

Environmental Degradation in Conflict and Post-Conflict Regions

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Abstract: Across the globe and for several decades, conflicts have enormously damaged the environment leading to severe ecological degradation. In this paper, we look at ecological degradation in conflict and post-conflict societies and analyze how these could be managed. To attain this goal, we carry out a review of published literature and survey the vast resources sourced from various civil society organizations. We observed that the environment is rarely viewed as an important aspect during conflicts or after conflicts despite being in a context of ravaged infrastructure, lost livelihoods and disrupted institutions. Moreover, these conflicts do extraordinary damage to the ecological component as people struggle for clean water, sanitation, food and fuel. We surmise that, in periods of conflicts and post-conflicts, severe environmental challenges emerge which necessitate the establishment of environmental governance especially of the natural resource base, creation of administrative capacity and seeking sustainable trajectories for environmental recovery as well as reconstruction.

Keywords: Environmental Degradation, Conflicts, Post-Conflicts, Forest Resources, United Nations, Toxic Wastes

1. Introduction

Environmental degradation in conflicts and post-conflicts societies is on the rise with grave consequences for the survival and livelihood of both urban and rural poor (Conca, 2002; Conca and Wallace, 2008). These impacts are more virulent when conflicts interact with socioeconomic and hydro-meteorological factors and competition for scarce natural resources (UNSG, 2010). This scenario is increasingly of global concern as its impacts threaten the global economy and sustainability of vulnerable nations. For

instance, during the past three decades more than 200 million people are thought to have been affected by violent conflicts or are living in post-conflict environments (UNSC, 2011; Osagie et al., 2016).

Conflicts usually result from open clashes due to opposing ideas or interests and between two opposing groups often turning into a hostile military confrontation (DR Congo against M23 Rebels or Central African Republic against Seleka Rebels). It may also result from an aggression perpetrated by a militarily stronger nation on a weaker one and which may lead to war (Israeli incursion into Palestinian or US led coalition against Iraq). On the other hand, post-

conflict or war-torn scenario is a neat dichotomy between war and peace that rarely exists in the wake of civil conflict. It is also often an internal state of a country after a conflict or war (e.g. in Liberia and Iraq).

Conflicts disrupt state institutions, initiatives and policy coordination mechanisms. In virtually all cases, conflicts yield poor management, abundant space for illegality and the collapse of proper state-coordinated networks. Most of these conflicts and post-conflicts societies are in developing countries where people substantially depend on natural resources for their livelihoods (Evans, 2005). This is related to the fact that natural resources are often intertwined with the conflict narrative. Here, grievances over natural resources and their revenues contribute to the onset of conflict and where revenues from natural resources, finance conflict or post-conflict peacebuilding and reconstruction. For example, in much of northern Nigeria, Muslim herders are in competition with Christian farmers for dwindling water supplies (Darby, 2015).

Several studies (UNEP, 2003d; Osagie *et al.*, 2010; Owolabi, 2016) have documented environmental degradation and management issues in conflict and post-conflict countries. For instance in Afghanistan, the Taliban conflict led to severe land degradation, water contamination and illegal forest harvesting especially around Kandahar Province. There is also evidence of land conflicts, illegal mining and deforestation during and after the conflict in the Central African Republic. Similarly, the impacts of conflict on deforestation, water availability, biodiversity, and land degradation due to illegal mining as well as crude oil extraction have been documented in the Democratic Republic of the Congo, Liberia, Nigeria, Uganda, and Angola (De Zeeuw, 2001; UNEP, 2006; Osagie *et al.*, 2010; UNSG, 2010; Owolabi, 2016).

Despite the growing understanding and acceptance of the importance of environmental issues in conflicts and post-conflicts societies, response capacities, management and reduction of risk continue to pose a global challenge. This makes environmental management following resource-related conflicts in fragile countries likely to relapse. Therefore, understanding environmental management issues in conflict and post-conflict countries is becoming more than necessary. This could be achieved by looking at environmental conditions in societies emerging from periods of violent conflict or in conflict. It should include rapid appraisals of post-conflict environmental conditions while elaborating on specific observed intervention core areas (UNHCR, 2005; UNGA, 2006; UNEP, 2009b).

This study is divided into two sections with the first looking at conflicts and post-conflicts societies and how the environment is damaged in these different scenarios. Here, we try to create a link between conflict, post-conflict societies and environmental degradation. In the second section, we explore the challenges of managing the environment during and after conflict. Here, we also look at the role of international organizations in environmental management during and after conflicts.

2. Exploring the Conflict and Post-Conflict-Environmental Degradation Nexus

Conflict ravaged and post-conflict countries have dissimilar ecosystems and natural resource use, it is therefore difficult to establish a general environment-conflict-post-conflict nexus. Hence, these environment-conflict-post-conflict linkages solely depend on the existing local contexts and natural resources among the illegal and legal based economies of these countries.

Early research on the environment-conflict-post-conflict nexus mostly focused on scarcity rather than the reduced availability of natural resources (forests, soils, freshwater and fisheries). This scarcity was considered to trigger intergroup conflict, particularly along preexisting fault lines (ethnicity, region and class). On the basis of ecological thought, conflicts invoke scarcity without paying much attention to how social relations create the conditions for resource capture or other forms of social scarcity. It can also be argued on the premise that natural resource abundance does not fuel conflict rather than it is scarcity that drives conflicts and that disrupts post-conflicts during peacebuilding. Drawing examples from the sharp increase in civil conflict in petroleum (e.g. in Iraq and Sudan) and diamond rich states (e.g. in DR Congo and Liberia), they dispute the precise mechanisms by which resource wealth may induce conflicts and sustain post-conflicts. For instance, widespread drought and food insecurity may have helped create the socio-economic conditions that led to the emergence of Boko Haram and the violent insurgency in north eastern Nigeria (Darby, 2015). Additionally, fighting between farmers and herders which have taken religious and ethnic dimensions has killed about 8000 people since 2005 (Eichelberger, 2014). Here, it is thought that natural resource wealth may provide financial sustenance for rebellion and weaken the development of state institutions during conflicts and post-conflicts. It may also increase the likelihood and effects of trade shocks which make capturing the state more attractive or increase the perceived benefits of separatism. The burdens of conflicts on ecological or environmental functions are very discernable and include some of the following issues.

2.1. Human Displacement

Difficult human-settlement problems arise as a result of large scale and rapid displacement of people from conflict ravaged regions. These environmental refugees are forced to flee their homes because of environmental disasters and violence resulting from environmental degradation. The effects of this human displacement are also accentuated by the effects of global warming, energy overconsumption, deforestation, and air and water pollution (Gosine, 1996). This massive movement of internally displaced people or refugees leads to environmental impacts within the arrival and transit regions. These include the depletion of local in-

situ natural resource, social impacts on local populations, health and water sanitation as well as increase demands for better social and economic conditions. For instance in Sudan's Darfur region, many residents of camps for displaced people survive by brick making. This has resulted to the excessive and uncontrolled use of fuelwood which caused severe localized deforestation (UNEP, 2007c). In Latin America, between 1981 and 1983, the Guatemalan government sent a flood of refugees into Mexico, as the regime seized indigenous land and placed it in foreign control (Gosine, 1996). This mass movement of refugees was detrimental to the forests, waters and soils around the state of Chiapas in southern Mexico.

2.2. Toxic Wastes Disposal

Burdens of conflicts and post-conflicts on the environment also include health effects from contaminated water supplies and indiscriminate toxic waste disposals. The challenges of maintaining clean and adequate water supplies and controlling associated problems in conflicts and post-conflict regions can be very severe. During the 2006 Israeli incursion into Lebanon, the bombing of the Jiyeh power station created a substantial Mediterranean oil spill. Similarly and during the North Atlantic Treaty Organization (NATO) air strikes on Libya in 2011, a number of industrial facilities suffered from localized contamination (Shabi, 2012).

In countries such as Cambodia and Sri Lanka, landmines and unexploded ordnance are known to have liberated and disseminated toxic materials. These caused a displacement of people onto marginal lands and fragile ecosystems which further disrupted natural resource management and tourism development (UNEP, 2007c; UNSG, 2010). During the conflicts in Lebanon (in 2006) and Gaza (in 2009, 2013 and 2014), solid waste disposal sites became overloaded. Depleted uranium weaponry for instance contaminated water supplies and led to increased hazardous wastes presence in streams. These wastes entered municipal water sources and promoted the proliferation of disease vectors and sanitation problems (Black, 2014). In some countries like Sierra Leone, these effects were observed to have persisted long after cessation of violence. Their effects on water and agricultural infrastructure in rural areas still lingered on more than a decade later. Also, in the Former Yugoslav Republic of Macedonia, severe waste management problems took place such as proliferation of illegal dumps and uncontrolled burning of hazardous wastes. Similar problems in Sudan are directly reflected in the elevated incidence of waterborne diseases, making-up 80% of reported diseases in the country.

In Somalia, the conflict has enabled some industrialized countries to dump hazardous wastes there due to political instability, the availability of dumping sites and low public awareness (Milton, 2009; Warah, 2016).

In the Palestinian Authority, conflicts have imposed a severe burden on waste processing systems and reservoirs. These facilities have been targeted with severe damages coming at a time when the general destruction of buildings

and infrastructure has greatly increased wastes production. In addition, due to curfews and numerous Israeli check-points, it is difficult to obtain spare parts; these disrupt waste collection and transport (HRW, 2014). Moreso, the Israeli incursion into Gaza in 2008–2009 included destruction of and severe damage to more than 200 greenhouses. Similarly, in Afghanistan, conflicts have disrupted effective water management programs where, deep wells are drilled in an uncoordinated fashion. Added to these, storage ponds for drought control or irrigation are now poorly managed and community decision-making structures governing water systems have all collapsed.

2.3. Forest Resources Depletion

In the conflict and post-conflict environmental degradation nexus, forest resources exploitation is a major issue which arises. This may include illegal logging, use of trees as shelter, temporal housing, and exploitation of trees for fuelwood or charcoal. In most instances, timber is used as a conflict-sustaining financial resource due to the absence of sustainable forest management programmes. These activities exert pressures on forests from the short and long-term horizon of insecure communities. Moreso, forests have also been targeted during conflict such as in Sudan where, trees were felled maliciously. This was likely to sever community ties to the land and reduce opportunities for resettlement. Postwar situations can be particularly devastating for forested areas. Wars often protect forests, discouraging investors and leaving people afraid to go into the forest. But when the conflict ends, governments may try to appease former insurgents and provide patronage to demobilized governments forces by allowing them to extract timber and convert forested land for agriculture. After conflict, refugees and displaced people often return to areas of forest abandoned during war, and new people enter into forested areas where it was previously too dangerous to live. Demobilized armed people with limited employment opportunities often become involved in illegal forestry activities, which the weak governments emerging from conflict situations have limited ability to control (CIFOR, 2014; UNEP, 2006).

Relatedly, conflicts impose an environmental burden on ecosystems that were already strained under severe challenges of pollution, resource degradation and poor environmental management. In the face of conflicts, desperate people are often forced into choices with unsustainable consequences. Illegality and regulatory lapses cause overharvesting, accelerated extraction, and resource degradation. This is as a result of mounting individual survival pressures, looming threatened livelihoods and the resultant inevitable changes in survival strategies. Therefore, the environmental effects of conflicts are compounded by a poor state of the pre-conflict environment. In Liberia, agriculture, logging, mining, road building and fuel production had already taken a large toll on forests prior to conflict (Shilue and Fagen, 2014). Furthermore, mangrove-forest harvesting for fuel and charcoal in Liberia skyrocketed

during the conflict and post-conflict periods. In addition, the effects of conflict on traditional dryland agriculture stimulated interest in swamp cultivation to boost critically needed food supplies. Such conflict related shifts entail complex environmental and social trade-offs though with less pressure on forests. On the other hand, such shifts caused the destruction of mangroves and wetlands as these were converted to croplands which were detrimental to in-situ biodiversity (Evans, 2004; Hoffman, 2007; Beevers, 2016).

In Afghanistan, local community decision-making structures are unable to deal with the environmental demands and this has resulted to enormous degradation such as the felling of pistachio woodlands. In places like Lebanon, conflict and post-conflict situations have forced people to make unsustainable environmental choices. Lebanese rural farmers for instance, have set ablaze bushes, hoping to set off the unexploded cluster bombs blocking access to farmlands. This practice has triggered a new wave of impoverishment and environmental degradation because it has worsened soil erosion (UNGA, 2006; UNSC, 2011).

2.4. Weak Local Administration

A common pattern in these cases is the weakness of administrative systems, regulatory control and the rule of law for environmental protection and natural resource management. For instance, forest concessions were used to consolidate power in Cambodia after the 1993 UN-sponsored elections, creating conditions for rampant illegal logging and deepening social conflict (Global Witness, 2002; Wieland and Wallenburg, 2013). In Afghanistan, environmental management was weak to nonexistent in urban areas while rural areas suffered from the conflict induced collapse of traditional community-based systems of resource management. In Iraq, the Environmental Protection and Improvement Directorate (EPID) saw its laboratories looted, critically degrading the country's environmental monitoring capacity. In the Balkans, political and economic turbulence yielded inadequate funding and staffing levels, weak technical capacity and public skepticism. In all cases, weak implementation, poor interagency coordination, inadequate resources and gaps in basic information were the norm. Meanwhile in Iraq, a combination of poor governance, international sanctions and minimal regional cooperation created critical long-term environmental vulnerabilities and risks related to water quality, waste management and the oil industry (UNEP, 2003b; 2004b; UNEP, 2007d).

Conflicts and post-conflict regions have an impact on environmental institutions and governance due to budgetary and proper staffing setbacks. In Liberia, conflict undercut budgets, staffing and access for the Forestry Development Authority (FDA) which led to failures at several implementation and management levels. These involved the inability of controlling the explosive growth of logging roads into the forest during the conflict. Failure to curb siphoning of management and reforestation funds accumulated from logging fees during and after the conflict. There was also little or no support for community participation and inability

of the FDA to enforce community rights in forest-concession agreements (Wieland and Wallenburg, 2013; Shilue and Fagen, 2014).

The Nigerian government officials have paid lip service to concerns about conflict linked to environmental collapse. Little effort is being done to prevent displaced farmers, herders, and fishermen in the northeast from turning to violence with jobs or a smarter irrigation system or a safety net. The ministry of agriculture made several plans to help out farmers, but these have not made it past discussion-group stage. Instead, Nigeria is mostly ignoring the farmer-herder conflict and is fighting Boko Haram with a largely unaccountable military and where the government spends roughly \$6 billion per year on security forces (Eichelberger, 2014).

3. Minimizing Potential Environmental Impacts

These involve post-crisis field-based assessments of the environmental impacts of crises on human health, livelihoods and security. It also entails the mobilization and coordination of emergency response and identification of severe environmental damage caused by the conflict. These aim at integrating environmental needs into relief and recovery programs and conducting detailed post-crisis environmental assessments based on fieldwork as well as laboratory analyses. In this way, each assessment is conducted on an equally neutral, impartial and scientific basis while also adopting a tailor-made approach to the region's geographical, political and security conditions.

In post-conflict environmental management, an assessment of national governments is addressed which identifies environmental needs and priorities. These programs aim at strengthening the capacity of national and local environmental authorities. It strives to rehabilitate ecosystems, mitigate risks and ensure that resources sustainably used within recovery and development processes can last for several years. In the environmental cooperation for peace-building, it is based on the shared need to manage natural resources for livelihoods and environmental cooperation. Also, it aims to transform the risks of conflict over resources into opportunities for peace in post-conflict societies. This also integrates environment and natural resources issues within the peace-building policies and strategies. In aiming at effectively addressing the environmental dimensions of conflict and peace-building, experts with demonstrated leadership in environment and conflict issues are usually solicited. These experts explore capacity building such as to integrate environmental considerations within humanitarian and early recovery operations. This aids in minimizing potential environmental impacts and ensure little impacts with regards to longer-term vulnerability, development and management. This risk reduction includes climate change and environmentally induced migration as well as focus on regions vulnerable to

conflicts, outmigration and social instability (UNHCR, 2005; UNEP, 2010).

There is now international acknowledgement that efforts to reduce environmental degradation due to conflicts must be systematically integrated into policies and programmes for sustainable development and poverty reduction. These policies and programmes are supported through bilateral, regional and international cooperation and partnerships. Sustainable development, poverty reduction, good governance and environmental degradation reduction are mutually supportive objectives. Therefore, in order to meet the challenges ahead, accelerated efforts are necessary to build capacities at the community and national levels in order to manage and reduce environmental degradation risks. Such an approach is to be recognized as an important element for the achievement of internationally agreed development goals, including those contained in the Millennium Declaration or Millennium Development Goals (MDG 7). These MDG 7 goals include prevention, preparedness and mitigation providing landmark guidance on reducing disaster risk and the impacts of disasters (Huish, 2009; UNDP, 2015).

At all levels, concerted international cooperation and an enabling international environment are required to stimulate and contribute to developing the knowledge, capacities and motivation needed for environmental degradation risk reduction. It is also necessary to integrate a multi-hazard approach to environmental degradation risk reduction. These could be factored into policies, planning and programming related to sustainable development, relief, rehabilitation, and recovery activities in conflict and post-conflict countries. It will also be important to include a gender based perspective into environmental degradation risk management policies, plans and decision-making processes. Cultural diversity, age, and vulnerable groups are pertinent aspects to be taken into account when planning for environmental degradation risk reduction in conflict and post-conflict societies. Additionally, environmental degradation could also be curtailed through the promotion of local community participation in the adoption of specific policies and the promotion of networking. Local communities could also be involved in the strategic management of volunteer resources, the attribution of roles and responsibilities, and the delegation and provision of the necessary authority and resources.

Environmental degradation can be substantially reduced if people are well informed and motivated towards a culture of environmental protection and resilience. This requires the collection, compilation and dissemination of relevant knowledge and information on environmental resilience and vulnerability. This is usually achieved through the encouragement of sustainable use and management of ecosystems. Also through better land-use planning and development activities that reduce environmental degradation. Furthermore, integrated environmental and natural resource management approaches that incorporate disaster risk reduction could be implemented. These approaches include structural measures (physical constructions that reduce or prevent possible impacts of

environmental degradation) and non-structural measures (policies, awareness creation, participatory mechanisms and the provision of risk reducing information) aimed at the appropriate management of fragile ecosystems.

4. Perspectives of Environmental Management

How the environment will be managed and for whom, may be shaped in conflict and post-conflict societies. Environmental degradation causes ramifications for human security and social stability such as when natural resources are used to attract conflicting factions to the peace process. These ramifications also provide some opportunities of institutional development during conflict or in post-conflict contexts. In Liberia, the conflict years were also a period for rapid development of the legal framework for environmental protection. Meanwhile in Afghanistan, the 2002 Loya Jirga (Grand Assembly) that came in the wake of the U.S intervention against the Taliban regime produced the Ministry of Irrigation, Water Resources and Environment. This was the first ministry in Afghanistan's history with an explicit environmental mandate though this mandate was later transferred to the independent National Environmental Protection Agency (NEPA). In the occupied Palestinian territories for instance, the Oslo Peace Accords launched a Palestinian agency with environmental responsibilities (Hedges, 1994; Government of Israel, 1995; Remnick, 2014). Also, several assessments contain recommendations that imply a strategic progression from assessment to cleanup and monitoring and then to institution building and development of legal and policy frameworks (Waage, 2008). In Serbia and Montenegro, a rapid assessment of industrial hot spots led to a feasibility study on cleanup projects which in turn led to a cleanup program linking UNEP and local authorities (UNEP, 2003b). Trade-offs encountered in this work included whether to adhere to the national legal framework or follow international best practices and incorporate local human resources. Liberia, Afghanistan and Sudan provide test cases which have led to more sustained engagement in environmental institution building. The Liberian experience revealed several daunting challenges to effectively institutionalizing sustainable environmental governance. For example in biodiversity protection, identified institutional constraints included poor infrastructure and administration, lack of data and weak financial support. These were all either created or exacerbated by the conflict and where progress in legal development has stalled for want of implemented legislation. Efforts to strengthen community-based natural resource management (CBNRM) which were extensively disrupted by conflict and further marginalized in some legal reforms, have developed slowly and unevenly (USAID, 2013). In Afghanistan, the picture is more complex due to the fact that a strong international aid presence and a more receptive national government created more operational space. The preliminary assessment led to a longer-term

partnership for capacity building and institutional development. This preliminary assessment was along five specific dimensions including government institutions, law and policy, impact assessment, environmental education, and CBNRM. Nonetheless, early assessments revealed several barriers to these goals and preliminary assessments. These involved environmental damage from the conflict, the disruption of traditional resource management systems and institutions. There also existed basic challenges of creating communication systems with adequate staff and office equipment.

In South Sudan, a campaign was launched which seeks to promote awareness and action, with the creation of a Ministry of Environment. Around the Darfur region, this campaign addressed the environmental situation especially water management and reforestation. The campaign is also raising the profile of environmental concerns in the peace process where joint activities promote the mainstreaming of environmental awareness and climate change. The United Kingdom has provided the bulk of financing for the follow-up work combined with contributions from the governments of Italy and the United States (UK Parliament, 2011).

A more hopeful aspect of environmental management in war-torn and conflict societies is the presence of civil society organizations as a knowledge source. Although such groups have their own agendas, they help draw a more comprehensive picture and offer diverse perspectives. For more than 40 years, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) through its Joint Unit with the United Nations Environment Programme (UNEP) has undertaken peace and environmental management issues in conflict and post-conflict regions. This unit mobilized and coordinated the international emergency response and identification of acute environmental risks caused by conflicts, disasters and industrial accidents. These UN units encountered a wide array of environmental and conservation-oriented groups in Liberia. In addition, the units also played an important role in contributing information and experience to the preparation and review of laws. In addition, several NGOs support assessment, provide their own personnel such as Save the Environment Afghanistan which provided data on protected areas in the Ajar Valley (Peng and Tamsin, 2016). The Environmental Foundation for Africa also played a similar supporting role during environmental assessments in Sierra Leone. Programs such as the Biodiversity Support Program, a consortium of conservation NGOs funded by the U.S Agency for International Development (USAID), documented extensive effects of armed conflict on biodiversity in sub-Saharan Africa. In Bosnia and Herzegovina, local communities were an important source of information in identifying suspected contamination points from depleted uranium weapons. Though in some countries like the Central African Republic, Albania, and Serbia and Montenegro, the NGOs were weakly articulated and struggled with membership declines and financial difficulties. In several cases, international conservation and forestry organizations, were able to

maintain a presence and figured prominently as data sources. Even where monitoring capacity existed, cooperative initiatives such as post-conflict cleanup or environmental health projects depended on access to information, data exchange, and institutional transparency in settings often dominated by suspicion and exclusion.

5. Challenges of Reducing Environmental Degradation

Unsustainable practices developed during periods of weak governance, are often tied to the pull of export revenues. In Somalia for example, under weak forest regulation, there was rampant harvesting of trees for charcoal. Beyond this environmental damage, the practice led to open conflicts between clans, including shoot-outs and laying mines. It is same for largely unregulated coastal fishing, including overharvesting and destruction of foreign fishing boats by local fishermen.

At times, unsustainable economic development directly affects ecological processes due to inadequate environmental planning in aid and reconstruction. Environmental concerns are often relegated to a secondary level in humanitarian aid and poorly conceived aid responses can render critical environmental problems worse. In Afghanistan, international efforts to increase water supplies had in some cases led to digging drinking wells next to septic tanks. Furthermore, the aid economy also depressed the prices of local goods, affecting sectors necessary for sustainable livelihoods. In Somalia, large-scale and sometimes poorly timed delivery of food aid contributed to driving farmers out of agriculture and to the decline in per capita food production. In Sudan, aid was reduced to encourage a return to agriculture but this resulted to food insecurity and an intensification of land degradation in many regions of the country. It also led to a high likelihood of failure and secondary displacement. Therefore, conflict and post-conflict economies consist of several distinct but intertwined segments. These include the remains of the formal economy, international aid economy, informal economy and the criminal economy. The danger is that environmental management strategies overemphasize one strand and fail to recognize the others. On the other hand, these strategies implement initiatives that work at cross-purposes in their effects on the different strands. For instance, debt-for-conservation swaps may make sense for Liberia but must be assessed not only in terms of debt pressure on the formal economy, but also in the context of the consistent failure of state institutions to stop illegal timber extraction (criminal economy) or deliver benefits promised to local communities in forest-concession agreements (subsistence/informal economy). Similarly, rebuilding efforts spurred by international aid must be assessed in terms of their impacts on local livelihoods as when reconstruction drives demand for timber, which in turn impacts local communities in forested areas (Wieland and Wallenburg, 2013).

Another recurrent complication is that conflict is not bad

for all forms of business since some conflict economies maybe embedded in transnational commodity chains, populated by actors who may exploit the situation. For instance; the problems of *conflict timber* and *conflict diamonds* (blood diamonds) in Liberia and their connection to international market demand for the commodities have been well documented (Le Billon, 2006). Between 1997 and 2002, Liberian rubber exports tripled despite declining international prices and escalating violence. According to the UN, unregulated plantations occupied by former combatants and featuring “conditions of slavery” for labourers were able to market their product through transnational buyers, including Firestone. The Liberian conflict saw the flourishing of both illegal and unsustainable production activities particularly cattle rearing. This conflict led to a flourishing illegal trade in bush meat for local consumption and for export (UN, 2001; Le Billon, 2006). Just as Somalia pirates are benefitting from the nation’s conflict, Sudan’s militias are also benefitting from the conflict in Central African Republic and Chad to become elephant poachers. In 2012, hundreds of Sudanese and Chadian elephant poachers on horseback rode across central Africa into Cameroon’s Bouba Ndjidah National Park. The poachers were from Darfur’s Rizeigat tribal group, with ties to the Janjaweed the violent, Sudanese-government-backed militias that have committed atrocities in Darfur. Here, they set up camp and within four months had killed over 800 elephants. Sudanese and Chadian poachers were also involved in the 2013 butchering of nearly 90 elephants, including 33 pregnant females as well as newborn calves near Tikem, Chad close to the Bouba Ndjidah (Christy and Stirton, 2015).

In Afghanistan, some ministries reportedly undertook a limited amount of data collection which was inconsistently collected and not routinely shared. The lack of communication between the provinces and central government also hampered data exchange. None of the ministries had adequate staff resources to collect environmental information because conflict had damaged monitoring facilities and equipment. These cases also underscored the challenging nature of collecting basic environmental information in post-conflict societies such as in post-conflict Afghanistan and Iraq. In several instances, recurrent fighting hampered data collection by rendering areas inaccessible to many expert teams. In Lebanon, unexploded ordnance prohibited access to some sites of interest. For example, NATO forces resisted releasing information about their use of depleted uranium weaponry in the Balkans. Several cases also revealed problems of public access to information such as in Palestine where, NGOs were refused access to information and full transparency on donor-funded environmental projects. In Albania, information is often treated as a market good, to be bought and sold for institutional gain, rather than to be shared freely for national and international benefit.

There are also episodes in which knowledge controversies seemed to reproduce and harden mistrust rather than soften it. For example, Palestinian sources

repeatedly charged Israel with environmental abuses, including discharge of untreated wastewater, relocation of unregulated hazardous industries from Israeli to Palestinian lands, and excessive use of water in violation of the Oslo II agreements (Black, 2014).

6. Conclusion

Conflicts tremendously damage the environment particularly through their role in changing institutions, disrupting livelihoods and altering social practices. Environmental risks prevention initiatives have substantial potential to enhance trust and build confidence. But such initiatives are complicated by the challenges of engaging a wide array of societal actors and environmental controversies which often harden differences and reinforce conflict and post-conflict identities. Environmental projects and development initiatives play a crucial role in the prospects for sustainable reconstruction and transnational commodity chains that accelerate natural resources exploitation. Environmental degradation in conflict and post-conflict regions can be harnessed through a wider process of stakeholder engagement and local partner’s identification. A keep the environment out of conflict oriented approach is vital to achieving the necessary elements of environmental management. Even if this high-stakes choice is made to optimize the trajectory of sustainable development, it will have enormous impact if social dimensions are embedded in environmental management choices alongside technical, legal and administrative dimensions.

References

- [1] Ahmed, F (2008). An Examination of the Development Path Taken by Small Island Developing States: Jamaica a Case Study. Master of Arts Thesis, The University of Western Ontario, 2008. Available at: <http://www.islandvulnerability.org/m/ahmedm.pdf>. Retrieved 11th February, 2016.
- [2] Beevers, M (2016). Forest governance and post-conflict peacate in Liberia: Emerging contestation and opportunities for change? *The Extractive Industries and Society* 3 (2): 320–328.
- [3] Black, I (2014). Israel is finding it harder to deny targeting Gaza infrastructure. Available at: <https://www.theguardian.com/world/2014/jul/29/israel-gaza-infrastructure-blackouts-idf-civilian>
- [4] CIFOR (2014). Center for International Forestry Research. Forests and Conflicts, The scope of the problem Available at http://www.cifor.org/publications/Corporate/FactSheet/forests_conflict.htm
- [5] Conca, K (2002). The case for environmental peacemaking: In *Environmental peacemaking*, ed.
- [6] K. Conca and G. D. Dabelko. Washington, D.C.: Woodrow Wilson Center Press; Baltimore, MD: Johns Hopkins University Press.

- [7] Conca, K and Wallace, J (2008). Environment and Peacebuilding in War-Torn Societies: Lessons from the UN Environment Programme's Experience with Post-conflict Assessment. *Global Governance* 15, No. 4.
- [8] Christy, B and Stirton, B (2015). How Killing Elephants Finances Terror in Africa. Available at <http://www.nationalgeographic.com/tracking-ivory/article.html>
- [9] Darby, M (2015). Global warming raises tensions in Boko Haram region. Available at <http://www.climatechangenews.com/2015/01/16/global-warming-raises-tensions-in-boko-haram-region/>
- [10] De Zeeuw, J (2001). Building peace in war-torn societies: From concept to strategy. The Hague: Netherlands Institute of International Relations, Conflict Research Unit.
- [11] Eichelberger, E (2014). How Environmental Disaster is Making Boko Haram Violence Worse. Available at <http://www.motherjones.com/environment/2014/06/nigeria-environment-climate-change-boko-haram>
- [12] Evans, D (2004). Using natural resources management as a peacebuilding tool: Observations and lessons from Central Western Mindanao. *Journal of Peacebuilding and Development* 1: 140–155.
- [13] Evans, D (2005). An architecture of instability: How the critical link between natural resources and conflict remains unbroken. Policy briefing. Available at: www.globalwitness.org/sites/default/files/import/An%20Architecture%20of%20Instability.pdf.
- [14] Global Witness (2002). Deforestation without limits: How the Cambodian government failed to tackle the untouchables. www.globalwitness.org/sites/default/files/library/Deforestation_Without_Limit.pdf.
- [15] Gosine, A (1996). Roots of Flight: Environmental Refugees in Latin America - A Response to Analysis by Homer-Dixon. *Refuge* 15 (2): 27-32.
- [16] Government of Israel (1995). Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip; Washington, D. C., September 28, 1995. Available at: http://knesset.gov.il/process/docs/heskemb_eng.htm. Retrieved 8th June, 2016.
- [17] Harsch, E (2007). Conflict resources: from 'curse' to blessing. Transforming an African war risk into a peace asset. Available at: <http://www.un.org/africarenewal/magazine/january-2007/conflict-resources-%E2%80%98curse%E2%80%99-blessing>. Retrieved 11th September, 2015.
- [18] Harwell, E (2010). Forests in fragile and conflict-affected states, Program on Forests (PROFOR), Washington DC. Available at http://web.worldbank.org/archive/website01306/web/pdf/forests_and_conflict_synthesis-paper-nov2010.pdf
- [19] Hedges, C (1994). Mideast Accord: The Overview; Rabin and Arafat Sign Accord Ending Israel's 27-Year Hold On Jericho and the Gaza Strip. Available at: <http://www.nytimes.com/1994/05/05/world/mideast-accord-overview-rabin-arafat-sign-accord-ending-israel-s-27-year-hold.html?pagewanted=all>. Retrieved 11th September, 2015.
- [20] Hoffman, D (2007). The City as Barracks: Freetown, Monrovia, and the Organization of Violence in Postcolonial African Cities. *Cultural Anthropology* 22 (3) 400–428.
- [21] HRW (Human Rights Watch), 2014. Gaza: Widespread Impact of Power Plant Attack Curtailed Sewage Treatment, Food and Water Supply, Hospital Operations. Available at: <https://www.hrw.org/news/2014/08/10/gaza-widespread-impact-power-plant-attack>. Retrieved 11th September 2015.
- [22] Huish, R (2009). Canadian Foreign Aid for Global Health: Human Security Opportunity Lost. *Canadian Foreign Policy* (1192-6422): 60.
- [23] Le Billon, P (2006). "Fatal Transactions: Conflict Diamonds and the (Anti) terrorist consumer *Antipode* 38 (4): 778–801.
- [24] Peng, J and Tamsin, W (2016). An unlikely fight to protect nature in war-torn Afghanistan. Available at <http://www.dw.com/en/an-unlikely-fight-to-protect-nature-in-war-torn-afghanistan/a-19394882>
- [25] Remnick, D (2014). The One-State Reality. Israel's conservative President speaks up for civility, and pays a price. Available at: <http://www.newyorker.com/magazine/2014/11/17/one-state-reality>. Retrieved 4th June 2016.
- [26] Shabi, R (2012). NATO accused of war crimes in Libya. Available at <http://www.independent.co.uk/news/world/africa/nato-accused-of-war-crimes-in-libya-6291566.html>. Retrieved, 30th April, 2016.
- [27] UK Parliament (2011). House of Commons Environmental Audit Committee. The impact of UK overseas aid on environmental protection and climate change adaptation and mitigation. Fifth Report of Session 2010–12 Volume I Available at <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/710/710.pdf>
- [28] UNDP (2015). United Nations Development Programme. The Millennium Development Goals Report 2015. Available at <http://www.undp.org/content/undp/en/home/librarypage/mdg/the-millennium-development-goals-report-2015.html>. Retrieved 20th May, 2016.
- [29] UNEP, (2003b). Depleted uranium in Bosnia and Herzegovina: Post-conflict environmental assessment. Geneva, Switzerland. Available at: http://postconflict.unep.ch/publications/BIH_DU_report.pdf.
- [30] UNEP, (2003d). Desk study on the environment in Iraq. Geneva, Switzerland. Available at: http://postconflict.unep.ch/publications/Iraq_DS.pdf. Retrieved 10th February, 2015.
- [31] UNEP, (2004b). From conflict to sustainable development: Assessment and clean-up in Serbia and Montenegro. Geneva, Switzerland. Available at: <http://postconflict.unep.ch/publications/sam.pdf>. Retrieved 20th May, 2016.
- [32] UNEP, (2006). Assessing and restoring natural resources in post-conflict peacebuilding. Progress report on the Capacity Building and Institutional Development. Programme for Environmental Management in Afghanistan, 2003–2005. Nairobi, Kenya. Available at: http://postconflict.unep.ch/publications/afg_PR_jan06.pdf. Retrieved 30th April, 2016.
- [33] UNEP, (2007c). Sudan: Post-conflict environmental assessment. Nairobi, Kenya. Available at: http://postconflict.unep.ch/publications/UNEP_Sudan.pdf. Retrieved 15th February, 2016.

- [34] UNEP, (2007d). UNEP in Iraq: Post-conflict assessment, clean-up and reconstruction. Nairobi, Kenya. Available at: <http://postconflict.unep.ch/publications/Iraq.pdf>. Retrieved 1st August, 2015.
- [35] UNEP, (2009b). From conflict to peacebuilding: The role of natural resources and the environment. Nairobi, Kenya. Available at: www.unep.org/pdf/pcdmb_policy_01.pdf. Retrieved 9th March, 2016.
- [36] UNEP, (2010). Sierra Leone: Environment, conflict and peacebuilding assessment; Technical report. Geneva, Switzerland. Available at: http://postconflict.unep.ch/publications/Sierra_Leone.pdf. Retrieved 2nd June, 2016.
- [37] UNGA (2006). United Nations General Assembly. Progress report on the prevention of armed conflict: Report of the Secretary General. A/60/891. www.ipu.org/splze/unga06/conflict.pdf. Retrieved 5th April, 2016.
- [38] UNGA (1994). United Nations General Assembly. Report of the Global Conference on The Sustainable Development Of Small Island Developing States Bridgetown, Barbados, 25 April-6 May 1994.
- [39] UNHCR (2005). United Nations High Commissioner for Refugees. UNHCR environmental guidelines. Geneva, Switzerland.
- [40] UN (2001). United Nations. Conflict diamonds, sanctions and war: General Assembly adopts resolution on conflict diamonds. Available at: <http://www.un.org/peace/africa/Diamond.html>. Retrieved 4th May, 2016.
- [42] UNSC (2011). United Nations Security Council. Report of the Secretary-General on the protection of Somali natural resources and waters. S/2001/661. October 25. Available at: <http://unpos.unmissions.org/Portals/UNPOS/Repository%20UNPOS/S-2011-661%20%2825Oct%29.pdf>. Retrieved 7th May, 2016.
- [43] UNSG (2010). United Nations Secretary-General. Progress report of the Secretary-General on peacebuilding in the immediate aftermath of conflict. A/64/866–S/2010/386. July 16 (reissued on August 1 for technical reasons), New York: Available at www.un.org/ga/search/view_doc.asp?symbol=A/64/866. Retrieved 9th April, 2016
- [44] USAID (2013). United States Agency for International Development. The Biodiversity Support Program (BSP). Available at: <https://rmportal.net/library/content/tools/biodiversity-support-program>. Retrieved 11th September, 2015.
- [45] Waage, H (2008). *Postscript to Oslo: The Mystery of Norway's Missing Files*. Journal of Palestine Studies, XXXVIII (1) 54–65.
- [46] Wieland, A and Wallenburg, C (2013). The Influence of Relational Competencies on Supply Chain Resilience: A Relational View. International Journal of Physical Distribution & Logistics Management 43 (4) 300–320.