for aiding and abetting liability is fulfilled based on the *knowledge standard* developed in *Unocal*. Even under the *intention standard*

developed in *Talisman*, strong arguments exist to state that Monsanto and Dow, who helped the Pentagon to elaborate the military use of the herbicide, intended to aid or abet the spraying crime.

Based on the above, it can be concluded that the chemical companies should incur civil liability as aiders or abettors of the different violations of international law arising from Operation Ranch Hand. Accordingly, Dow and Monsanto have the duty to compensate the numerous Vietnamese victims of the herbicide, such as they did for former US veterans exposed to Agent Orange.

In addition to civil liability of the companies, we will examine whether their CEOs could incur their individual criminal liability for the international crimes committed during Operation Ranch Hand.

2. International criminal liability of Monsanto and Dow Chemical CEOs

Even though States are the principal subjects of international law, it has been widely recognized that individuals may also be held criminally liable for a violation of international law, particularly when it concerns war crimes¹⁴. It is accepted that “any civilian who is an accessory to a war crime is himself also liable as a war criminal” (*Omar Al Bashir*, 2009, at 45), even if he was remote from the crime and did not commit directly and physically the crime. This way, the Nuremberg Military Courts convicted several businessmen and industrialists of war crime for having provided the principal perpetrators with necessary means to commit the crime while being aware of that criminal purpose (*Krupp case* 1948 ; *I.G. Farben Case* 1948 ; *Flick case* 1947). The Nuremberg judges acted on the principle that companies act through individuals, and that “one may not utilize the corporate structure to achieve immunity from criminal responsibility for illegal acts which he directs, counsels, aids, orders or abets” (Id). Relevant to the case analyzed, some industrialists were convicted for having supplied the Nazi regime with poison gas Zyklon B, while they knew it would be used for the extermination of Jewish in concentration camps (*Zyklon B Case* 1946, at 93-102).

In such perspective, we will examine whether the main managers/CEOs of Monsanto and Dow can incur international criminal liability for having manufactured and supplied Agent Orange to the US during Vietnam War. As International Criminal Law distinguishes between primary liability of the

¹⁴ Individual criminal liability for war crimes is provided by the ICC Statute, Article 25(1); the ICTY Statute, Article 7 and the ICTR Statute, Article 6.

principal, and all other forms of secondary (or accessory) liability, we will examine the liability of the multinationals CEOs under both criteria.

2.a. Monsanto and Dow CEOs can incur primary liability as co-perpetrators of the spraying crime

Primary liability includes direct perpetration, joint perpetration/co-perpetration and indirect perpetration. Monsanto and Dow CEOs did not use directly, nor indirectly, Agent Orange as a means of warfare. However, considering their important role in the spraying operation (advise in the planning of the operation, manufacture and furniture of the herbicide), it is legitimate to question their participation as principal co-perpetrators.

The notion of joint or co-perpetration is rooted in the idea that "when the sum of coordinated individual contributions of several people leads to the realization of all the objective elements of a crime, any person making a contribution may be charged with the contributions of the others and, therefore, be considered a principal offender of the crime as a whole" (*Prosecutor v. Thomas Lubanga Dyilo* 2007, at 365). "Co-perpetration" liability is provided by Article 25(3)(a) of the International Criminal Court (ICC) Statute, while the International Criminal Tribunal for former Yugoslavia (ICTY) and the International Criminal Tribunal for Rwanda (ICTR) developed the theory of "joint criminal enterprise" (JCE) liability. Both the concepts of co-perpetration and JCE require that the following conditions are met.

First, there must be an agreement or common plan between the co-authors (*Prosecutor v. Milomir Stakic* 2003, at 128-129). The plan does not need to be criminal and may be legal. In the latter case, its implementation must necessarily result in the commission of a crime (*Prosecutor v Thomas Lubanga Dyilo* 2007, at 361-367). In the case analyzed, Monsanto and Dow managers committed contractually to provide the US with as much Agent Orange as they could. Although this formal agreement did not directly concern the spraying operation, its realization automatically resulted in the use of the defoliant for the spraying crime. In addition, the companies' representatives collaborated closely with the US to develop the military use of the herbicide. Such collaboration may also be considered as a common plan for the spraying operation, which need not be explicit nor written (Triffterer, 2008). This first condition is thus satisfied.

Secondly, the ICC and ICTY/R jurisprudence require to demonstrate that the participation contributed to the realisation of the objective elements of the crime. According to the ICTY, such contribution need not be a *sine qua non* nor a substantial one and it seems to be sufficient if it is significant (*Prosecutor v. Kvočka* 2005, at 104). The ICC is more exigent by requiring control over the crime. Accordingly, the contribution must have been capable of frustrating the commission of the crime if it was withdrawn ; it must be coordinated and essential, not merely significant (*Prosecutor v. Germain Katanga and Mathieu Ngudjolo Chui* 2008, at 485). Nonetheless, the contribution need not be criminal *per se* and may include business activity such as the selling of war equipment (Id, at 526).

Monsanto and Dow delivered more than 75% of the total quantity of Agent Orange sprayed during Vietnam War. They were the only chemical companies capable of generating promptly such a big quantity of herbicide (Robin, 2008). In addition, they provided the necessary expertise to develop the military use of the herbicide (Id). It is thus highly probable that, had their managers refused to provide Agent Orange to the US, the spraying operation would have been compromised or at least seriously impaired. It can thus be asserted that Monsanto and Dow officers provided a contribution that was certainly significant and, very likely, essential to the realization of Operation Ranch Hand. The second condition is then met under the ICTY/R standard and, arguably, under the ICC jurisprudence.

Thirdly, co-perpetration/JCE liability requires that the *mens rea* is met. The *mens rea* required by article 30 of the ICC Statute is satisfied when the accused meant to engage in the relevant conduct and intended to bring about the objective elements of the crime or when, although he did not intended it, he was aware that it would occur in the ordinary course of events (*Prosecutor v. Germain Katanga and Mathieu Ngudjolo Chui* 2008, at 526-539). He must also be aware of his essential role and ability to frustrate the plan and the co-perpetrators must be “mutually aware that implementing their common plan will result in the realisation of the objective elements of the crime” (Id). The *mens rea* required for JCE liability under ICTY/R jurisprudence varies according to the type of JCE involved. The ICTY outlined three forms of JCE: JCE I (when an individual intentionally acts with others to commit international crimes pursuant to a common plan); JCE II (when individuals contribute to the maintenance or essential functions of a criminal institution or system); and JCE III (when crimes are the natural and foreseeable consequence of implementing the common plan) (*Prosecutor v. Dusko Tadic* 1995). Considering the circumstances of the case, it seems that JCE III is the most appropriate. While JCE III requires the intention to participate in the criminal activity or common purpose of the group (*Prosecutor v. Dusko Tadic* 1995, at 228), it also applies for crimes other than the one agreed in

the common plan, if the co-perpetrator was aware that these crimes were “a natural and foreseeable consequence of effecting the Common Purpose” and accepted such a result (*Staki* 2006, at 87). One can thus incur JCE III liability for criminal conducts he neither intended nor participated in (Badar, 2006).

Monsanto and Dow CEOs willfully agreed to become the main suppliers of Agent Orange to the US while they knew that, in the ordinary course of events, the herbicide would serve in the realization of Operation Ranch Hand. The spraying crime was thus “a natural and foreseeable consequence” of their agreement with the US. Besides, they knew the toxic effects of the herbicide on human health and obstinately omitted to share this information with the US government, which could have put an end to the spraying operation and their lucrative commercial contract. It is thus argued that, by supplying substantial quantity of Agent Orange and advising the US government for its military use while knowing the health damages it could provoke on civilians, the companies’ CEOs had the sufficient *mens rea* required to incur their JCE III/co-perpetration liability.

Based on the above, it can be concluded that all the conditions are fulfilled to hold Monsanto and Dow CEOs criminally liable as co-perpetrators of the spraying crime (primary liability). Alternatively, it is argued that Monsanto and Dow CEOs could incur their accessory or secondary liability, for having aided or abetted the spraying operation.

2.b. Monsanto and Dow CEOs can incur accessory or secondary liability for aiding or abetting in the spraying crime

Article 25(3)(c) of the ICC Statute criminalises anyone who “for the purpose of facilitating the commission of a crime, aids, abets, or otherwise assists in its commission or its attempted commission, including providing the means for its commission”. Quite similarly, Article 6.1 of the ICTY Statute provides that “A person who [...] aided and abetted the planning, preparation or execution of a crime [...] is individually responsible for the crime”. This accessory or secondary liability requires that both *actus rea* and *mens rea* conditions are met.

Regarding the *actus rea* of aiding and abetting liability, it is admitted that the contribution of the aider or abettor may be removed from the location of the crime (*Blagojević and Jokić* 2005, at 48). It need not be criminal *per se* and it could encompass what may otherwise be considered a normal business

activity (Norman, 2010). The ICTY determined that it must have “a substantial effect on the commission of the crime” (*Prosecutor v. Dusko Tadic 1999*, at 190). Nevertheless, no such requirement exists at the ICC (Norman, 2010). In any case, the *actus rea* of aiding and abetting is satisfied in the case analysed since it has been shown that the manufacture and supplying of Agent Orange by Monsanto and Dow had a substantial effect on the commission of the spraying crime.

With regard to the *mens rea* required, the ICTY/R and ICC jurisprudence also differ slightly. According to the ICTY, the *mens rea* is satisfied when the accused knows that “his acts assist in the commission of the crime and is aware of the essential elements of the crime ultimately committed” (*Mrksić and Šljivanćanin 2009*, at 159). The ICTY even found it sufficient that one is aware “of substantial likelihood that a crime will be committed” consequently to his conduct (*Kordic and Cerkez 2004*, at 30-32). The Military Courts at Nuremberg also adopted this *knowledge standard*, finding it sufficient that the accused knew that the functions they performed would assist in the crime (Glueck, 1946). In the Zyklon B case, some industrialists were convicted for having supplied the Nazi regime with poison gas while they knew it would be used for the extermination of Jewish in concentration camps (*Zyklon B Case 1946*, at 93-102). The case focused on determining three facts: people had been gassed by means of Zyklon B (1); this gas had been supplied by Tesch and Stabenow (the industrialists convicted) (2); and the accused knew that the gas was to be used for the purpose of killing human beings (3). In this respect, the Court considered that the corporate position and commercial qualities of the accused implied that they should “have known every little thing about their business”, concluding that the industrialists could be condemned as war criminals.

The *mens rea* required under the ICC Statute is more exigent than this *knowledge standard*, since it requires that the accused aids and abets with the intent and “purpose of facilitating in the commission of a crime” (*intentional standard*) (Article 25(3)(c) ICC Statute). Nevertheless, it should be noted that, contrary to the ICTY and the Nuremberg Courts, the ICC is not bound to apply rules of customary international law when they are inconsistent with its Statute and Elements of Crimes, which it must apply in the first place (Article 21 ICC Statute). On this basis, one could argue that, under international customary law, the knowledge standard of the ICTY/R should be preferred. In any case, it has been shown that Monsanto and Dow CEOs, who were totally aware of the military use of the herbicide for which they advised the US government, satisfy the *mens rea* requirement under both the customary *knowledge standard* and, presumably, the *intentional standard* of the ICC for aiding and abetting.

It is thus asserted that, by supplying most of Agent Orange used during Operation Ranch Hand and helping the US to develop its military use, Monsanto and Dow CEOs wittingly provided the aid and assistance necessary to the completion of the spraying crime. Their secondary criminal liability as aiders or abettors could therefore be incurred. In this respect, it should be noted that all the legal claims that were introduced against these multinationals for damages caused by exposure to Agent Orange constituted civil actions. The individual criminal liability of their CEOs was never incurred, which precludes the application of the *non bis in idem* principle. It must also be emphasized that their criminal responsibility does not exclude their civil liability, implying an obligation to repair. Besides, it does not exclude the criminal liability of Monsanto and Dow as corporations.

3. International criminal liability of Monsanto and Dow Chemical as corporations

Even though it has been widely recognized that individuals can incur international criminal liability, individual criminal responsibility of corporations remains controversial. A proposal made during the drafting of the ICC Statute to add legal entities to the jurisdiction of the ICC was rejected, mainly because there is not yet a common international standard for corporate liability (Norman, 2010). Neither have the ICTY or ICTR Statutes provided for corporate liability¹⁵. Even though the Nuremberg Military Courts charged the criminal intent of supporting Nazi crimes to some corporations involved, qualifying them as "criminal instrument", they found that only the companies' officers could incur criminal liability (*Krupp case* 1948). Yet, there is no logical reason as to why corporations should not be held criminally liable (International Commission of Jurists Expert Legal Panel on Corporate Complicity in International Crimes, 2008). On the contrary, it is argued that strong reasons exist to recognize corporate criminal liability at international level. Indeed, with modern globalization and privatisation, corporations have become powerful actors, with limitless capacity to cause harm. They play an increasing role in war activities, mainly as weapons or equipment providers (Slye, 2008). Holding individuals accountable for such participation is subject to some limitations, which could easily be addressed through recognition of international criminal liability of corporations. For instance, corporate liability presents the practical advantage of enabling accountability in cases where the culpable organ has disappeared, changed, died or if the separation of power within the corporation precludes from holding one individual accountable (Weigend, 2008). In addition, corporate liability

¹⁵See Article 6 ICTY Statute and Article 5 of the ICTR Statute, which provide that: "The International Tribunal shall have jurisdiction over natural persons".

enables accountability for an accumulation of criminal activities carried out by different individuals acting separately but all on behalf of the same company.

The importance of recognizing corporate criminal responsibility is illustrated by the growing number of domestic legislation and jurisprudence imposing criminal liability on corporations¹⁶. At international level, corporations are already subject to strong obligations or sanctions¹⁷, some instruments expressly recommending their criminal liability¹⁸. In Europe, the Court of Justice of the European Union does not hesitate to condemn companies to heavy economic sanctions, akin to criminal penalties. The Committee of Ministers for the Council of Europe also recommended that enterprises should be rendered criminally liable for core offences committed in the exercise of their activities (Recommendation (88) 2001). In the US, based on the *agency doctrine* or the principle of *respondent superior*, “a corporation may be held criminally liable for the acts of any of its agents [who] commit a crime within the scope of employment and with the intent to benefit the corporation” (Diskan, 2008). Nevertheless, such a flexibility is moderated by prosecutorial policies and sentencing guidelines often leading to corporations’ impunity (Wells, 2001). Moreover, the criminal liability of corporations for torts committed abroad to non-residents of the US has not yet been recognized by US jurisprudence. This probably explains why the Vietnamese victims of Agent Orange preferred to file a civil suit against the chemical companies that manufactured and procured the defoliant to the US. It must nevertheless be stressed that the international criminal liability of Monsanto and Dow for the war crimes committed during Operation Ranch Hand was expressly recognized by the Tribunal of Conscience in Support of the Vietnamese Victims of Agent Orange¹⁹. It can thus be concluded that, even though international criminal liability of corporations has not yet been established by international texts or jurisprudence, strong arguments exist in favour of such recognition, in which case Monsanto and Dow could incur international criminal liability for having participated in the spraying operation.

¹⁶See for instance the Anglo-American jurisprudence and Western Europe legislation as cited in Beale, 2005, pp 87-123.

¹⁷See for instance Article I (2) of the International Convention on the Suppression and Punishment of the Crime of Apartheid; Article 2 of the Convention against antipersonnel mines, 2001. See also the OECD Guidelines for Multinational Enterprises, 2000.

¹⁸See for instance Article 2 of the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions; See also Article 9(1) of the Council of Europe Convention on the Protection of the Environment Through Criminal Law.

¹⁹The International Peoples. (2009). Tribunal of Conscience in Support of the Vietnamese Victims of Agent Orange. *The People of Vietnam and people of conscience all over the world v. the government of the United States* [online] Available at: www.iadllaw.org/.../final%20summons%20and%20complaint%20against%20the%20Chemical%20Industry 1 [Accessed 3 April 2017]. Similarly, it is worth to note that other tribunals of conscience upheld the criminal responsibility of legal entities involved in the commission of war crimes or human rights abuses (see for instance: Russel Tribunal on Palestine. November 2010. Corporate complicity in Israel’s violation of International Humanitarian Law, second London session).

Conclusion

The spraying operation of Agent Orange during the Vietnam War caused severe longstanding damages to Vietnamese civilians' health and environment. In order to assess the possible judicial remedies available to the Vietnamese victims of the herbicide, this paper first examined whether or not the wartime use of Agent Orange complied with international law. It has been demonstrated that, due to its composition and its direct toxic effects on plants, Agent Orange constitutes a toxic or chemical weapon prohibited by international law. Even under the contested US position that the prohibition to use chemical weapons does not cover the use of chemical agents having toxic effects on plants, Agent Orange can be considered as a prohibited chemical weapon because of its toxic effects on human beings. Indeed, it has been shown that the high concentrations of dioxin contained in the defoliant caused severe health damage to millions of civilians, which also permits to qualify it as a poison. The wartime use of poisons is firmly condemned by Article 23(a) of The Hague Convention IV and by international customary law (Henckaert & Doswald-Beck, 2005). In addition, because of its widespread, longstanding and severe effects on Vietnamese civilians' health and environment, the spraying operation violated a series of general principles of International Humanitarian Law. It can thus be concluded that the spraying operation violated several international norms and treaties that were binding on the US at the time of the Vietnam War.

In the second section, this paper determined whether, and on which ground, the multinationals Monsanto and Dow Chemical, as well as their CEOs, could incur liability for the spraying operation. The chemical companies produced and supplied the US with a huge quantity of Agent Orange. In addition, their officers knew the toxic effects of the defoliant on human health and they collaborated closely with the Pentagon to develop its military use. Because of this voluntary and substantial contribution to the realization of Operation Ranch Hand, it has been shown that the chemical companies can incur civil liability under the ATS.

While individual criminal liability of corporations remains controversial under international law, it has been shown that strong arguments exist to recognize such a possibility, in which case Monsanto and Dow could directly incur international criminal liability for the spraying crime. Besides, it is accepted that individuals cannot use the corporate structure to achieve immunity for crimes they committed, aided or abetted on behalf of the company. Accordingly, it has been shown that Monsanto and Dow CEOs could incur individual criminal liability as co-perpetrators and, alternatively, as aiders or abettors of the US in the commission of the spraying crime.

It can thus be concluded that the chemical companies and their CEOs, who knowingly supplied Agent Orange during the Vietnam War, can be held individually liable for the damages caused by the spraying operation. Accordingly, they have the duty to compensate the millions of Vietnamese victims of Agent Orange, just as they did for former US veterans exposed to the herbicide.

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