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EDITORIAL

Local insights of global relevance

After the success of the inaugural issue, as a new editorial board, our ambition in putting together the second edition of *Peace and Progress* was to further consolidate the journal as a channel for disseminating the voices of graduate students as emerging scholars who explore issues of global relevance. Reflecting the vision underpinning the creation of *Peace and Progress* as a part of a global community of learning and research, the work of the editorial board behind this edition took place over three different continents. Similarly, it brings together research and thinking from authors across disciplines, backgrounds and nationalities.

We were particularly interested in work that offers forward looking perspectives on how to address some of the most pressing problems facing the world, now and in the coming years. Using a case study of the 2013 flash flood in Myanmar, Wealer's research paper discusses the role of disaster loss and damage databases (DLDs) as a tool in global disaster risk reduction. The author offers valuable insight into public disaster management, particularly in relation to the increasing threat of hydro-metrological hazards due to climate change. On the other side of the climate change continuum, Landreth discusses measures for mitigation in his commentary on the case of Ecuador's Socio Bosque program, exploring the strategy of direct payments for ecosystem services as an incentive to prevent deforestation and land-use change. Lee's exposition on the safety implications of the Fukushima Daichi nuclear power plant raises questions that are not only specific to the international nuclear power industry and law-making, but also resonant with a larger concern of sustainable energy security. From the field of Peace and Security, Parepa's research article focuses on comprehensive approaches to civil-military cooperation, emphasizing the link between development and security. Analyzing the use of such approaches by Provincial Reconstruction Teams in Afghanistan, the author highlights the need for locally appropriate implementation of peace support operations.

While focusing on specific events and cases, these papers all relate to issues of wider global importance. Providing different perspectives and experiences, they make a strong academic contribution to debates that are central to the international community and the work of the United Nations.

Hellin Brink
Editor-in-Chief
United Nations University *Peace and Progress*

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TRACK ONE: RESEARCH PAPER

Cluster 2: Development Governance

Cluster 4: Global Change and Sustainable Development

**Public Loss and Damage Inventories to Reduce Disaster Risk in Poor
Countries: The Assessment of Climate-Change-Related Extreme Events in
Myanmar**

WEALER, Philippe[†]

ABSTRACT

This paper comments on the recent trend in public policy towards disaster loss and damage databases (DLDs). Offering a literature review, it also imparts an empirical snapshot of a recent disaster and the ongoing establishment of a DLD by the government of Myanmar. While DLDs can accommodate data for all types of disasters, this contribution will limit itself to climate-related disasters and in particular to two different types of floods: The kind of flash flood which can be caused by dams, and floods that gradually worsen as an impact of climate change (CC). When considering the category of hydro-meteorological hazards, the latter phenomenon is increasingly expected to heighten the recurrence of the former category of extreme events. The resulting scenario of risk, and the public need for disaster risk management are purposefully illustrated here to indicate how DLDs are likely to become an important tool in global public disaster risk reduction (DRR) measures.

A case-study is provided to support the main arguments, consisting in the investigation by the author into a flash flood that occurred at the Thai-Myanmar border in August 2013. Vast inhabited plains were instantly inundated as a result of a too rapid release of waters from an upstream dam during the Monsoon season. The resulting disaster illustrates, in all its tragedy, the need for better public DRR with a specific focus on assessment and communication methods – even more so, in anticipation of CC-impacts. This case-study further describes the relief efforts that followed on to the abovementioned flash flood as well as the current status of the creation of a public DLD in Myanmar.

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More than 50 governments currently establish DLDs to bolster disaster risk reduction and climate change adaptation efforts. This paper therefore provides a methodological discussion of DesInventar, the most widely used Internet database for capturing losses and damage from climate-related disasters. Aiming at contouring this increasingly popular yet still flawed type of data collection for DRR, the author reviews a wide array of scientific and professional literature.

This paper concludes that, if properly set up and made publicly available, DLDs can be a useful tool for improved DRR and CC adaptation, mainly by improving risk assessment and communication. Ongoing efforts should continue to involve all relevant governmental units, sectors and stakeholders. Data could be exchanged more effectively via improved DesInventar-databases. Whereas private-public partnerships are recommended to achieve such improvements, ongoing efforts towards data disaggregation must also be made.

KEYWORDS: *Disaster risk reduction, public policy, loss and damage databases, climate change adaptation, DesInventar, methodology, risk assessment*

Introduction

The Government of the Republic of the Union of Myanmar (Myanmar) is in a transition towards liberal trade and democratic governance, which is partly still the consequence of a climate-related disaster that took place in 2004: super-storm Nargis. Whereas new public infrastructures, such as hydroelectric dams, may bring about development opportunities, large-scale technological interventions also entail risks, pollution and the release of additional greenhouse gases into the atmosphere. The interest of this paper lies with a particular, publicly owned format of data base management for climate change adaptation (CCA) and disaster risk reduction (DRR). Since 2004, Myanmar has received considerable international support, allowing its government to boost DRR and CCA activities. A subset of these efforts is about to culminate in the establishment of a publicly administered Disaster Loss and Damage Database (DLD).

In the absence of private insurance, citizens turn towards their government for help in the aftermath of a disaster. For example, the Economist newspaper reported in October 2013 that ‘[d]emonstrators clashed with police in the eastern Chinese city of Yuyao over the local government’s flood-relief efforts’ (The Economist, 2013b)¹. This paper takes the stance that, to better protect poor communities from disasters, governments should own DLDs or – at least – have access to extant DLDs, private or public, ensuring that data would be put to the best possible use for DRR and CCA.

Although, to private enterprise, and first of all to the insurance sector, risk management is the core business model, many public authorities still lack access to DLDs of comparable quality. It is not clear, at this stage, whether governments can afford the same databases as the insurance sector, in terms of data quality and quantity. However, public risk management needs to permit effective risk assessment and disaster response.

Policy Context

¹ The quote further holds that: ‘thousands of people were protesting that too little had been done to help residents in the wake of Typhoon Fitow’ (The Economist, 2013b).

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Efforts towards climate-related DRR and CCA include attempts at increasing the resilience of human communities by reducing their vulnerability and exposure to hazards (Holling, 1973; Clark, 2012). DRR-related programming is also currently being furthered by various policy processes surrounding the Hyogo Framework for Action (HFA)². As it – along with the MDGs – will expire in 2015, UNISDR has announced that consultations for a second HFA are underway and are placing a greater emphasis on CC-related impacts (UNISDR, 2013a). As borders between the DRR- and CCA- strands are steadily being overcome, the IPCC's most recent Special Report on Extreme Events (SREX), for instance, reflects a stronger interest in DRR (IPCC, 2012). UNDP's climate risk management (UNDP, 2013b) and the World Bank's climate risk assessment (2011) approaches can be understood as being part of that same development trend.

Potentially the most important, development in this realignment of DRR and CCA policies is the common interest that both pools of experts share when it comes to DLDs. The growing popularity of this approach is well illustrated by the newest decision reports, which the Conference of Parties (COPs) has issued under the United Nations Framework Convention on Climate Change (see for example UNFCCC, 2013a: 21-24). To put this into context, UNFCCC and COPs are the prime international negotiating hubs for CC-related concerns.

UNFCCC had been gearing up its focus on losses and damages since COP 16 in Cancun, Mexico, in December 2010, and set forth the same trend at COPs 18 and 19. Already, at COP 16, Parties recognized the need to strengthen international cooperation and expertise in order to understand and reduce loss and damage associated with adverse CC-effects, including impacts related to extreme weather events and slow onset events - i.e. drought and sea-level rise. Typical damage, loss, and non-economic loss categories that apply to all types of disasters include the assets and sectors listed in Table 1.

² The initial HFA had been endorsed by the UN General Assembly in 2005, with the purpose of making the world safer from natural hazards

Table 1. Damages, Losses and Non-Economic Losses

DAMAGE	ECONOMIC LOSSES
House and household assets	Revenue from schools and hospitals
Schools and hospitals assets	Toll fee from roads and bridges
Roads and bridges	Revenue from closed airports and seaports. Or higher operational costs for keeping ports open
Airports and seaports	Production costs in agriculture and related sectors
Agriculture, land crops and irrigation systems	High operational costs and loss of revenue in electricity, heat and water supplies
Water supply systems	
Heat and power supply systems	
NON-ECONOMIC LOSSES	
Education sector: increased risks of child labor	
Health sector: increased risk of epidemics	
Housing sector: Land documents and personal identity papers	
Culture sector: Loss of manuscripts and documents	
Social loss: Gender based violence, human trafficking, risks of conflict and tensions, social unrest	
Loss of capacities and skills due to loss of life and injuries	
General negative impacts on families and households and ‘social’ risks	
Source: UNDP Internal Post-Disaster Needs Assessment (PDNA) Training, New York, November 2013.	

Since the nineteenth COP-session in November 2013, topics surrounding loss and damage from extreme and slow-onset climatic events have become of central concern. Whereas in the advent of COP 19, parties had agreed on an international mechanism to start addressing loss and damage institutionally, a rift between two opposing camps emerged over important details on the same topic during that conference. One camp favored reparation, with LDCs and emerging economies joining forces to claim automatic financial compensation for losses and damages (UNDP/BOTG/UNU, 2013). Another camp tended to prefer questions of how losses and damages could be better handled in the interest of poor communities. For this purpose they pushed their agenda in the direction of technical advances through ongoing development cooperation efforts (ODA) with an increased onus on DRR and CCA. Advances in this direction are already on offer – for example by UNDP’s DLD programming (see for example UNDP, 2009 and 2013c). Proponents of the latter camp are – potentially an important political-ethical detail of future COPs – either indifferent or disinclined to a mechanism of automatic financial transfer to compensate all future losses and damages.

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Unrealistic Reparation Claims

Blaikie *et al.* (1994: 129) illustrate the high need for disaster relief by example of the aftermath of a flood: ‘uninsured people with no reserves of cash lose twice (...): they lose the goods, many of which are essential to life, and they lose the time which they have to spend on work to replace them, which is therefore not available for survival’. The poorest and most marginalized communities in all countries, i.e. the ones that are usually also most vulnerable and exposed to extreme climatic events, need DRR efforts for the sake of their own resilience and should therefore be considered as the prime beneficiaries of the above-mentioned types of support, technical and compensatory.

On one hand, the need for more or better-targeted public financial support in its multiple forms – ODA, humanitarian assistance, CCA measures or insurance policies – is strikingly obvious if DRR is to be geared-up. While, internationally, the number of poor countries is dropping, with several newly emerging economies joining the top spots in consumption and production statistics, a rising number of governmental authorities need to be convinced and encouraged to take DRR seriously at national level.

On the other hand, the present paper defends that the request of compensation that several countries of the so-called G77-group have submitted to industrialized ones, as described above, has little perspective. According to *The Economist*, India, China and other emerging economies, while still positioning themselves on the side of the G77, already account for about half of the world’s greenhouse-gas (GHG) pollution: ‘China’s greenhouse-gas emissions were about ten percent of the world’s total in 1990. Now they are nearer 30 percent. Since 2000 China alone has accounted for two-thirds of the global growth in carbon-dioxide emissions’ (*The Economist*, 2013a).

An inter-generational mismatch could also come to deter compensation claims. Even if a significant causality could be established between rising GHG emissions in one country and CC accompanied by a certain disaster in another, the groups formerly releasing GHGs for their industrialization are unlikely the same than the ones that would pay future compensations. Rather than supporting claims for such reparations between governments, the present essay argues for a deeper understanding of how DLDs are already being used and how the same can be improved, with the purpose of reducing disaster risk.

Aiming at data-rich, publicly available DLDs matches another current trend of ‘Statistics for Sustainability’, based on the outcomes of the Rio+20 United Nations Conference on Sustainable Development. At that occasion Member States and other stakeholders started calling for a ‘data revolution’ as part of the post-2015 agenda: ‘Improved data, disaggregated appropriately, will enable policy analysis – including application of gender analysis, assessment of CC-impacts and, where appropriate, analysis for conflict prevention – focused on the convergence between poverty, social equity, environmental and governance issues (UNDP, 2013a: 21). In Myanmar, one of the world’s least developed countries, a public inventory system for losses and damages is currently being established.

Recent Natural Hazards in Myanmar

Myanmar is particularly prone to climate-related hazards, although earthquakes also constitute a major risk in central and northern parts of the country.³ According to EMDAT

³ For a broader discussion on DRR, i.e. covering issues outside the climate-focused sectors, see for example Blaikie (1994) and Hewitt (1997).

global database, about 70 percent of all disasters related to natural phenomena are meteorological, climatological or hydrological (CRED, 2013).

Myanmar's recent history was changed by a climate-related disaster, some of the aftermath of which is still tangible today. The country's densely populated Irrawaddy Delta was highly vulnerable and exposed when Cyclone Nargis struck in May 2008. Floods and winds adding to a storm surge combined to become one of the strongest storms ever recorded and led to a national disaster. After landfall, and once relief agencies had been granted access, estimates showed that 2.4 Million people had been affected with at least 130,000 dead or missing (Barber, 2009: 2). Authorities calculated and communicated economic losses at the height of four Billion US Dollars to the Guardian newspaper (Guardian, 2008). For international relations discussions on the initially delayed response to Cyclone Nargis, evoking the 'responsibility to protect', an approach that has been widely rejected in the meantime (Cohen, 2009; Barber, 2009; Welsh, 2009).

Situated between the world's highest mountain range and the inter-tropical convergence zone, Myanmar experiences seasonal Monsoon, with up to 750 mm of rainfall per month. France, in comparison, receives circa 619 mm of overall rainfall each year. D'Arrigo *et al.* (2011) provide a recent scientific account of the macro-climate of Myanmar and conclude that the country, in addition to the seasonal Monsoon, can be impacted by the so-called El Niño and La Niña climatic oscillations at a decadal basis.

Heavy rainfall and seasonal flooding mineralize downstream river basins in Southeast Asia. While this process fertilizes fields and thus benefits much of Myanmar's agriculture, it is likely subject to CC-trends and can be obstructed by the construction of upstream dams. Whereas average flooding is traditionally useful, extreme floods are generally perceived as putting more people at risk than any other disaster (Blaikie *et al.* 1994). Based on the IPCC's models for Southeast Asia, above-average flooding magnitudes and frequencies are likely to increase with global warming, thus resulting in more extreme events, also in Myanmar (IPCC, 2012: 10; 12-13). The country ranks within the top twenty of world's most fragile places in terms of both conflict and high vulnerability to natural hazards (Harris *et al.*, 2013: 9). Private and public buildings are usually built high enough above or distant enough from the main riverbed to accommodate for the average range of the water bodies' seasonal local extensions. The same infrastructure, however, is typically not resilient enough to withstand higher-than-average magnitude events and flash floods. The gradual impact of slow-onset flood-related disasters, expected to set on as a function of CC, is yet to be assessed.

In the aftermath of cyclone Nargis the Assistant of the Secretary General of the UN, Margareta Wahlström from ISDR visited Myanmar. Following this visit, as part of the launch of a wider programme for DRR in 2011, a high-level agreement was reached with the government on developing a DLD. More broadly, as a consequence of international disaster response and political pressure, the Government of Myanmar has started allowing foreign investments and a democratization process to take place on its territory. At the time of writing, rapid developments are taking place in almost all sectors of the country (see for example Fuller, 2013). The following section retains five thematic areas that seem highly relevant to the public administration of DLDs, thus hoping to clarify the main characteristics of this rather new research focus.

DesInventar: Methodology and Database

The so-called 'DesInventar' DLD was initially launched by academics and 'institutional actors linked to the Network of Social Studies in the Prevention of Disasters in Latin America

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(LA RED). This DLD is also supported by UNISDR (DesInventar, 2013). In its endeavor to advocate for a more systematic use of DLDs in the arsenal or DRR-strategies, this paper cannot do without discussing the use and usefulness of DesInventar as a DLD. DesInventar owes its worldwide importance not least to its deployment in UNDP projects: 'The 57 databases that were analyzed cover five regions (Americas, Asia-Pacific, Africa, Arab States, EU-CIS), which includes 50 countries, four sub-national states, and two regions. 45 of these databases were developed using DesInventar and 11 have adopted stand-alone systems' (UNDP, 2013c: 21).

Pelling specifies that DesInventar was developed as a conceptualization, methodology and software tool for categorizing hazards such as 'floods and storms' without being limited to these (2006: 159, 167). The creators of DesInventar see their invention as 'a system of acquisition, consultation and display of information about disasters of small, medium and greater impact, based on pre-existing data, newspaper sources and institutional reports' that serves to prevent disasters deriving from: 'Population growth and urbanization processes, trends in land use, increasing impoverishment of significant segments of the population, use of inappropriate technological systems in the construction of houses and basic infrastructure, and inappropriate organization systems, amongst others, are factors that have increased the vulnerability of the population vis-à-vis the wide diversity of physical and natural events' (DesInventar, 2013).

According to its methodological guide, DesInventar is, both, a 'retrospective and prospective analysis and of spatial-temporal representation of the effects (disasters) derived from conditions of threat and vulnerability, for the application of risk management - from mitigation work, to attention and recuperation post-disaster' (DesInventar, 2009: 3). UNDP, promoting the use of DesInventar, builds on this working definition by adding: 'In DesInventar, a database is an inventory of the effects of disasters of diverse impact, with systematic information, brought together in a specific spatial resolution and with effect variables and homogeneous events' (2013c: 6). Interestingly, although disasters are inherently multifarious and complex with interchanging cause-effect relationships and triggers, important functions of a database such as 'categorization' or 'classification' are not reflected in either of these definitions. The present paper will revert to this diagnosed lack of basic database functions of DesInventar after turning to other aspects of DLDs as well as the immediate context within which the latter are usually established.

Contextualization of risk, vulnerability and adaptation

Hydro-meteorological hazards are directly or indirectly triggered by atmospheric processes which, to some extent, make all these phenomena vulnerable to CC. When it comes to flooding, some experts tend to think of it more as a human-made disaster whereas others prefer to discuss it as a hydro-meteorological process. Considering this rather blunt distinction between flood as a disaster and as a cyclical phenomenon, the threat it poses to the human system is subject to a thorough understanding of risk. There seems to be a general agreement among most practitioners and scientists (see e.g. Brooks, 2003) that risk is the function of three variables: hazard, vulnerability and exposure.

Many villages in Southeast Myanmar were put at risk in August 2013 by the rapid release of waters from an upstream dam, across the border with Thailand. Keeping the water gates closed would have caused the structure to burst. As the decision was taken in extremis after ten consecutive days of heavy Monsoon rains, the sudden release of excess water caused a

flash flood downstream. The triangular relationship between hazard, vulnerability/risk and threat/disaster breaks down the following way in this case:

- (a) Hazard resulted from strong Monsoon rains and the hydrology of the delta plains, possibility worsened by CC and haphazard water release
- (b) Vulnerability resulted from the presence of an upstream river barrage as well as the lack of protective infrastructure in villages against flash floods. People were vulnerable because they were not sufficiently warned. Infrastructure itself was vulnerable because the average flood levels it had been built for was exceeded
- (c) People and infrastructure close to the average riverbed were directly exposed the hazard, water became a threat, thus resulting in disaster

As the assessment of risk had not been properly taken into account in this case - let alone preventive measures - this flash flood turned into a disaster affecting up to 38,000 people. For the purposes of this paper on DLDs, the reader may find the following definitions of risk, vulnerability and adaptation, as provided by the United Nations Office for DRR (UNISDR) and applicable throughout the UN system, useful. As such, risk is 'the combination of the probability of an event and its negative consequences'. Vulnerability is defined as 'the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard'. And adaptation is understood as 'the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities'.⁴

Climatic and hydro-meteorological hazard as well as the kinds of risks associated with these, are forecasted to increase proportionally with CC: The IPCC's SREX forecasts that intervals between extreme events for maximum daily temperatures ('virtually certain') and heavy rainfall ('likely') will decrease by the end of the 21st century (IPCC, 2012: 10; 12-13). In addition to reducing intervals between the recurrence of heavy rainfall and temperature extremes, thus causing rapid onset disasters, CC is also expected to gradually cause environmental deterioration via so-called slow-onset disasters. Building on the IPCC's findings, UNFCCC has recently called for 'the systematic observation of, and data collection on CC-impacts, in particular slow onset impacts, and accounting for losses, as appropriate' (UNFCCC, 2013a: 22). UNFCCC (2008: 4) also urges in its 'Bali Action Plan' in 2007 that 'enhanced action on CC adaptation' (CCA) must be made, in consideration of especially the least developed countries (...) affected by drought, desertification and floods' (UNFCCC, 2008: 4). Adger *et al.* (2007) provide an overview of current adaptation practices. As for losses and damages from climate-related disasters, according the UNFCCC's latest COP 19 these 'include, and in some cases involves more than, that which can be reduced by adaptation' (UNFCCC, 2013b).

The increasing overlaps between CCA and DRR communities of experts and policy makers have been mentioned above. Whereas the community of practitioners focusing on DRR has its origins in emergency responses to rapid-onset disasters, such as for example flash floods, the CCA-community is rather interested in long-term climatic variability and change, while trends of realignment between both communities are ongoing.

⁴ For a further discussion of the concepts vulnerability, risk and adaptation, and as specifically pertaining to climatic hazards, see Brooks (2003), Füssel (2006; 2010) and Birkmann (2006; 2013).

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Floods and dams as drivers for multiple disasters

According to Blaikie *et al.* (1994: 124) floods are normal in Southeast Asia, where seasonally elevated discharges serve agricultural productivity by mineralizing soils. However, as a result of the climatic extremes and dam construction, floods of higher frequency, magnitude, and onset speed are increasingly expected to turn hydrologic benefits into disasters. Floods become disasters when waters pass the thresholds to which human settlements have adjusted their boundaries or when waters transgress riverbanks, dams and canals.⁵ Blaikie *et al.* warn that 'flood disasters are destructive of life not only through drowning and direct injury, but also because of associated diseases and famine' (1994: 124).

Looking back at ODA-sponsored activities of the last 50 years, one can, may reach the conclusion that building hydroelectric dams is good for economic development. Whereas hydroelectricity receives some extra support from the CC-community, most environmentalists and human rights activists scorn the high – and partly uncontrollable – impact of these structures (see e.g. Paterson *et al.*, 2008: 2 or The International Rivers Initiative, 2014). In fact, constructions to dam rivers invariably change their environmental context: The well documented geological (e.g. silt block), biological (e.g. fish barrier), safety (e.g. bilharzia), atmospheric (e.g. increased evaporation rates), hydrological (flash floods) and chemical (e.g. eutrophy) alterations often turn dams into environmental hazards causing long-term deterioration. Dams heavily rely on hidden subsidies or come with negative externalities for the people who depend on the nearby environment, whereas the generated electricity is often sold to remote cities or given for free to private companies. The flash flood at the center of interest of this study can be considered as a composite technological, hydrological and climatological disaster, the typical recurrence of which likely to be increased by CC.

Insuring the livelihoods of the poor

Poor and marginalized communities are the most vulnerable as well as the most in need of community assistance in the aftermath of any disaster. According to Neumayer *et al.*, the best DLD is currently owned by the reinsurance company Munich RE (2013: 5, see also Munich RE, 2014). Effective risk management, however, comes at a price, a price which can be too high, as insurance schemes are usually too expensive for poor rural communities (Blaikie, 1994). Yet, it is equally well established that financial mechanisms such as insurance, can, according to Adger *et al.* 'contribute to CCA' (2007: 723). The social benefits of widespread insurance are high, as shown by Ferguson (2008: 176-229) and property, health and crop insurance 'can efficiently spread risks and reduce the financial hardships linked to extreme events' (Adger *et al.*, 2007: 723). A number of authors currently suggests that insurance schemes - if deployed according to their albeit diverging recommendations - can compensate their clients for disaster losses and damages (Adger *et al.*, 2007; Neumayer, *et al.* 2013; Wirtz *et al.* 2014). Skees *et al.* (2002) go as far as to defend this assertion specifically for less developed countries.

As for DRR and floods in particular, Blaikie *et al.* (1994) find that insurance schemes usually benefit the better-off groups. While Ferguson demonstrates that the commercialization of insurance schemes has played an important role in financial history, he also admits that insurances do not necessarily benefit the ones they claim to serve: One of his examples shows

⁵ For a modeling approach to flood risk in Asia, see for example this publication by Dutta, Herath and Musiake (2006).

how vendors succeeded in copping out from the contracts that they had previously sold to the victims of Hurricane Katrina in the United States in 2005 (2008: 176-229). Commercial insurance had to be revised moreover as a direct consequence of the 2008 markets crash, which has exposed the lack of viability of many products. Hence, it is interesting to note in that context that Skees *et al.* (2002) had come forth before the 2008 economic meltdown. Accordingly, the political ecology argument is supported through this paper – in particular because poor communities are concerned that investments into insurances, as well as dams, primarily reflect the expected marginal profits of large corporate investments.

Options for Better Communication and Information

There are ongoing expert discussions as to the exact value of Information Technology (IT) for communication measures to improve risk management. With Satterfield *et al.* (2004: 115-129) it can be assumed that people who perceive themselves to be more at risk from environmental hazards can better prepare for the event of a hazard. There seems to be some dissent though over whether 'knowledge of CC causes, impacts and possible solutions' will actually lead to better adaptation (Adger *et al.*, 2007: 735). Yet, the IPCC advocates with 'high agreement, robust evidence' that 'integration of local knowledge with additional scientific and technical knowledge can improve' DRR and CCA (IPCC, 2012: 15) (UNISDR, 2011).

According to UNISDR 2011 '(...) human-computer interactions hold significant potential for future use in disaster management and risk reduction. They reduce the information load without omission of anything important, and allow interaction with data as in the real world'. The same UN agency holds that new technologies could thus 'facilitate all phases of a disaster through effective visualization support for situation analysis, decision making, and communication in the course of disaster management'.

In this year's World Disaster Report, the International Federation of Red Cross and Red Crescent Societies devotes its attention to the rapidly rising importance of Humanitarian Information and Communication Technology (World Disaster Report, 2013: 13). Slow onset disasters entail those of incrementally higher magnitude and frequency. Climatic features that gradually worsen with CC, often leave disasters unnoticed, while already happening from a losses and damages perspective. In a way, all disasters reflect crises of communication and information. Conversely, information technologies (IT) can be used to improve risk assessment as well as disaster preparedness and response mechanisms. However, Neumayer *et al.* (2013: 5) point out that '[i]nitial reports on losses, which are usually available in the immediate aftermath of a disaster, are often highly unreliable'. In fact, the collective memory of disasters, even of the ones that attract a lot of media coverage, is typically flawed. Collective memory, media coverage and public awareness are, hence, particularly scarce when disasters develop either rapidly or particularly slowly. Losses and damages from these two types of disasters are thus difficult to assess, mainly because of failed or insufficient information, as well as a lack of data and communication.

DesInventar as a Free and Open Source IT and Communication

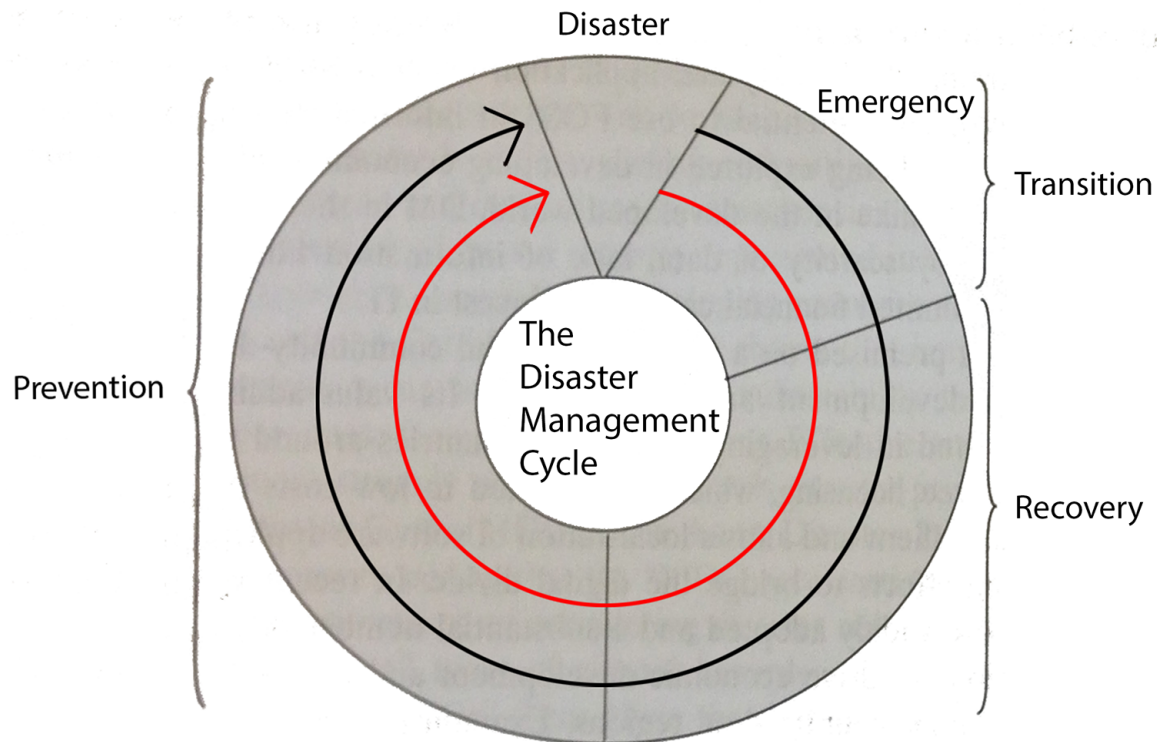
Unless privately operated, as explained for the case of insurance companies above, DLDs can be managed publicly. Zephenia's recent contribution (2012) highlights the usefulness of Free and Open Source Software (FOSS) opportunities for DRR: 'FOSS is premised on a collaborative and community-driven model of software development and maintenance' (2012: 127). FOSS for improved information and communication to support DRR is likely to

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become more commonplace in the arsenals of stakeholders that set out to reduce the disaster risks of poor communities.

Alas, Zephenia (2012) misses out on modeling, even roughly, the extensive scale of improvements that could be brought about by FOSS and in particular DLDs. In Figure I, DLD-benefits are shown by the black and red circular arrows. The size of the black arrow denotes traditional disaster management with larger losses, the red one has a smaller radius – representing fewer losses – because it draws on the advantages of DLDs in all stages of the DRR-cycle. The increasing availability of FOSS can help DLDs to be used easily by platforms of various private and public stakeholders, including the civil society. In fact, supported by UNDP and other UN agencies, governments across more than 50 countries have DLDs already in place, while activities are ongoing to expand this programme, e.g. in Myanmar (UNDP, 2013c: 14).

Figure 1. Disaster Management Life Cycle without DLD and with (in red)



Source: Modified after ZEPHENIA (2012: 128)

According to Zephenia (2012: 128) ‘destruction of infrastructure and property’ as well as ‘losses of human and animal life’ can be better avoided when improved communication systems such as FOSS are at hand. Without establishing the link between DLDs, FOSS, information and communication technologies, Zephenia (2012) has effectively promoted the deployment of DLDs in the interest of poorer communities, i.e. those that are not yet covered by insurance schemes. Building on Zephenia’s argument, if DLDs are made publicly available as FOSS, DRR becomes ‘resilient and allows [de-]localization of software applications, thus accelerating efforts to bridge the digital divide’ (2012: 129). As such,

DLDs could even be considered as a democratic approach to the technology transfer from post- to pre-industrial countries that is being discussed under the UNFCCC.

Hence the proposition to have databases as retrospectively and continually proliferating inventories of losses and damages, i.e. DLDs (see e.g. Pelling, 2006: 159, 167). The purpose of DLDs is to generate a systematic and homogeneous database on the negative effects of disasters across administrative units with the highest possible geographical and historical detail. In addition to the local, NGO-run and sector-specific DLDs, there are at least three more global ones that are worth mentioning: DesInventar, NatCat and EMDAT. DesInventar is the only one that features exclusively in the FOSS online segment.

EMDAT serves mainly humanitarian purposes and is managed by the Belgian Centre for Research on the Epidemiology of Disasters (CRED, 2013). Neumayer *et al.* (2013) provide an interesting account of the world's largest DLD, NatCat. The authors specify that '(...) with more than 20,000 entries of country years with recorded disaster damage over the period of 1980-2009, it is by far the most comprehensive existing global database on natural [sic!] disaster damage. The database reaches further back in time, but Munich Re acknowledges that before 1980 the data become increasingly unreliable and incomplete' (: 5). Data '(...) sources [are based on] government representatives, relief organizations and research facilities, but also information of insurance associations and insurance services as well as on claims made by Munich Re's customers' (Neumayer *et al.*, 2013: 5).

Every proliferating database reaches a threshold when traditional techniques for working with data are exhausted. At that point, managers draw upon high-performance computers and IT for data analysis and communication. According to Loukides (2011: 7) 'as storage capacity continues to expand, today's "big" is certainly tomorrow's "medium" and next week's "small"' (see also Zephenia, 2012). With growing data volumes, respect of the functions and premises of any database becomes more important. These include in chronological order the list of the following five basic stages (Loukides, 2011: 6):

- Data collection
- Disaggregation
- Classification or categorization
- Management of discrepancies and
- Analysis and communication

The subsequent section pertaining to the case-study will explore how DesInventar positions itself as one of the main DLDs against this general backdrop of guiding principles on database management and structure. DesInventar does not aim at classifying data. While the deeper reasons for this are complex, a first-hand explanation is already available: Its intrinsic methodology is, at this stage, unable to break collected data into statistically workable categories.

Research Method and Data Structure

Studying climatic events and meteorological processes today arguably allows science to better understand and anticipate the kinds of extremes that will mark climates at the end of the 21st century (see IPCC, 2012: 10, 12-13). While not aiming at discussing the possible exchanges between natural- and social-scientific methodologies, or contesting the IPCC's

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credibility for what it is, this paper seeks to strengthen the growing public policy efforts towards DRR and CCA. It further advocates for the establishment of DLDs as an effective strategy for preventing climatic hazard from turning into disaster. Heltberg, Siegel and Jorgensen (2008) argue that a lot of CC-mitigation and disaster reduction measures would already lead to much better risk control regardless of the exact timing and vigor of the anticipated climatic changes. The present paper chose the 'No Regrets' ethical approach to CC purported by the said authors (Heltberg, Siegel and Jorgensen, 2008: 12). In terms of a scientific method, this paper's central argument has been derived from a review of literature and further draws on empirical data from a case-study.

The case-study was conducted in two subsequent phases of data collection during the author's presence in Myanmar in August 2013: The first phase was his professional involvement in a DLD-management project in Yangon and the second was his private field visit to areas at the Thai-Myanmar border, flooded at the time.

The used methods reflect, in more detail, a mutually reinforcing and spontaneously adapting application of 'participant observation' and 'conversations with a purpose', theoretically described by Valentine (1997) and Bryman (2001)

The work-related phase of empirical input was dominated by an improved understanding of the discussions around development of DLDs. The focus was specifically put on Myanmar's DLD, after a global understanding had been gained by a prior literature review. The main research questions underlying the author's field study were around institutional funding and ownership, progress and prevailing challenges. More than three informal interviews were conducted during a three-day professional stay with the UNDP country office. Of these, one was held with the program analyst in charge of DRR and CCA, one with the manager of the DLD project and one with an expert-consultant who regularly advises the Government of Myanmar on DLDs.

At a second stage of data collection additional observation and interviewing took place. This phase was marked by a visit to the flood-affected areas and communities in Kayin State together with humanitarian workers from the United Nations Organization. The method used at this occasion was the same as in phase one, where involvement was less active. The author directed his main attention to the self-analysis of relief efforts by the humanitarian workers. In total, three interviews were conducted as an integral part of participant observation under this phase. One of these was done with a humanitarian worker on duty, another with the father of a family whose house was flooded and a third with a driver whose family was affected. Of the overall six interviews or 'conversations with a purpose' that were undertaken, three were done with women and three with men.

While, during the first phase, observation consisted mainly in understanding the dynamics of attempting to establish DLDs between a development agency and about twenty other stakeholders, observation during the second phase became a direct witnessing of some of the losses and damages that are caused by a flood as well as of targeted relief efforts. Upon completion of these two phases of fieldwork, the received visual, written and verbal material was compiled and re-worked through notes. Thus useful data-linkages between stakeholders, agendas, strategies, devices and real actions were retained. Those portions of the study, which are directly useful to this paper's take at developing a public DLD in Myanmar, are presented under point five below.

Case-Study

Internal communiqués that circulated between humanitarian agencies in early August 2013 reported that almost 40,000 villagers had to be evacuated from their dwellings in Southeast Myanmar as a result of a vast river flooding. After ten days of continued heavy rainfall, a dam across the border with Thailand had reached its maximum capacity. Operators decided to suddenly release excessive waters to reduce the risk of the dam bursting. Due to a lack of communication they could not inform all the dwellers of the downstream villages on time, who then had to either be urgently relocated or were dangerously affected and subsequently became the beneficiaries of relief efforts.

One international helper commented: ‘People put their cattle into classrooms to save it from drowning while their own huts were underwater’. The pillars upon which huts and houses are typically built were not high enough to prevent the floodwaters from entering their living space in this case. The Government of Myanmar, humanitarian agencies and organizations assisted the victims, and no casualties were reported.

The Government of Myanmar, supported by a DRR Working Group, UNDP, UN-HABITAT and UNISDR, is implementing an environmental programme with a DRR component. One of the main activities of this DRR component is the establishment of a DLD. Ongoing activities rely on the Relief and Resettlement Department as the leading government authority, also including the General Administration Department, the Ministry of Environmental Conservation and Forestry, the Department of Rural Development, the Ministry of Energy and the Department of Meteorology and Hydrology. Based on DesInventar technology, the planned DLD can be kept up-to-date in live by the circa 20 key stakeholders that are involved at this stage. It is being set up to reach 40 years back into the country’s history and to cover all its administrative units at national, regional and local levels.

Efforts to establish a public DLD are made by the Government of Myanmar at a time when urbanization and land grabbing rates are high and poor communities are still excluded from the expected benefits that the ongoing rush to the country's resources generates (Fuller, 2013). Yet, according to UNDP (2013c: 41), the data density of DLD records in Myanmar is still scarce. Key stakeholders that are involved in the current constitution of a DLD for Myanmar have relatively low budgetary and human resources capabilities, which explain the support of UNDP, UN-HABITAT and UNISDR. Yet these agencies might have underestimated the difficulties that project implementation is currently encountering while trying to obtain useful data from across ministerial mandates and sector silos. The project is progressing slowly while authority over the DLD is still being negotiated. As two of the supervisors put it: ‘Ownership for the project has yet to be built’. In addition, DesInventar has a fundamental flaw when it comes to data disaggregation.

The DesInventar 2009 methodological guide lacks a discussion on how to obtain non-disaggregated data from disasters and reports of such. As a logical consequence, the database is unable to deal with clearly defined, manageable units. To put it in general with Loukides, ‘data is frequently missing or incongruous and many sources of “wild data” are extremely messy. The first step of any data analysis project is “data conditioning,” or getting data into a state where it’s usable’ (Loukides, 2011: 6).

Instead of applying the five basic steps of any database, as outlined above in this paper, the methodological guide of DesInventar provides a vaguely political recommendation on how to understand the volumes of messy data that become available during a disaster: ‘One of the objectives of DesInventar’s methodology, and precisely one of the motives for its development, is to validate or improve hypotheses about the relationship between disasters

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and conditions of vulnerability. For that reason, it should try to facilitate the relation between inventories and other social, economic or environmental variables' (DesInventar, 2009: 14).

Surprisingly, on the Internet landing page for the Desinventar methodology, the authors draw attention to the necessity of having disaggregated data: 'inventories require fully disaggregated data for each of the geographical units in the selected zoning system. [Disaggregating data] has tremendous implications on the work and the later usability of the information' (DesInventar, 2013). By this indication or self-warning, the authors of DesInventar have probably tried to correct the methodological flaw that they have retroactively become aware of - admitting themselves that: 'Unfortunately large and medium disaster information is very often not available in its disaggregated form' (DesInventar, 2013).

As one UNDP employee supervising the organization's global DRR activities has pointed out: 'Check [DesInventar], none of the data is disaggregated!' In fact, the authors of DesInventar seem to have had feedback already, as they explain that 'disaggregating data is a difficult task [that] will raise dramatically the level of effort. Researchers face the problem of disaggregating data very frequently and there are many instances where the problem has simply no solution' (DesInventar, 2013).

As part of project implementation, UNDP already deals with the problem of not being able to put raw data into categories that are useful from a scientific perspective: 'The aggregation of losses in this manner is possible in only six cases among the 57 surveyed – Jordan, Kenya, Lebanon, Solomon Islands, Vanuatu and Vietnam' (UNDP, 2013c: 27). Six of its projects have been able to establish DLDs that can be slightly better analyzed, by combining DesInventar with a supplementary disaster disaggregation tool, the global disaster Identifier, GLIDE. 'The GLIDE consists of: two letters to identify the disaster type (i.e. TS for Tsunami); the year in which the disaster event occurred; a six-digit, sequential disaster number; and the ISO country code, i.e. IDN for Indonesia. For example the GLIDE number that corresponds to the 2004 Indian Ocean tsunami is: TS-2004-000147-IDN' (UNDP, 2013c: 22). When used in conjunction with GLIDE, DesInventar is thus able to establish a slightly more manageable DLD. To become even more useful, in terms of understanding disaster impact and of preparedness options, much finer categories to understand disasters would have to be added.

In conclusion of this section, it can be stated that DesInventar is generally likely to generate database analyses of higher political and lower scientific value. Messages can be generated along the following: 'Indeed, there is loss and damage and it increases in the event of a disaster'. Unfortunately the public cannot be informed any further than this under current DesInventar methodology. In the six cases where the GLIDE-disaggregation adds to the latter, losses and damages can be broken down per type of disaster.

DesInventar does unfortunately not, at this time, provide data sets that are systematically disaggregated. Disaggregation would for example be useful, if done according to the categories outlined in Table 1. Pelling (2006:167) might thus have wanted to appreciate the qualities of DesInventar with greater caution, in particular so, when pointing out that this tool had advantages in terms of 'categorization'.

The fact that the DesInventar methodology generally lacks disaggregated data does not mean that all related projects have a weak methodology. In the case of most public sector projects, having more detailed databases would require more budget and experts than typically available to governments or agencies such as UNISDR, UNDP or the DesInventar

consortium. The insurance industry has DLDs of much higher quantity of population and quality of disaggregation due to a direct interest in having reliable information that is much more vested, continued and specific. Regulation of this industry should thus be revisited in a way to improve public DRR by sharing the available data, which thus becomes deployable by public administration to reduce mortality, morbidity as well as losses and damages. At the same time, new ways must be explored to ensure fair competition between companies that enter new markets or want to operate in economies such as Myanmar, in terms of publicly available data.

As for the flood of August 2013, another helper commented: ‘The number of 38,000 relocations remained unpublished in order to avoid cross-border tensions and to avoid political ‘headaches’ at the top levels of the concerned organization’. UNOCHA has merely come forth via the internet with estimates of 245 schools that were allegedly closed and 30,000 acres of farmland that were inundated (Reliefweb, 2013). For this event, having had a DLD would have allowed the Government of Myanmar to synthesize a comprehensive picture of the damage across sectors and townships and to compare it with similar events in the past. Sharing data from the DLD would thus have been an administrative reflex rather than a political move, potentially serving to improve the resilience of vulnerable populations.

Conclusion

The promise that governments might one day be able to claim compensation for CC-related disasters under the UNFCCC on the basis of forensically traced losses and damages, might boost their motivation to populate DLDs. This should, however, not be the main driving force behind such an investment. There is too little evidence available to date to establish a direct causal link between losses and damages and global climate change as the single overarching cause of all climatic and hydro-meteorological hazards. In fact, recent discussions over approaches to prevent losses and damages at COP19 have not evolved in that direction. The longer discussions prevail, the more likely the majority of countries that are now at the asking end will also eventually become GHG-contributors.

Although studying past disasters may not allow predicting future extreme events and related threats, DLDs encapsulate a great potential improvement in terms of natural hazard-related public disaster management. In order to ensure good and persistent administration through transparency, communication, and accountability in the DRR-sector, governments could set up, populate, and manage DLDs. Reinsurance companies already dispose of rich and disaggregated databases that serve them to understand what causes losses and damages, and how these can be avoided and partially compensated.

It can therefore be concluded that DLDs would help governments take informed DRR- and CCA-related decisions. Especially in countries like Myanmar, where vast, poor communities in cities and villages are highly vulnerable and exposed to natural hazards, it can be concluded that the available database is most useful when it is sufficiently well populated. Database operators should strive to properly structure and disaggregate data to the extent that it is not only useful as a basis for political statements but also as an empirical foundation to run statistical analyses. Once this is the case, DLDs can become effective tools on the basis of which to develop information packages to improve preparedness and early warning mechanisms and to develop broader communication and awareness raising tools for DRR and CCA. Disaster risk management would be improved through effective involvement of all key stakeholders and the bridging of sector boundaries.

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As shown above, this argument holds true for flash floods and floods that cause long-term environmental deterioration, linked to CC. Ongoing efforts towards the creation of a disaster loss and damage database in Myanmar could continue to involve all relevant governmental units and stakeholders from across the affected sectors. Stakeholders here could take the lead in terms of data disaggregation for their public DLDs under the current UNDP quality assurance and thereby improve on the extant but flawed DesInventar methodology.

Stakeholders could centralize individual records of losses and damages by aiming at a rich DLD that contains data from the impacted sectors and by using best practices from the insurance sector in terms of database management. One of the main reasons for considering a private-public partnership for DLDs could be the statistically useful disaggregation of the available data that insurance companies have on offer. Such an improved database handling could be designed to improve flood preparedness and risk management of the smallholder farmers in the delta plains Myanmar. These groups are in high need of measures to prevent their livelihoods from extreme floods.

Communication before, during, and after disasters should be based on robust DLDs in order to reduce the vulnerability of those communities that are likely to face climatic and other hazards. A publicly managed DLD could become an integral part of any country's DRR strategy, as long as it is the government's decision to effectively improve the resilience of poor and vulnerable populations. In particular so, considering the anticipated CC-impacts.

WORKS CITED

- Adger, W.N.; Agrawala, S.; Mirza, M.M.Q.; Conde, C.; O'Brien, K.; Pulhin, J.; Pulwarty, R.; Smit, B. and Takahashi H. Assessment of adaptation practices, options, constraints and capacity. In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 717-743, 2007.
- Barber, R. The Responsibility to Protect the Survivors of Natural Disaster: Cyclone Nargis, A Case Study, In *Journal of Conflict and Security Law* (3), pp. 1 -22, 2009.
- Birkmann, J. Measuring Vulnerability to Promote Disaster-Resilient Societies: Conceptual Frameworks and Definitions, In Birkmann, J. (ed) *Measuring Vulnerability to Natural Hazards. Towards Disaster Resilient Societies*, Tokyo: United Nations University Press, pp. 9-54, 2006.
- Blaikie, P.; Cannon, T.; Davis, I. and Wisner, B. *At Risk. Natural Hazards, People's Vulnerability, and Disasters*, London: Routledge, 1994.
- Brooks, N. *Vulnerability, risk and adaptation: A conceptual framework*, Tyndall Centre for Climate Change Working Paper 38, Norwich: University of East Anglia, 2003.
- Bryman, A. *Social Research methods*. Oxford, Oxford University Press, 2001.
- Clark, H. *Putting Resilience at the Heart of the Development Agenda*, Lecture To The Humanitas 2012 Visiting Professorship in Statecraft and Diplomacy Cambridge, United Kingdom, 16 April 2012, accessed in October 2013, <http://www.undp.org/content/undp/en/home/presscenter/speeches/2012/04/16/helen-clark-putting-resilience-at-the-heart-of-the-development-agenda.html>, 2012.
- Cohen, R. The Burma Cyclone and the Responsibility to Protect, In *Global Responsibility to Protect* (1), pp 253-25, 2009.
- CRED Centre for Research on the Epidemiology of Disasters - CRED (2013) EM-DAT, The International Disaster Database, accessed in October 2013, www.emdat.be, 2013.
- D'Arrigo, R.; Palmer, J.; Ummenhofer, CC.; Nyi Nyi Kyaw and Krusic, P. Three centuries of Myanmar monsoon climate variability inferred from teak tree rings. In *Geo Research Letters*, VOL. 38, 2011.
- DesInventar Disaster Inventory System - Methodological Guide. Version 8.1.9, accessed in October 2009, <http://www.desinventar.org/>, 2009.
- DesInventar <http://www.desinventar.org/>, accessed in October, 2013.
- Dutta, D.; Herath, S. and Musiake, K. An Application of a Flood Risk Analysis System For Analysis of a Flood Control Plan in a River Basin, In *Hydrological Processes*, 20 (6), pp 1365-1384, 2006.
- Ferguson, N. *The Ascent of Money. A Financial History of the World*, USA: Penguin, 2008.
- Fuller, T. As Myanmar Modernizes, Old Trades Are Outpaced by New Competitors. In *The New York Times* (19 Nov), accessed in November 2013,

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http://www.nytimes.com/2013/11/20/world/asia/as-myanmar-modernizes-old-professions-go-the-way-of-the-typewriter.html?_r=0, 2013.

Füssel, H-M. Vulnerability: A generally applicable conceptual framework for climate change research, In *Global Environmental Change* (17) pp 155-167, 2006.

Guardian, The Cyclone Nargin cost Burma \$4bn, says UN report, In *The Guardian Online Edition* (21 July) accessed in October 2013,
<http://www.theguardian.com/world/2008/jul/21/cyclonenargis.burma>, 2008.

Harris, K.; Keen, D. and Mitchell, T. When disasters and conflicts collide - Improving links between disaster resilience and conflict prevention. UK: DFID/ODI, 2013.

Heltberg, R.; Siegel, P.B. and Jorgensen, S.L. Addressing Human Vulnerability to Climate Change: Toward a 'No Regrets' Approach. in *Global Environmental Change* (21 November), 2008.

Hewitt, K. Regions of Risk. A Geographical Introduction to Disasters, In MITCHELL, B. (ed) *Themes in Resource Management*. Singapore: Longman, 1997.

Holling, C.S. Resilience and Stability of Ecosystems, In *Annual Review of Ecology and Systematics* (4) pp 1-23, 1973.

IPCC Intergovernmental Panel on Climate Change Summary for Policymakers, In Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.) *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, UK, and New York, NY, USA, pp. 1-19, 2012.

IPCC Intergovernmental Panel on Climate Change Fifth Assessment Report - Summary for Policy Makers, IPCC WGI AR5 SPM-30 27, accessed in September 2013,
http://www.climatechange2013.org/images/uploads/WGIAR5-SPM_Approved27Sep2013.pdf, 2013.

Loukides, M. What is Data Science? The future belongs to the companies and people that turn data into products. O'Reilly: Sebastopol and Tokyo, 2011.

Munich RE NatCatService, accessed in October 2013,
<http://www.munichre.com/en/reinsurance/business/non-life/georisks/natcatservice/default.aspx>, 2013.

Neumayer, E.; Pluemper, T and Barthel, F. The Political Economy of Natural Disaster Damage. In *Global Environ. Change*, pp 1-12 accessed in October 2013
<http://dx.doi.org/10.1016/j.gloenvcha.2013.03.011>, 2013.

Paterson, J.S. Araujo, M.B., Berry, P.M. Piper, J.M., and Rousewell, M.D.A. Mitigation, Adaptation, and the Threat to Biodiversity, In *Conservation Biology*, accessed in October 2013 <http://www.ibiochange.mncn.csic.es/wordpress/wp-content/uploads/paterson-et-al-cb2008.pdf>, pp 1-4, 2008.

PEDRR Partnership For Environment And Disaster Risk Reduction, accessed in October 2013, <http://www.pedrr.org>, 2013.

Pelling, M. Review of Global Risk Index Projects: Conclusions for National and Sub-National Approaches, In Birkmann, J. (ed) *Measuring Vulnerability to Natural Hazards. Towards Disaster Resilient Societies*. Tokyo: United Nations University Press, pp.151-170, 2006.

Reliefweb OCHA Flash Update 4, 2 Aug 2013, accessed on 30 August 2013
<http://reliefweb.int/report/myanmar/ocha-flash-update-myanmar-flash-floods-01-august-2013>, 2013.

Satterfield T.A. Mertz, C.K. and Slovic P. Discrimination, vulnerability and justice in the face of risk. *Risk Anal.* 24, 115-129, 2004.

Skees, J.; Varangis,; P. Larson, D.; and Siegel, P. Can Financial Markets be Tapped to Help Poor People Cope with Weather Risks? World Institute for Development Economics Research Discussion Paper 23 (February), 2002.

The Economist. China and the environment. The East is grey. In: *The Economist* (10th August), accessed online <http://www.economist.com/news/briefing/21583245-china-worlds-worst-polluter-largest-investor-green-energy-its-rise-will-have>, 2013a.

The Economist. Politics this Week. *The Economist* October 19th (2013) accessed in October 2013, <http://www.economist.com/news/world-week/21588135-politics-week>, 2013b.

The International Rivers Initiative <http://www.internationalrivers.org/> accessed in February, 2014.

The World Bank, Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects, Guidance Notes, accessed in October 2013, <http://siteresources.worldbank.org/EXTTOOLKIT3/Resources/3646250-1250715327143/GN3.pdf> or <http://go.worldbank.org/DFS8T30YJ0>, 2011.

UNDP Guidelines and Lessons for Establishing and Institutionalizing Disaster Loss Databases Risk Knowledge Fundamentals Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction, accessed in October 2013, <http://www.gripweb.org/gripweb/sites/default/files/Guidelines%20and%20Lessons%20for%20Establishing%20and%20Institutionalizing%20Disaster%20Loss%20Databases.pdf>, 2009.

UNDP Changing With The World. UNDP Strategic Plan 2014-17. New York: UNDP, 2013a.

UNDP Climate Risk Management - Technical Assistance Support Project. New York: UNDP, Accessed online in October 2013, http://www.undp.org/content/undp/en/home/ourwork/crisispreventionandrecovery/projects_initiatives/climate-risk-management--technical-assistance-project--supportin/, 2013b.

UNDP A Comparative Review of Country-Level And Regional Disaster Loss and Damage Databases. New York: UNDP/BCPR, 2013c.

UNDP Internal Post-Disaster Needs Assessment (PDNA) Training. New York, November 2013.

UNDP/BOTG/UNU United Nations Development Programme / Boots on the Ground Initiative and United Nations University, Bonn, Loss and Damage Brown Bag event in New

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York on 20 February 2013 with UNU-EHS and Boots on the Ground Initiative, accessed online in December 2013, <http://www.ustream.tv/recorded/29429414/highlight/326801>, 2013.

UNFCCC Conference Of The Parties (COP) Report of the COP on its thirteenth session, held in Bali from 3 to 15 December 2007, FCCC/CP/2007/6/Add.1, Bonn: UNFCCC, accessed in October 2013 <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>, 2008.

UNFCCC Report of the Conference of the Parties on its eighteenth session, held in Doha from 26 November to 8 December 2012, 2013a

UNFCCC Advance unedited version of Decision -/CP.19, accessed in December 2013, http://unfccc.int/files/meetings/warsaw_nov_2013/decisions/application/pdf/cop19_lossanddamage.pdf, 2013b.

UNISDR International conference on information systems for crisis response and management: Open track from early-warning systems to preparedness and training. Eighth Edition, accessed in October 2013, <http://www.unisdr.org/we/inform/events/16014>, 2011.

UNISDR, Synthesis Report: Consultations on a Post-2015 Framework on Disaster Risk Reduction (HFA2), accessed in October 2013 <http://post2015.iisd.org/news/unisdr-reports-on-hfa2-consultation/>, 2013a.

UNISDR Terminology, accessed in October 2013 <http://www.unisdr.org/we/inform/terminology>, 2013b.

Valentine, G. 'Tell me about ...: using interviews as a research methodology'. In R. Flowerdew and D. Martin (eds.) *Methods in Human Geography: A guide for students Doing a Research Project*. London: Longman, pp. 110-126, 1997.

Wealer, P. *Impact and Potential of Nature-Parks as an Instrument of Rural Governance in Luxembourg*. PhD thesis submitted to Humboldt University, Faculty of Natural Sciences, Berlin, 2008.

Welsh, J. *Implementing the Responsibility to Protect*, In Policy Brief of the Oxford Institute for Ethic, Law and Armed Conflict (1) pp 2-9, 2009.

Wirtz A; Kron, W. and Steuer, M. *The Need For Data. Natural Disasters and The Challenges of Database Management*, In *Natural Hazards*, Volume 70, Issue 1, pp. 135-157, 2014.

World Disaster Report, Focus on technology and the future of humanitarian action, Switzerland, Geneva: International Federation of Red Cross and Red Crescent Societies, 2013.

Zephenia, C. *Exploring FOSS opportunities in natural hazard risk assessment and disaster management*, In (SOWE et al. 2012) Sowe, S. K.; Parayil, G. and Sunami, A. (2012) *Free and open source software and technology (FOSS) for sustainable development*, Tokyo: United Nations University Press, pp.122-140, 2012.

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Challenges for Civil-Military Cooperation in Peace Support Operations: Examining the Framework of Comprehensive Approaches

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ABSTRACT

Since the end of the Cold War and following the globalization process, the international community has been facing new challenges and problems — such as humanitarian crises, natural disasters, ethnic and religious conflicts, transnational organized crime and terrorism — which affect in a significant way the life of people around the world. In such circumstances, governments and international organizations, by acknowledging a strong link between development and security, initiated multidimensional and comprehensive approaches in order to address in an efficient manner all these challenges in highlighting the significance of human security. The comprehensive approaches aim to promote strong cooperation and coordination between civilian and military actors involved in peace support operations by addressing several aspects, such as peacekeeping, humanitarian assistance, stabilization, counterinsurgency, reconstruction and development aid. This article focuses on how the comprehensive approaches influenced the evolution of civil-military interactions into complex and multidimensional peace support operations. By identifying the new roles and functions of military actors in such operations, the article highlights some challenges to civil-military relations that are brought about by the involvement of military actors in non-military tasks. Analyzing the implementation of comprehensive approaches via Provincial Reconstruction Teams in Afghanistan, the article underlines that the outcomes are mixed, as long as such approaches can blur the lines between military and non-military activities, combatants and non-combatants. Although the comprehensive approaches¹ were born from a necessity to promote efficient management of resources and to strengthen civil-military cooperation by avoiding overlaps and tensions between the two actors, this article argues for

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¹ The term ‘comprehensive approaches’ is used in this article in a generic sense, referring to any approach based on integration of activities performed by civil and military actors at local, national or international levels.

case-by-case implementation that takes into account local features and the specific security situation.

KEYWORDS: *Civil-Military Relations, Comprehensive Approaches, CIMIC, Peace Support Operations, Provincial Reconstruction Teams*

I. INTRODUCTION

The process of globalization affects all domains of life, as well as the ways in which war and peace are dealt with. As a result, the roles and functions of military forces have changed and multiplied. Beside the traditional and core mission of defending national sovereignty, military forces are required to engage in an ever-increasing number of peacekeeping and humanitarian operations and to perform law enforcement tasks related to the fight against organized crime, trafficking and terrorism. Therefore, the military, which are seen as key players in addressing war and conflict, could also play an important role in providing humanitarian aid, disaster relief, or performing various non-traditional military functions in different stages of peace support operations (PSOs).

The engagement of military actors in operations and tasks usually performed by non-military actors often triggers controversies. This paper aims to provide a brief overview of some aspects and challenges for civil-military cooperation (CIMIC) within the framework of comprehensive approaches to complex PSOs. After defining the framework and significance of CIMIC, the nexus between security and development that led to the emergence of comprehensive approaches will be analyzed. Then, the article will deal with the new roles of military forces and the challenges that the new roles bring to civil-military relations (CMR) in PSOs by referring to some aspects resulting from the activities of Provincial Reconstruction Teams (PRTs) in Afghanistan. Finally, the article will conclude by discussing the applicability of comprehensive approaches in specific situations.

The information gathered in this paper came from a variety of sources, including reports, commentaries and publications of military, governmental, intergovernmental organizations, NGOs, think tanks and academia. This paper also draws on the author's personal experiences in the military field, as well as on discussions with experts and workers involved in the implementation of comprehensive approaches in Afghanistan.

II. A CONCEPTUAL FRAMEWORK FOR CIVIL-MILITARY COOPERATION

CMR is a complex concept that includes a plurality of aspects related to the interactions between civilian and military actors. In the academic literature, CMR refers to theoretical approaches that tackle the interactions between political elites, military and citizenry by focusing on four specific elements: 1) the degree of civilian control over the military; 2) the degree of the professionalism of the military; 3) the interaction between civilian and military actors in times of peace and war; and 4) the compatibility or divergency of their views.²

² Andrews, Brandy M., *Patterns of Civil-Military Relations in Democracy*, Fort Leavenworth Kansas: United States Army Command and General Staff College, School of Advanced Military Studies, 2008, p.14; Bruneau and Matei identified three criteria: democratic civilian control over military, operational effectiveness, and

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The first attempt to establish a theory of CMR belongs to Samuel Huntington who highlighted the differences between the values and rules of civil and military cultures by pointing out the necessity for a clear separation between civilian and military activities, as well as the need for civilian control over military forces.³ Huntington's theory was the basis for the development of the convergence theory by Morris Janowitz who, while acknowledging the differences between civilian and military actors, emphasized the difficulty in making a clear separation between them, as well as the risk of seeing the military as an organization apart from society.⁴ Contrary to Huntington who promotes a clear-cut distinction between military and civilian actors in order to ensure efficient CMR, Janowitz promotes the idea of an "integration of the values of the military and the society" in order to achieve the same goal.⁵

Huntington's and Janowitz's theories can be regarded as the classical theories of CMR that set a conceptual framework for most of the contributions that followed, such as: Peter Feaver's agency theory, Charles Moskos's occupational theory, and Eliot Cohen's unequal dialog theory.⁶ One of the most recent contributions to the field is Rebecca Schiff's concordance theory which emphasizes the need for an agreement and a cooperative relationship between military, political elites and society. Her theory highlights the idea that based on culture, history and politics CMR can take a diversity of forms from separation to integration, but that the most effective results are achieved when civilian and military actors find a common ground.⁷

On a more practical level, civilian-military relationships have been described by various organizations in different ways depending on their purposes and status. Military actors — national or multinational military forces, alliances like the North Atlantic Treaty Organization (NATO) — focus on military objectives; on the other hand, civilian actors — humanitarian agencies, non-governmental organizations (NGOs), such as the International Committee of the Red Cross, the Save the Children Fund, the Cooperative for Assistance and Relief Everywhere — focus entirely on humanitarian objectives. Intergovernmental organizations, such as the United Nations and the European Union, without neglecting the military aspect of intervention, strongly emphasize the importance of humanitarian goals. Thus, many of these

efficiency of military organizations. See: Bruneau, Thomas and Matei, Florina Cristiana, *The Routledge Handbook of Civil-Military Relations*, Abington: Routledge, 2013, p.1.

³ Huntington, Samuel, *The Soldier and the State: The Theory and Politics of Civil Military Relations*, Cambridge: The Belknap Press of Harvard University Press, 1957, p.74-75.

⁴ Janowitz, Morris, *The Professional Soldier: A Social and Political Portrait*, Glencoe: The Free Press of Glencoe, 1960, p.270, 422, 440.

⁵ Born, Hans, "Democratic Control of Armed Forces: Relevance, Issues and Research Agenda", in *Handbook of the Sociology of the Military*, eds. Caforio, Giuseppe, New York: Springer, 2006, p.156.

⁶ Feaver's agency theory focuses on aspects of civilian control of the military and on the compatibility of their goals that can lead to a work-shirk relationship. Moskos's occupational theory highlights the evolution of the military from an institutional model to an occupational model which makes the military compatible with civilian institutions. Cohen's theory of unequal dialog underlines the differences between the conduct of CMR in times of peace and war.

⁷ Schiff, Rebecca, "Civil-military relations reconsidered: A theory of concordance", *Armed Forces and Society*, 22(1), Fall 1995, p.9.

organizations make a clear distinction between different types of interactions (e.g. CIMIC, civil-military coordination) that are considered components of CMR, which is a generic concept.

In this respect, CIMIC represents for NATO “the co-ordination and co-operation, in support of the mission, between the NATO Commander and civil actors, including national population and local authorities, as well as international, national and non-governmental organizations and agencies”.⁸ For the Department of Peacekeeping Operations (DPKO), CIMIC is seen as a “military staff function that contributes to facilitating the interface between the military and civilian components of an integrated mission, as well as with the humanitarian and development actors in the mission area, in order to support UN mission objectives”, while civil-military coordination (CMCoord) refers to “a humanitarian civil-military coordination function”⁹ and represents “the system of interaction, involving exchange of information, negotiation, de-confliction, mutual support, and planning at all levels, between military elements and humanitarian organizations, development organizations, or the local civilian population to achieve respective objectives”.¹⁰ The Office for Coordination of Humanitarian Affairs (OCHA) and the Inter-Agency Standing Committee (IASC) describe CMCoord as a “shared responsibility” and “the essential dialogue and interaction between civilian and military actors in humanitarian emergencies that is necessary to protect and promote humanitarian principles, avoid competition, minimize inconsistency, and, when appropriate, pursue common goals”.¹¹

These definitions are important to the extent that they reveal some differences in perception and significance of CMR among organizations for which such interactions play an important role. Therefore, for the OCHA and the IASC, CMCoord can be understood as cooperation, coordination and co-existence, thus referring to a broad spectrum of relationships that “range from coexistence to cooperation”¹² where cooperation indicates the highest degree of synchronization and coexistence is understood as the minimum level of interaction. NATO prefers to use the term “cooperation” because, as de Coning argues, “coordination represents a higher order of mutual engagement than cooperation” and thus it “regards cooperation as the most appropriate relationship with its humanitarian counterparts”.¹³ Concurrently, the DPKO prefers to use the term CIMIC when referring to integrated peacekeeping operations.¹⁴

⁸ NATO, *NATO Civil-Military Co-operation (CIMIC) Doctrine*, AJP-9, Brussels: NATO Standardization Agency, 2003,1-1; NATO, *NATO Military Policy on Civil-Military Co-operation*, MC411/1, Brussels: NATO, 2002, Section 2 (4).

⁹ DPKO, *Civil-Military Coordination in UN Integrated Peacekeeping Missions*, Policy Paper, New York: United Nations, 2010, p.2.

¹⁰ DPKO, *Civil-Military Coordination Policy*, New York: United Nations, 2002, p.2.

¹¹ OCHA, *Civil-Military Relationship in Complex Emergencies*, IASC Reference Paper, Geneva: United Nations, 2004, p.11.

¹² *Ibid.*

¹³ de Coning, Cedric, “Civil-Military Coordination and UN Peacebuilding Operations”, *African Journal on Conflict Resolution*, 5(2), 2005, p.104.

¹⁴ Given the complexity and the broadness of CMR, scholars dealing with civil-military interactions in conflict or post-conflict situation, very often tend to use the term CIMIC instead of CMR. On the contrary, the ICRC prefers to use CMR to describe the interactions between humanitarian and military actors in a conflict situation. For more information about CMR and CIMIC, see: Rehse, Peter, *CIMIC: Concepts, Definition and Practice*, Hamburg: Institute for Peace Research and Security Policy, 2004, p.14-15; Rana, Raj, “At a Crossroad or a Dead-End? Considering the Civil-Military Relationship in Times of Armed Conflict” in *Civil-Military Cooperation in Post Conflict Operations*, eds. Ankersen, Christopher, Abingdon: Routledge, 2008, p.228;

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However, many scholars have pointed out that one of the most important factors in the choice of the type of relationship for civilian actors is strongly linked to the degree of involvement of military actors in combat.¹⁵ Therefore, the higher the degree is, the more civilian actors will be unwilling to maintain a close relationship with military counterparts in order to avoid any violation of the principles of humanity, neutrality, impartiality and independence, which must be observed during humanitarian assistance operations according to the OCHA.¹⁶

Regardless of how they are defined, civil-military interactions have existed under different forms in multiple fields at national and international levels. Civilian and military actors have operated in the same environment for a long time ago,¹⁷ and thus, the relationship between them is not a new phenomenon. However, the changes in the international context after the end of the Cold War, the emergence of non-state actors and non-traditional threats, as well as the complex transformations related to the methods and means of warfare, gave rise to new trends and challenges for the interactions between these two actors. Besides the traditional context of an on-going war, it is possible to identify at least two other areas of interaction between civil and military actors: natural disasters and PSO. The complexity of such situations has led both civilian and military actors to understand the crucial significance of their cooperation. Thus, various attempts have been made to create policies, doctrines and guidelines with the ultimate goal to assure a smooth interaction by avoiding overlap and misunderstanding in all the above-mentioned settings. NATO's CIMIC is defined and explained in two fundamental documents: CIMIC doctrine and field handbook.¹⁸ Within the UN, there are several regulations and guidelines¹⁹ that bear the imprint of the UN structures

Ankersen, Christopher "Interrogating Civil-Military Cooperation", in eds. Ankersen (2008), p.3; de Coning (2007), p. 97-103.

¹⁵ De Coning (2005), p.105; Oliker, Olga et al, *Aid during Conflict: Interaction between Military and Civil Assistance Providers in Afghanistan, September 2001-June 2002*, Santa Monica: RAND, 2004, p.xiii; Metcalfe, Victoria, Haysom, Simone and Gordon, Stuart, *Trends and Challenges in Humanitarian Civil-Military Coordination*, Humanitarian Policy Group Working Paper, London: Overseas Development Institute, 2012, p.2; OCHA (2004), p.13, figure 1-1.

¹⁶ OCHA, "OCHA on Message: Humanitarian Principles", June 2012. Available from: https://ochanet.unocha.org/p/Documents/OOM-humanitarianprinciples_eng_June12.pdf.

¹⁷ The International Committee of the Red Cross was established in 1893 and has been operating since the First World War. The Save the Children Found was created and has been operating since 1919. See: <http://www.icrc.org/eng/who-we-are/history/overview-section-history-icrc.htm> and <http://www.savethechildren.org/site/c.8rKLIXMGIpI4E/b.6229507/k.C571/History.htm>. For more information about civil and military actors working in the same environment, see: Slim, Hugo "The Stretcher and the Drum: Civil Military Relations in Peace Support Operations", *International Peacekeeping*, 3(2), Summer 1996, pp.123-140; Sørensen, Birgitte R., "Violence and humanitarian assistance: Reflections on an intricate relationship", *Journal of Humanitarian Assistance*, September 2006, pp.14-19.

¹⁸ NATO, *NATO Civil-Military Co-operation (CIMIC) Doctrine*, AJP-9, Brussels: NATO Standardization Agency, 2003; Civil-Military Cooperation Centre of Excellence, *CIMIC Field Handbook* 3rd.edn., Enschede: Civil-Military Cooperation Centre of Excellence, 2012.

¹⁹ The most recent UN guidelines are: OCHA, *Guidelines on the Use of Military and Civil Defence Assets to Support United Nations Humanitarian Activities in Complex Emergencies (MCDA Guidelines)*, 2006; OCHA, *Oslo Guidelines: Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief*, Geneva: United Nations, 2007; OCHA, *Civil-Military Guidelines & Reference for Complex Emergencies*, 2008; IASC, *IASC Non-Binding Guidelines on the Use of Armed Escorts for Humanitarian Convoys*, 2013; DPKO, *Civil-Military Coordination Policy*, 2002; DPKO, *Civil-Military Coordination in UN Integrated Peacekeeping Missions*, 2010.

dealing with civil-military interactions: the OCHA under the authority of the IASC and the DPKO.

Given the diversity of definitions and terminology, the term of CIMIC will be used in this article to refer to interactions between civil and military actors engaged in various tasks in PSO. As for civilian and military actors, based on the definitions of humanitarian and military actors given by the IASC,²⁰ this paper will use the following definitions: the former refers to national or international, governmental or non-governmental organizations, whose purpose is to provide humanitarian or non-humanitarian assistance, while the latter refers to national, regional or international, governmental or intergovernmental military forces acting under a chain of command and in support of an internationally recognized organization or under a national or international mandate.²¹

III. THE NEXUS BETWEEN SECURITY AND DEVELOPMENT AND THE EMERGENCE OF COMPREHENSIVE APPROACHES

The post-Cold War international context has been characterized by the fragmentation of some multinational states, the increase of ethnic, religious and/or internal conflicts, the rise of non-state actors, the emergence of non-traditional threats, as well as the outbreak of the Global War on Terrorism. Such events have led to at least five different outcomes: 1) Increase of humanitarian crises that need a quick and decisive answer from the international community; 2) Modification of the internal and external roles of armed forces; 3) Change of methods, means and strategies of warfare; 4) Necessity of the reevaluation of civil-military relations by both actors; and 5) Rise of new concepts, policies and doctrines based on an integration of elements which have been, to date, seen as independent.

Concepts such as humanitarian intervention, peacekeeping, peacebuilding, responsibility to protect or complex emergencies have become increasingly well known. They shed a light on an emerging notion of human security with two dimensions: freedom from want and freedom from fear. In this context, a relationship between development and security has been acknowledged by the international community, which has understood that the limitation of international assistance in conflict and post-conflict situations to only one dimension — either security or development — would lead to negative outcomes. Highlighting the importance of development as a means of fostering security and the relevance of security as a means of fostering development, Paul Collier states that “war retards development, but conversely, development retards war”²², while Olson and Gregorian observe that in fragile states “the interlinked nature of security and development is inescapable”.²³ Promoting economic growth and good governance are time-consuming processes even in countries with a safe environment, but in fragile or failed states which face on-going conflict or instable post-conflict situations, only providing humanitarian assistance and building a foundation for

²⁰ OCHA (2004), p.11.

²¹ In this present article, military actors do not include private military and security companies, which are sometimes acting outside of a clear chain of command and without a national or an international mandate, being hired directly by NGOs.

²² Collier, Paul et.al., *Breaking the Conflict Trap: Civil Wars and Development Policy*, Washington D.C.: The World Bank, 2007, p.1.

²³ Olson, Lara and Gregorian, Hratch, *Beyond Information Sharing & False Coherence: Interagency Coordination in International Peace Missions*, Policy Brief, Calgary: Center for Military and Strategic Studies, 2007, p.1.

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medium- and long-term development require high levels of physical security and thus, can become serious challenges for the actors involved in such tasks.

In 1992, with *An Agenda for Peace*, Boutros Boutros-Ghali, the former Secretary General of the UN at that time, brought the concept of peacebuilding into the peace and security architecture of the UN in blending elements of security and development.²⁴ This concept has been developed and enlarged to encompass four stages: indicative post-conflict tasks, stabilization through peacekeeping (short-term), peace consolidation or transition (medium-term) and long-term recovery.²⁵ Peacebuilding is a complex and multidimensional process that aims not only to avoid the recurrence of conflict in fragile states, but also to build institutions and promote peace and development. Although some would argue that conflicts in fragile states reappear due to a lack of consensus or due to a presence of spoilers at the peacemaking stage, other scholars believe that such recidivism is caused by the emergence of certain gaps within the peacebuilding stages.²⁶ These gaps often appear as a result of the tendency to focus more on institutional aspects of state reconstruction, restoration of civil order, and security sector reform, rather than adopting an integrated approach that addresses human rights, freedom, reconciliation. In this regard, the African Union highlights the necessity that any post-conflict reconstruction and development process must address not only the “needs of countries”, but also “the needs of affected populations”, and therefore six areas should be covered: “security; humanitarian-emergency assistance; socioeconomic reconstruction and development; human rights, justice and reconciliation; women and gender”.²⁷

Whereas peacebuilding can be seen by many as separated and non-related with peacekeeping and peacemaking, it has broader significance for some scholars and covers not only post-conflict (operational peacebuilding), but also pre-conflict stages (structural peacebuilding).²⁸ Accordingly, peacebuilding becomes a “twofold process of deconstructing the structures of violence, and constructing the structures of peace” and thus, there are “two interrelated but separate sets of activities”, which aim at security and development “that must be undertaken simultaneously” in order to achieve a positive impact.²⁹ Feeling the need for clarification concerning the linkage between peacekeeping and peacebuilding, the DPKO consequently notices that “peacekeeping is not an alternative or precursor to peacebuilding”, rather that peacekeepers play important roles as actors in the early stages of peacebuilding by

²⁴ UN, *Report of the Secretary General: An agenda for Peace*, 1992, p.12.

²⁵ Hoshino, Toshiya, “Peacebuilding & Human Security in Fragile States”, *Japan Spotlight*, 28(6), November-December 2009, p.18.

²⁶ Hoshino (2009), p.18; Aggestam, Karin, “Internal and external dynamics of spoiling: A negotiation approach”, in *Challenges to Peacebuilding. Managing spoilers during conflict resolution*, eds. Newman, Edward and Richmond, Oliver, Tokyo: UNU Press, 2006, p.1, 4.

²⁷ Conflict Management Division, Peace and Security Department, *Policy on Post-Conflict Reconstruction and Development*, Addis Ababa: Commission of the African Union, 2006, p. v, vii, 5.

²⁸ Savage, A.J. Owen, “Yes, but is it peacebuilding? Evaluating civil-military cooperation in Afghanistan”, in *Civil-Military Cooperation in Post-Conflict Operations*, eds. Ankersen, Christopher, Abingdon: Routledge, 2008, p.105; Keating, Tom and Knight, W. Andy (eds.), *Building Sustainable Peace*, Edmonton: The University of Edmonton Alberta Press, 2005, p.xxxvii.

²⁹ Bush, Kenneth, “Commodification, Compartmentalization, and Militarization of Peacebuilding”, in *Building Sustainable Peace*, eds. Keating, Tom and Knight, W. Andy, Edmonton: The University of Edmonton Alberta Press, 2005, p.25.

performing three types of tasks: articulating peacebuilding priorities, enabling other actors to implement peacebuilding tasks and implementing some tasks by themselves.³⁰

In such a context, CMR undergoes a process of reevaluation that led to new approaches in which they evolve from co-existence to coordination and cooperation. Analyzing civil-military interactions over the years, it has been found out that the most common and widespread approach among civilian actors is co-existence, which implies a distance or a clear-cut distinction between the activities and tasks performed by military and civilian actors. Following the changes and challenges that the international community has faced since the end of the Cold War, especially after the beginning of Global War on Terrorism, approaches based on cooperation and coordination began to be adopted and applied. The application has developed from subsidiary or complementary actions to fully integrated activities that involve a high degree of interdependence.³¹ Therefore, CIMIC acquired a special significance in acting as an “interface between political and security objectives on the one hand, and humanitarian, development, and peacebuilding objectives on the other”.³²

Concurrently, military actors were given the missions to operate in new and complex environments characterized by a mixture of several elements, such as post-conflict reconstruction, humanitarian assistance, stabilization, counterinsurgency, statebuilding, security sector reform, and development aid. It is necessary to mention that the changes in the strategic context and the realities in the field of operations at the tactical level are factors that significantly influence the conditions in which military actors operate. The notion of the Three Block War, coined by General Krulak³³ after his experiences in Somalia and the former Yugoslavia, described in the most appropriate way the situation in which military actors must perform a spectrum of missions and tasks which cover “a range of mission from humanitarian assistance, to armed peacekeeping, to combat operations”.³⁴ In these operations, traditional and new roles of armed forces are intertwined and the military are not infrequently assigned tasks beyond their usual functions and mandates. This has led to an increasing overlap and interdependence between military and civilian actors in Liberia, Iraq and Afghanistan³⁵, but also it has compelled armed forces to adjust and modify their doctrines, strategies and ways of warfare in order to cope with realities on the ground and to deal with tasks and roles which do not fall within their traditional responsibilities.

Whether being described as stability and support, stability and reconstruction, peace support, full spectrum, integrated or multidimensional operations, all these notions refer to operations in which military actors performing in instable and volatile contexts must ensure the delivery of military and non-military effects in few hours and within a limited space. In a generic way, NATO has used the notion of PSOs to refer to a broad range of multi-functional operations that involve military and civilian actors, aim to achieve long-term political settlements and

³⁰ DPKO, *Peacekeeping and Peacebuilding: Clarifying the Nexus*, Informal Paper, New York: United Nations, 2010, p.2; DPKO/DFS, *Civil Affairs Handbook*, New York: United Nations, 2012, p.50.

³¹ Klingebiel, Stephen and Roehder, Katja, *The Development-Military Relationship: the Start of a New Alliance?*, Briefing Paper 1/2004, Bonn: German Development Institute, 2004, p.1.

³² de Coning, Cedric et.al, *United Nations Civil-Military Coordination (UN-CIMIC)*, Williamsburg: Peace Operations Training Institute, 2012, p.12.

³³ Krulak, Charles, “The Three Block War: Fighting in Urban Areas”, *Vital Speeches of the Day*, 64(5), 1997, p.140. C. Krulak is a former commandant of the US Marine Corps.

³⁴ Sloan, Elinor, *Modern Military Strategy: An Introduction*, Abingdon: Routledge, 2012, p.11

³⁵ Egnell, Robert, *Between Reluctance and Necessity: The Utility of Military Force in Humanitarian and Development Operations*, Security Policy Library 1/2009, Oslo: The Norwegian Atlantic Committee, 2009, p.3.

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encompass peacekeeping, peace enforcement, conflict prevention, peace building, and humanitarian relief.³⁶ The DPKO and the OCHA prefer the terms integrated or multidimensional peacekeeping/peace missions.³⁷

Following the complexity of the situations faced in Somalia (1992-1995), Rwanda (1993-1996) and the former Yugoslavia (1991-2001), the need for integrated approaches that address all the above-mentioned aspects and promote certain coherence and coordination between all actors involved was felt as inevitable by both civilian and military actors which led to the creation of a framework for multifunctional activities within PSOs in fragile or failed states. Various states and multinational organizations (e.g., the United States, the United Kingdom, Canada, the European Union, the UN, and NATO) adopted strategies and policies known as Whole of Government, Integrated, 3D³⁸ and Comprehensive Approaches, in which Quick Impact Projects, PRTs, Commanders Emergency Response Program, Integrated Missions Task Forces play an important role.³⁹

All these notions imply a cross-governmental, multi-actor approach and cooperation between armed forces, ministries of foreign affairs, governmental development agencies, international organizations and non-governmental actors, thus creating a broader framework for civil-military relations by including, beside military actors, two types of civilian actors – humanitarian and non-humanitarian. Regardless of their names, all these proactive models are based on “blending civilian and military tools and enforcing cooperation” by promoting a strategy to “engage, secure, hold and develop”. Therefore, such operations aim to combine military, political, and development actors in order “to ensure integrated effort by all donors on strategy and delivery and to provide immediate support for post-conflict reconstruction”.⁴⁰ Building on the operational experience gained in various PSOs, NATO is promoting a “concerted planning and action strategy” based on a comprehensive approach to crisis management and to PSOs, especially to stabilization operations, in highlighting the importance and necessity to “work more closely with civilian partners on the ground, and at a political level — especially the European Union and the United Nations.”⁴¹

Any comprehensive approach implies two dimensions: strategic and tactical. The strategic dimension aims to promote efficient management of resources, high interoperability and policy coordination and coherence at the national level (between defence, diplomacy and development) and at the international level (inter- and intra-organization such as NATO, the

³⁶ NATO, *Peace Support Operations*, AJP-3.4.1, Brussels: Military Agency for Standardization, 2001, 2-1 (0202), p.36.

³⁷ For more details on the UN multidimensional and integrated operations, see: DPKO, *Civil-Military Coordination in UN Integrated Peacekeeping Missions*, 2010; OCHA, “OCHA on Message: Integration: Structural Arrangements”, March 2012. Available from: https://docs.unocha.org/sites/dms/Documents/120229_OOM-integration_eng.pdf.

³⁸ 3D refers to a whole-of-government approach to security and development that links defense, diplomacy and development efforts in one integrated answer to the challenges that PSOs face.

³⁹ Council of the European, *Draft EU Concept for Comprehensive Planning*, Document 13983/05, 2005; United Nations, *Report on the Panel on United Nations Peace Operations*, A/55/305, 2000, p.xiii; House of Commons, *The Comprehensive Approach: the Point of War is not just to Win but to Make a Better Peace*, HC 224, London: The Stationery Office, 2010, p.1; The Joint Doctrine and Concepts Centre, *The Comprehensive Approach*, JDN 4/05, London: Ministry of Defence, 2006, p.1-1.

⁴⁰ House of Commons, 2010, p.12-14.

⁴¹ NATO, “A ‘Comprehensive Approach’ to Crisis Management”. Available from: http://www.nato.int/cps/ar/natolive/topics_51633.htm.

EU, and the UN). The tactical dimension refers to the implementation of related policies and projects on the ground, by mixed teams of experts. In such circumstances, depending on the affiliation of military and civilian actors, CIMIC includes several types of interactions: internal, external, intra- and inter-agency.

IV. ROLES, TASKS AND FUNCTIONS OF MILITARY ACTORS IN PSOs

Although comprehensive approaches are relatively new concepts (NATO endorsed its Comprehensive Political Guidance in 2006, at the Riga Summit) and not yet fully implemented, Iraq and especially Afghanistan represent some illustrating and complex cases, in which such approaches have been tested through PRTs.

PRTs were implemented by the Coalition Forces since 2002 in Afghanistan and by the United States since 2005 in Iraq as a means to win the ‘hearts and minds’ of the local population, as well as a means to provide relief and development agencies with security and access to certain regions. Meanwhile, the goals of PRTs in Afghanistan were to expand the authority of the Government of Afghanistan in key areas, to facilitate and perform various tasks for stabilization, security sector reform and reconstruction. As a structure, a Provincial Reconstruction Team consists of 50 to 150 military and civilian staff who come from defense, foreign affairs and development agencies. The PRTs operate under a military command, but with a joint leadership team. Although expectations for PRTs were relatively high as effective cooperation would be tantamount to a successful integrated approach, any attempt to evaluate their activities should acknowledge their limited capacity to provide solutions to a wide array of problems, such as poverty, insurgency, organized crime and humanitarian concerns.

The Provincial Reconstruction Team is considered one of the concepts most difficult to understand, as there is no universal model and PRTs operate in very different ways.⁴² For example, in Afghanistan there were 27 PRTs commanded by different states that were participants in the International Security Assistance Force (ISAF), each one with its own operational pattern.⁴³

However, an analysis of the PRTs’ activities can offer a pattern for some of the new roles and tasks that military can have. Although such tasks are secondary activities for the military, they can lead to significant readjustments in their education and training for some specific non-military and multi-purpose tasks. The humanitarian and peace support-related roles that the military actors play encompass a variety of functions as follows:

1. Protection functions: providing a safe and secure environment has become a core function of military actors that aims to ensure a stable framework for reconstruction and development tasks undertaken by civilian actors, especially following the increasing number of attacks in recent years on experts, workers and convoys that provide relief assistance.
2. Civil administration functions: assisting security sector reform (SSR), demobilization, disarmament and reintegration of former combatants are usually done by a mixed

⁴² Maley, William, *Rescuing Afghanistan*, Coogee: UNSW Press, 2006, p.66-67.

⁴³ In Iraq there were 25 PRTs operated by the United States.

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engagement of military and civilian actors, in which the demobilization-disarmament tasks are performed by the military, and the reintegration tasks are fulfilled by civilian agencies.

3. Law enforcement functions: provide assistance to domestic security forces (military, police) and the international police. In fragile states, when the domestic security structures are still compromised, weak, new or not yet put in place or when the international police forces do not have sufficient means to face a strong transnational criminal organization, the international military actors might step in and fill the gap.⁴⁴
4. Logistics support functions: provide logistical assistance to the civilian actors involved in assistance and reconstruction that can cover a wide array of tasks, such as: solving water and sanitation problems, providing water facilities, demining, reconstructing infrastructure, building camps for displaced and refugees, refurbishing or building schools and hospitals, and using military logistics to transport goods and people.⁴⁵
5. Medical support functions: when security situations in complex PSOs might not permit an easy access of civilian actors to a population in need of health support, military actors can deliver medical services to refugees, displaced populations or people with urgent medical needs.⁴⁶
6. Emergency relief functions: in complex situations, military actors can provide a variety of types of emergency life support, such as food, water, shelter, and medical services.⁴⁷
7. Implementing small aid projects and reconstruction functions: while the above mentioned six functions are relatively widely accepted, the direct involvement of the military in aid and reconstruction projects within stabilization operations has raised many concerns. Despite criticism, the Coalition Forces in Afghanistan and the German Bundeswehr in the Balkans relatively successfully conducted reconstruction projects that are usually managed by development agencies.⁴⁸

⁴⁴ For more information on traditional law enforcement tasks performed by military actors in Bosnia-Herzegovina and Kosovo, see: Hembruff, Jesse, "The military's role in post-conflict law enforcement: DCAF report on Bosnia and Kosovo". Available from: <http://www.ssresourcecentre.org/2010/05/28/the-military%E2%80%99s-role-in-post-conflict-law-enforcement-dcaf-report-on-bosnia-and-kosovo/>.

⁴⁵ For more details, see: de Coning, Cedric, "Political, Civilian and Military Dimension of PCRDR", in *Post-conflict Reconstruction and Development in Africa*, eds. Theo Neethling and Heidi Hudson, Tokyo: UNU Press, 2013, p.27.

⁴⁶ Recent data have shown a prevalence of the treatment of civilians by the military medical teams. For more information, see: Neuhaus, J. Susan, "Medical Aspects of Civil-Military Operations. The Challenges of Military Health Support to Civilian Populations on Operations" in *Civil-Military Cooperation in Post-Conflict Operations*, eds. Ankersen, Christopher, Abington: Routledge, 2008, p.201.

⁴⁷ According to some analyses and surveys related to CIMIC in Afghanistan within the framework of PRTs, military assistance to humanitarian efforts is seen as inevitable, but also appreciated by some civilian actors. See: Dusman, Aleksandr et al., *Civil-Military Operations in Conflict and Post-Conflict Situations: Learning from Lithuanian, Slovenian and Estonian Experiences*, Vilnius: VŠĮ AKADEMINĖ LEIDYBA, 2012, p.44-72.

⁴⁸ Germany adopted in the Balkans a complementary approach based on coordination in maintaining certain independence of defense, foreign affairs and development actors, while in Afghanistan, the US and other NATO

As observed, CIMIC within PRTs has a multidimensional feature: it encompasses an internal aspect which refers to the interactions between the military component of PRTs and their civilian counterparts; and an external aspect that refers to the interactions between the military component of PRTs and external civilian actors. The external dimension of CIMIC includes relations with humanitarian NGOs, as well as with non-humanitarian actors such as civil police, reconstruction teams, political and judicial experts, development experts and local population. Such a diversity of civilian actors can make it difficult for the military to handle interactions that require a different approaches depending on the affiliation of civilian actors. Thus, the main challenges for CIMIC are caused less by the interactions within PRTs than by those with external actors. In this regard, cooperation with humanitarian and development NGOs actors represents one of the most sensitive elements, which has caused the strongest adverse reaction.

V. CHALLENGES FOR CIVIL-MILITARY COOPERATION WITHIN COMPREHENSIVE APPROACHES

While some scholars and experts support the involvement of military actors in non-military tasks within the PSO by arguing that they can be effective in completing certain humanitarian and reconstruction projects, some others⁴⁹ assert that such activities must be left to civilian actors by claiming that these tasks are “fundamentally incompatible” with military actors and that militarization of humanitarian and assistance projects might lead to negative outcomes.

One argument against the integrated approaches is that in such circumstances, the military are expected to fulfil some functions for which they lack training and commitment. While it is true that the military are not traditionally trained for humanitarian or reconstruction tasks, they do have a lot of skills and the means for providing such assistance in stabilization or transition contexts. Well organized and efficient, they hold robust logistical and manpower resources. In reality, the flexibility and versatility of military actors, that is their ability to adjust rapidly in response to a change and to provide multifunctional capabilities, make them more effective and efficient in providing emergency assistance. Surveys on CIMIC in Afghanistan within the framework of PRTs revealed that at the beginning of PSOs, neither military nor civilian actors knew how to efficiently engage and how to use their expertise to common benefit. After working together, both actors were able to identify each other’s strengths and weaknesses by highlighting their comparative advantages such as flexibility and areas of specific expertise in the case of civilian actors, and the capacity for organization, discipline, and quick responses for medical evacuation and emergencies in the case of military forces.⁵⁰

Another argument against military involvement is that as humanitarian assistance must be guided by impartiality (i.e. on the basis of need without discrimination), independence (i.e. autonomy from political, economic and military objectives) and neutrality (i.e. without

members pursued a completely integrated approach within PRTs, which gave rise to criticism from civil actors. For more information, see: Klingebiel & Roehder, 2004, p.2.

⁴⁹ Weir, Erin A., *Conflict and Compromise: UN Integrated Missions and the Humanitarian Imperative*, KAIPT Monograph 4, Accra: Kofi Annan International Peacekeeping Training Centre, 2006, p.26.

⁵⁰ Dusman (2004), p.44, 72-74, 88.

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favoring of any side in a conflict), mixed or military-led actions will blur the lines between civilian assistance and military engagement. Although some NGOs underline that the presence of PRTs in volatile areas of Afghanistan assured them of a certain degree of security, provided useful assistance for their activities and played a significant role in reducing tensions at the local level, some other civilian actors argue that the military have exclusively strategic and tactical motivations to get involved in non-military operations in order to ‘win hearts and minds’ and to use the assistance to achieve military goals, such as taking key positions, gathering intelligence and enhancing force protection.⁵¹ On the contrary, providing medical aid, water, food or building shelters may be a means to enhance trust and to build a good relationship that can be seen as a contribution to peacebuilding efforts and not necessarily as concealing a hidden agenda. In fact, such actions could be problematic only if military actors behave inappropriately by presenting themselves falsely as humanitarian workers or by making aid conditional on a population’s willingness to provide information.⁵²

Consequently, promoting an integrated approach and a close relationship with the military may harm the credibility of humanitarian assistance providers and increase confusion between the recipients of aid who have difficulty in distinguishing between military personnel and civilians. Moreover, it may lead to cases in which all external workers and experts associated with the military, become legitimate targets of insurgent groups which may view PRTs as an instrument of counterinsurgency strategy. After five of its employees were killed in Afghanistan, Médecins Sans Frontières suspended its operations in 2004 by justifying its decision on the ground that the proliferation of PRTs, had made the line between civilian and military actors unclear.⁵³ Such a justification cannot be considered completely wrong, but as Karen Guttieri points out, the insurgents in Iraq, Afghanistan or Somalia fight against not only military forces, but also against any Western presence in the region and thus “the simple status of being an outsider generates a political signature”.⁵⁴

Moreover, some assert that military involvement in providing humanitarian and development assistance may dilute the purpose of the task and may subordinate development policy to political and military goals. Here, it is important to make a clear distinction between humanitarian actions that focus on providing short- and medium-term emergency assistance and take place during the early stages of PSOs, and development assistance that focuses on medium- and long-term goals and takes place during the last two stages of a peacebuilding process in which military actors are rarely involved. As de Coning argued, while humanitarian aid can be neutral and impartial, the medium- and long-term goals of development cannot claim to be the same as far as it “aims to change the structural dynamics

⁵¹ See: Canadian Peacebuilding Coordination Committee, *NGO/Government Dialogue on Provincial Reconstruction Teams (PRTs) in Afghanistan and the Militarization of Humanitarian Assistance: Final Report*, Ottawa: Canadian Peacebuilding Coordination Committee, 2003. p.12.

⁵² The US forces in Afghanistan distributed leaflets in which people were asked to provide information on Al-Qaida or they would not receive humanitarian aid. See: MacAskill, Ewen, “Pentagon Forced to Withdraw Leaflet Linking Aid to Information on Taliban”, *The Guardian*, 6 May 2004. Available from: <http://www.theguardian.com/world/2004/may/06/afghanistan.usa>.

⁵³ According to Médecins Sans Frontières, “PRT actions had curtailed ‘humanitarian space’ within which MSF and other humanitarian organizations could operate”. Sedra, Mark, “Civil-Military Relations in Afghanistan. The Provincial Reconstruction Team Debate”, Toronto: The Canadian Institute of Strategic Studies, *Strategic Datalink* 126, 2005, p.1.

⁵⁴ Guttieri, Karen, “Humanitarian Space in Insecure Environments: A Shifting Paradigm”, *Strategic Insights*, 4(11), 2005, p.2.

of the society”.⁵⁵ The engagement of military actors in small-scale aid and reconstruction projects (known also as Quick Impact Projects) should be identified with neither humanitarian assistance nor long-term development projects.

Another challenge is represented by the diversity and flexibility of PRTs models. As mentioned previously, PRTs have been implemented by different countries, thus each team has been different from the others and each has had its own pattern of CIMIC. In accordance with national CIMIC doctrines and in response to specific local conditions and needs, each Provincial Reconstruction Team has concentrated on different issues by putting more or less emphasis on security, humanitarian or reconstruction aspects of the project. Such diversity and flexibility can create unequal results from one area to another and raise confusion for the local authorities, the local population and engaged NGOs in respect to the PRTs’ purpose, role and strategy.⁵⁶

However, if the PRTs have proved their capacity to be involved in short-term projects and if their activities have been considered successful by some countries, there is little evidence that there are long-term strategies focused on promoting local capacity and building local ownership in order to allow the host nation to assure its own security and development needs after the withdrawal of PRTs.⁵⁷ One of the explanations for this situation lies in the comparatively small number of civilians within PRTs, so that the military predominance and command of the PRTs have emphasized to a certain degree the military character of such structures.⁵⁸ A misleading conclusion might be drawn that the priorities are set by the military actors and thus, development goals will be subordinated to military ones. Moreover, the rotation of military units at regular six-month intervals can adversely affect the continuity of projects and thus, make military actors less fit for involvement in long-term strategies and projects.

In turn, some military commanders criticize the tendency to consider military actors as a solution for a “wide range of problems for which they were not originally intended or configured”. Faced with a lack of troops, a lack of proper support from political leaders and a reluctance of civilian counterparts to cooperation, some United Kingdom senior military officers have highlighted the risks that the military were running in the face of confusing and

⁵⁵ De Coning (2013), p.28.

⁵⁶ Department of State, Office of the Coordinator for Stabilization and Reconstruction, Department of Defense, Joint Center for Operational Analysis/United States Joint Forces Command, Coordination, Agency for International Development and Bureau for Policy Program Coordination, *Provincial Reconstruction Teams in Afghanistan: An Interagency Assessment*, Washington D.C.: United States Agency for International Development, 2006, p.11.

⁵⁷ Some NGOs argued that such attempts were “costly, wasteful, lacking in quality and often not taking into account community needs and created more problems than solutions” and “do not have sufficient community involvement to make them sustainable”, see: Cornish, Stephen, “No Room for Humanitarianism in 3D Policies: Have Forcible Humanitarian Interventions and Integrated Approaches Lost their Way?”, *Journal of Military and Strategic Studies*, 10(1), 2010, p.30.; Oxfam International, “Quick Impact, Quick Collapse: The Dangers of Militarized Aid in Afghanistan”, Interagency Report, 2010, p.1. Available from: <http://www.oxfam.org/sites/www.oxfam.org/files/quick-impact-quick-collapse-jan-2010.pdf>.

⁵⁸ Savage (2012), p.130.

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unclear objectives.⁵⁹ In fact, their involvement in several non-military tasks at the same time can affect combat readiness, lead to an overstretched military organization as well as to humanitarianisation of military affairs, and this can negatively affect the ways in which the military actors are able to perform their core tasks. Moreover, the United States military underlines that in complex situations, a mix of “well-intentioned but uncoordinated actions can cancel each other or provide vulnerabilities for insurgents to exploit”.⁶⁰

As observed, comprehensive approaches implemented via PRTs gave rise to mixed reactions and thus, it is possible to identify two types of outcomes: on one hand, an improved cooperation between civilian and military actors based on a mutual understanding of their strengths and weaknesses that leads to efficient management of resources and appropriate choice of solutions; on the other hand, duplication in efforts, gaps in capacity and confusion created mainly by the dual use of military forces, as they become simultaneously involved in combat and in reconstruction assistance which blurs the lines between the actors.⁶¹

VI. CONCLUSIONS

The international community is required to give a multidimensional response in the face of the increasing number of attacks on experts and convoys that provide assistance, the presence of armed groups or counterinsurgents in fragile or failed states, the inability of the new or weak governance to tackle urgent issues and the persistence of ethnic, religious or socio-economic tensions that might lead to the recurrence of conflicts. Thus, civilian and military actors are being called upon to coordinate their roles and tasks in comprehensive approaches. The concept of integrated approaches, i.e. the linking of all actors involved in different stages of PSOs in order to maximize the outcomes, is logical and appealing. However, its implementation raises various practical problems, concerns and adverse reactions mainly from NGOs.

The importance of analyzing the implementation of comprehensive approaches via PRTs lies in the increasing probability that such “models” are likely to be applied in future PSOs elsewhere. A clear identification of problems and challenges that have arisen for CIMIC can provide an important lesson for future operations. While this paper does not claim to offer an

⁵⁹ Smith, Rupert, *The Utility of Force: The Art of War in the Modern World*, London: Allen Lane, 2005, p.xii; Forster, Anthony, “Breaking the Covenant: Governance of the British Army in the Twenty-First Century”, *International Affairs*, 82(6), 2006, p.1045.

⁶⁰ United States Army and US Marine Corps, *Counterinsurgency Field Manual*, FM3-24/MCWP3-35.5, New York: Cosimo, 2006, 1-121.

⁶¹ For NGOs’s reactions and governmental evaluation of the Comprehensive Approach via PRTs, see: National Audit Office, *Perspectives of Non-Governmental Organisations on Comprehensive Approach*, London: National Audit Office, 2009; Thruelsen, Peter Dahl, *Implementing the Comprehensive Approach in Helmand – Within the Context of Counterinsurgency*, Copenhagen: Royal Danish Defence College, 2008; Dusman, 2004; Williams, Michael J., “Empire Lite Revised: NATO, the Comprehensive Approach and State Building in Afghanistan”, *International Peacekeeping*, 18(1), 2011, pp.64-78; Shevlin, James, “Ethical Considerations for PRTs in Afghanistan”, *Journal of International Peace Operations*, 3(1), 2007, p.12; Wheeler, Victoria and Harmer, Adele (eds.), *Resettling the Rules of Engagement – Trends and Issues in Military-Humanitarian Relations*, Humanitarian Policy Group Report 21, London: Overseas Development Institute, 2006; Franke, Volker, “The Peacebuilding Dilemma: Civil-Military Cooperation in Stability Operations”, *International Journal of Peace Studies*, 11(2) Autumn/Winter 2006. Available from: http://www.gmu.edu/programs/icar/ijps/vol11_2/cover11_2.htm.

answer, nor to engage in a theoretical debate, it highlights some crucial problems that have arisen at various levels.

Obviously, it is still a tremendous task to achieve the full cooperation and harmonization of civil and military actors within comprehensive approaches in order to meet the challenges posed during PSOs, especially when changes in the strategic context and at the tactical level can blur the line between coercive and non-coercive action, between military and non-military activity, and between combatants and non-combatants. Moreover, the promotion of comprehensive approaches that imply a proactive engagement of military actors in non-military tasks must be done with relative caution and without ignoring the risks of blurring the lines of competencies and of causing confusion that may result from the subordination of assistance policy to strategic military considerations and the use of assistance resources to fund military missions.⁶² Comprehensive approaches must be based on a rigorous planning of tasks to avoid overlap and confusion caused by the rotation of military command and units that will affect the long-term goals of peace building projects.

The application of CMR theories might be useful while analyzing comprehensive approaches at the strategic level by evaluating the relationship between military and civilian actors in the decision-making process. Some scholars completely oppose comprehensive approaches by suggesting the need to make a clear-cut distinction between military and civilian activities in order to avoid any kind of tensions. Other scholars assert that for a successful implementation of comprehensive approaches via PRTs, a complete distinction is not possible but a clear division of the roles and tasks within PRTs is necessary. Accordingly, while working together, the military can be in charge exclusively with the security aspect, while the civilian counterpart will deal with humanitarian and development tasks avoiding in this way confusion and overlap.⁶³ A more interesting approach that can have a certain applicability in defusing the tensions between civilian and military actors is provided by Schiff's concordance theory that emphasizes that the accommodation and agreement between civilian and military actors should be based on shared values and objectives. Moreover, the concept of "targeted partnership", an extension of the concordance theory, implies "multiple forms of partnership" between both actors by allowing a certain flexibility in their interactions in order to achieve a common objective in a relative short period of time. Designed to be applied in situations such as when counterinsurgency is present, this concept can be used not only at the strategic decision-making level, but also at the implementation level. It might provide a useful framework for dialog and exchange in order to identify common goals and shared interests.⁶⁴

In designing comprehensive approaches, it is necessary to take into account the differences between military and civilian organizational cultures which are based on different goals,

⁶² Klingebiel and Roehder (2004), p.4.

⁶³ For opposition toward comprehensive approaches, see Barry, Jane, Jeffreys, Anna, "A Bridge Too Far: Aid Agencies and the Military in Humanitarian Response", Network Paper 37, Humanitarian Practice Network, 2002. Available from: <http://www.odihpn.org/hpn-resources/network-papers/a-bridge-too-far-aid-agencies-and-the-military-in-humanitarian-response>. For division of tasks, see Hart, Robin, "Civil-Military Coordination in Complex Humanitarian Situations", Report on Wilton Park Conference 895, 2008. Available from: <https://www.wiltonpark.org.uk/wp-content/uploads/wp895-report.pdf>

⁶⁴ Schiff, Rebecca, "Concordance Theory, Targeted partnership, and Counterinsurgency Strategy", in *Armed Forces and Society*, 38(2), 2012, p.320, 326.

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values, agendas, functional imperatives and decision-making styles, since these factors often lead to tensions between the two actors and hamper any attempt to harmonize their actions. Moreover, it is important to emphasize that military's culture must be maintained as distinct from civilian one in order to achieve necessary and effective outcomes in the military's traditional mission of combat.⁶⁵

Integrated strategies can, nevertheless, lead to closer cooperation, coherence and a certain level of coordination in creating a favorable framework for military and civilian actors to work side by side. In this regard, keeping in mind that ultimately they share a common goal "to do what is morally right in the face of brutality and hardship"⁶⁶, one should not consider the military actors as being completely incompatible with humanitarian or peacebuilding-related tasks. Thus, by identifying shared values and common goals, by understanding the advantages of working together rather than opposing each other, civilian and military actors will be able to find common ground on which they can perform tasks in an efficient way, without letting their differences affect their cooperation in a combined effort to overcome the challenges they face.

In order to avoid misunderstanding and reduce the gaps caused by organizational and cultural differences between civilian and military actors, training and education can play an essential role. The value of human capital in improving cooperation is of great importance and thus, organizing joint pre-deployment training, integrated planning exercises, common assessment processes, joint workshops for sharing information and experiences are some of the means that can facilitate a better mutual understanding. In addition, a collection of best practices that are drawn on the experiences of experts and those involved in implementing comprehensive approaches on the ground could be a useful and important element.⁶⁷

Another element that must be taken into account while defining or implementing comprehensive approaches is the local socio-cultural specificity which can play an important role especially in PSOs. In the academic field, there are some investigations that highlight the role of cultural and ethnical factors in counterinsurgency operations.⁶⁸ At a practical level, the development of programs such as the Human Terrain System can give rise to an awareness of these factors as well as provide a scientific methodology that can lead to more effective strategies and policies of CIMIC in PSOs.⁶⁹

⁶⁵ Egnell (2009), p.22-25; Dandeker, Christopher "On the Need to be Different: Military Uniqueness and Civil-Military Relations in Modern Society", *RUSI Journal*, 146(3), 2001, p.4-9.

⁶⁶ Weir (2006), p.26.

⁶⁷ McHugh, Gerard, Gostelow, Lola, *Provincial Reconstruction Teams and Humanitarian Military Relations in Afghanistan*, Save The Children Report, 2004 p.54. Available from: <https://docs.unocha.org/sites/dms/Documents/Save%20the%20Children-%20PRTs%20and%20Humanitarian%20Military%20Relations%20in%20Afghanistan%20282004%29.pdf>. For more information about best practices, see: Douglas, Alex, *Trends in Civil-Military Relations*, Australian Civil-Military Center, 2011. Available from: <http://acmc.gov.au/our-work-and-focus/research-and-lessons-learned/civil-military-trends/>.

⁶⁸ For more details about cultural factor in counterinsurgency operations, see: Schiff (2012), p.330-334, Gompert, David et.al, *Reconstruction under Fire. Unifying Civil and Military Counterinsurgency*, Santa Monica: RAND, 2009, p.17-18, 46,94.

⁶⁹ Human Terrain System is a program developed by the United States and is based on the cooperation between experts in sociology, anthropology, linguistics and military in order to facilitate the understanding of socio-cultural specificity by the military deployed in a certain area. For more details, see: *The Human Terrain System*, U.S.Army. Available at: <http://humanterrainsystem.army.mil/>. United Kingdom, Australia, Canada and New Zealand have also shown interest in such projects. See: *Counter-insurgency and Civil-Military Relations for*

As comprehensive approaches have not yet been fully and widely implemented, there is little evidence on the effectiveness of such approaches on the ground. It remains to be seen what level of integration is possible and in what degree such approaches are effective. Furthermore, it is difficult to claim that comprehensive approaches via PRTs can be used as a model applied to all similar situations without taking into account local specificity. In this regard, a more detailed comparison of the effectiveness of different PRTs in Afghanistan might be relevant. Thus, rather than considering comprehensive approaches as a model applicable in all contexts, a case-by-case method is preferable as it would allow a choice of the most effective solution based on an assessment of the security situation and other relevant conditions.

Finally, one must keep in mind that military actors cannot be seen as the exclusive providers of a universal solution for all problems and they cannot be held responsible for all negative outcomes that may occur in complex PSOs. The military's main focus is to provide security. Thus, non-military tasks must be secondary functions and only be assigned to the military with caution in order not to negatively influence their core tasks by overstretching military organization and affecting their combat readiness.

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WORKS CITED

Aggestam, Karin, "Internal and external dynamics of spoiling: A negotiation approach", in *Challenges to Peacebuilding. Managing spoilers during conflict resolution*, eds. Newman, Edward and Richmond, Oliver, Tokyo: UNU Press, 2006, pp.23-39.

Andrews, Brandy M., *Patterns of Civil-Military Relations in Democracy*, Fort Leavenworth Kansas: United States Army Command and General Staff College, School of Advanced Military Studies, 2008.

Ankersen, Christopher "Interrogating civil-military cooperation", in *Civil-Military Cooperation in Post Conflict Operations* eds. Ankersen, Christopher, Abingdon: Routledge, 2008, pp.1-11.

Barry, Jane, Jeffreys, Anna, "A Bridge Too Far: Aid Agencies and the Military in Humanitarian Response", Network Paper 37, Humanitarian Practice Network, 2002. Available from: <http://www.odihpn.org/hpn-resources/network-papers/a-bridge-too-far-aid-agencies-and-the-military-in-humanitarian-response> (accessed 15 February 2014).

Born, Hans, "Democratic Control of Armed Forces: Relevance, Issues and Research Agenda", in *Handbook of the Sociology of the Military*, eds. Caforio, Giuseppe, New York: Springer, 2006, pp. 151-167.

Bruneau, Thomas, Matei, Florina Cristiana, *The Routledge Handbook of Civil-Military Relations*, Abington: Routledge, 2013.

Bush, Kenneth, "Commodification, Compartmentalization, and Militarization of Peacebuilding", in *Building Sustainable Peace*, eds. Keating, Tom and Knight, W.Andy, Edmonton: The University of Edmonton Alberta Press, 2005, pp.23-47.

Canadian Peacebuilding Coordination Committee, *NGO/Government Dialogue on Provincial Reconstruction Teams (PRTs) in Afghanistan and the Militarization of Humanitarian Assistance: Final Report*, Ottawa: Canadian Peacebuilding Coordination Committee, 2003.

Civil-Military Cooperation Centre of Excellence, *CIMIC Field Handbook*, 3rd edn, Enschede: Civil-Military Cooperation Centre of Excellence, 2012.

Collier, Paul et.al., *Breaking the Conflict Trap: Civil Wars and Development Policy*, Washington, District of Columbia: The World Bank, 2007.

Conflict Management Division, Peace and Security Department, *Policy on Post-Conflict Reconstruction and Development*, Addis Ababa: Commission of the African Union, 2006.

Cornish, Stephen, "No Room for Humanitarianism in 3D Policies: Have Forcible Humanitarian Interventions and Integrated Approaches Lost their Way?", *Journal of Military and Strategic Studies*, 10 (1), 2010, pp.1-48.

Council of the European Union, Draft EU Concept for Comprehensive Planning, Document 13983/05, Brussels: Council of the European Union, 2005.

de Coning, Cedric, “Civil-Military Coordination and UN Peacebuilding Operations”, *African Journal on Conflict Resolution*, 5(2), 2005, pp.89-118.

de Coning, Cedric et.al, *United Nations Civil-Military Coordination (UN-CIMIC)*, Williamsburg: Peace Operations Training Institute, 2012.

de Coning, Cedric, “Political, Civilian and Military Dimension of PCRD”, in *Post-conflict Reconstruction and Development in Africa*, eds. Theo Neethling and Heidi Hudson, Tokyo: UNU Press, 2013, pp.17-36.

Dandeker, Christopher “On the Need to be Different: Military Uniqueness and Civil-Military Relations in Modern Society”, *RUSI Journal*, 146(3), 2001, p.4-9.

Department of Peacekeeping Operations, *Civil-Military Coordination in UN Integrated Peacekeeping Missions*, Policy Paper, New York: United Nations, 2010.

Department of Peacekeeping Operations and Department of Field Support, *Civil Affairs Handbook*, New York: United Nations, 2012.

Department of Peacekeeping Operations, *Civil-Military Coordination Policy*, New York: United Nations, 2002.

Department of Peacekeeping Operations, *Peacekeeping and Peacebuilding: Clarifying the Nexus*, Informal Paper, New York: United Nations, 2010.

Department of State, Office of the Coordinator for Stabilization and Reconstruction, Department of Defense, Joint Center for Operational Analysis/United States Joint Forces Command, Coordination, Agency for International Development and Bureau for Policy Program Coordination, *Provincial Reconstruction Teams in Afghanistan: An Interagency Assessment*, Washington, District of Columbia: United States Agency for International Development, 2006.

Douglas, Alex, “Trends in Civil-Military Relations, Australian Civil-Military Center”, 2011. Available from: <http://acmc.gov.au/our-work-and-focus/research-and-lessons-learned/civil-military-trends/> (accessed 20 February 2014).

Dusman, Aleksandr et al., *Civil-Military Operations in Conflict and Post-Conflict Situations: Learning from Lithuanian, Slovenian and Estonian Experiences*, Vilnius: VŠĮ AKADEMINE LEIDYBA, 2012.

Egnell, Robert, *Between Reluctance and Necessity: The Utility of Military Force in Humanitarian and Development Operations*, Security Policy Library 1/2009, Oslo: The Norwegian Atlantic Committee, 2009.

Franke, Volker, “The Peacebuilding Dilemma: Civil-Military Cooperation in Stability Operations”, *International Journal of Peace Studies*, 11(2) Autumn/Winter 2006. Available

CHALLENGES FOR CIVIL-MILITARY COOPERATION IN PEACE SUPPORT
OPERATIONS: EXAMINING THE FRAMEWORK OF COMPREHENSIVE
APPROACHES

from: http://www.gmu.edu/programs/icar/ijps/vol11_2/cover11_2.htm (accessed 10 January 2014).

Forster, Anthony, "Breaking the Covenant: Governance of the British Army in the Twenty-First Century", *International Affairs*, 82(6), 2006, pp.1043-1057.

Gompert, David et.all, *Reconstruction under Fire. Unifying Civil and Military Counterinsurgency*, Santa Monica: RAND, 2009.

Guttieri, Karen, "Humanitarian Space in Insecure Environments: A Shifting Paradigm", *Strategic Insights*, 4(11), 2005, pp.1-7.

Hart, Robinm "Civil-Military Coordination in Complex Humanitarian Situations" Report on Wilton Park Conference 895, 2008. Available from: <https://www.wiltonpark.org.uk/wp-content/uploads/wp895-report.pdf> (accessed 20 February 2014)

Hembruff, Jesse, "The military's role in post-conflict law enforcement: DCAF report on Bosnia and Kosovo". Available from: <http://www.ssrresourcecentre.org/2010/05/28/the-military%E2%80%99s-role-in-post-conflict-law-enforcement-dcaf-report-on-bosnia-and-kosovo/> (accessed 12 January 2014).

Hoshino, Toshiya, "Peacebuilding & Human Security in Fragile States", *Japan Spotlight*, 28(6), November-December 2009, p.18.

House of Commons, *The Comprehensive Approach: the Point of War is not just to Win but to Make a Better Peace*, HC 224, London: The Stationery Office, 2010.

Huntington, Samuel, *The Soldier and the State: The Theory and Politics of Civil Military Relations*, Cambridge: The Belknap Press of Harvard University Press, 1957.

Inter-Agency Standing Committee, *IASC Non-Binding Guidelines on the Use of Armed Escorts for Humanitarian Convoys*, New York: Inter-Agency Standing Committee, 2013

Janowitz, Morris, *The Professional Soldier: A Social and Political Portrait*, Glencoe: The Free Press of Glencoe, 1960.

Keating, Tom and Knight, W.Andy (eds.), *Building Sustainable Peace*, Edmonton: The University of Edmonton Alberta Press, 2005.

Klingebiel, Stephen and Roehder, Katja, *The Development-Military Relationship: the Start of a New Alliance?*, Briefing Paper 1/2004, Bonn: German Development Institute, 2004.

Krulak, Charles, "The Three Block War: Fighting in Urban Areas", *Vital Speeches of the Day*, 64(5), 1997.

MacAskill, Ewen, “Pentagon Forced to Withdraw Leaflet Linking Aid to Information on Taliban”, *The Guardian*, 6 May 2004. Available from: <http://www.theguardian.com/world/2004/may/06/afghanistan.usa> (accessed 14 January 2014).

Maley, William, *Rescuing Afghanistan*, Coogee: UNSW Press, 2006.

McHugh, Gerard, Gostelow, Lola, *Provincial Reconstruction Teams and Humanitarian Military Relations in Afghanistan*, Save The Children Report, 2004 p.54. Available from: <https://docs.unocha.org/sites/dms/Documents/Save%20the%20Children-%20PRTs%20and%20Humanitarian%20Military%20Relations%20in%20Afghanistan%20%282004%29.pdf> (accessed 22 February 2014).

Metcalfe, Victoria, Haysom, Simone and Gordon, Stuart, *Trends and Challenges in Humanitarian Civil-Military Coordination*, Humanitarian Policy Group Working Paper, London: Overseas Development Institute, 2012.

National Audit Office, *Perspectives of Non-Governmental Organisations on Comprehensive Approach*, London: National Audit Office, 2009.

Neuhaus, J. Susan, “Medical Aspects of Civil-Military Operations. The Challenges of Military Health Support to Civilian Populations on Operations” in *Civil-Military Cooperation in Post-Conflict Operations*, eds. Ankersen, Christopher, Abington: Routledge, 2008, pp.201-224.

North Atlantic Treaty Organization, “A ‘Comprehensive Approach’ to Crisis Management”. Available from: http://www.nato.int/cps/ar/natolive/topics_51633.htm (accessed 12 January 2014).

North Atlantic Treaty Organization, *NATO Civil-Military Co-operation (CIMIC) Doctrine*, AJP-9, Brussels: NATO Standardization Agency, 2003.

North Atlantic Treaty Organization, *NATO Military Policy on Civil-Military Co-operation*, MC411/1, Brussels: North Atlantic Treaty Organization, 2002.

North Atlantic Treaty Organization, *Peace Support Operations*, AJP-3.4.1, Brussels: Military Agency for Standardization, 2001.

Office for the Coordination of Humanitarian Affairs, *Civil-Military Relationship in Complex Emergencies*, Inter-Agency Standing Committee Reference Paper, Geneva: United Nations, 2004.

Office for the Coordination of Humanitarian Affairs, *Civil-Military Guidelines and Reference for Complex Emergencies*, New York: United Nations, 2008.

Office for the Coordination of Humanitarian Affairs, *Guidelines on the Use of Military and Civil Defence Assets to Support United Nations Humanitarian Activities in Complex Emergencies (MCDA Guidelines)*, Geneva: United Nations, 2006.

CHALLENGES FOR CIVIL-MILITARY COOPERATION IN PEACE SUPPORT OPERATIONS: EXAMINING THE FRAMEWORK OF COMPREHENSIVE APPROACHES

Office for the Coordination of Humanitarian Affairs, “OCHA on Message: Humanitarian Principles”, June 2012. Available from: https://ochanet.unocha.org/p/Documents/OOM-humanitarianprinciples_eng_June12.pdf (accessed 14 January 2014).

Office for the Coordination of Humanitarian Affairs, “OCHA on Message: Integration: Structural Arrangements”, March 2012, Available from: https://docs.unocha.org/sites/dms/Documents/120229_OOM-integration_eng.pdf (accessed 14 January 2014).

Office for the Coordination of Humanitarian Affairs, *Oslo Guidelines: Guidelines on the Use of Foreign Military and Civil Defence Assets in Disaster Relief*, Geneva: United Nations, 2007.

Oliker, Olga et al, *Aid during Conflict: Interaction between Military and Civil Assistance Providers in Afghanistan*, September 2001-June 20002, Santa Monica: RAND, 2004.

Olson, Lara and Gregorian, Hratch, *Beyond Information Sharing & False Coherence: Interagency Coordination in International Peace Missions*, Policy Brief, Calgary: Center for Military and Strategic Studies, 2007.

Oxfam International, “Quick Impact, Quick Collapse: The Dangers of Militarized Aid in Afghanistan”, Interagency Report, 2010, p.1. Available from: <http://www.oxfam.org/sites/www.oxfam.org/files/quick-impact-quick-collapse-jan-2010.pdf> (accessed 22 February 2014).

Rana, Raj, “At a Crossroad or a Dead-End? Considering the Civil-Military Relationship in Times of Armed Conflict” in *Civil-Military Cooperation in Post Conflict Operations*, eds. Ankersen, Christopher, Abingdon: Routledge, 2008.

Rehse, Peter, *CIMIC: Concepts, Definition and Practice*, Hamburg: Institute for Peace Research and Security Policy, 2004.

Savage, A.J. Owen, “Yes, but is it peacebuilding? Evaluating civil-military cooperation in Afghanistan”, in *Civil-Military Cooperation in Post-Conflict Operations*, eds. Ankersen, Christopher, Abingdon: Routledge, 2008, pp.105-142.

Sedra, Mark, “Civil-Military Relations in Afghanistan. The Provincial Reconstruction Team Debate”, Toronto: The Canadian Institute of Strategic Studies, Strategic Datalink 126, 2005. Available from: <http://www.opencanada.org/wp-content/uploads/2011/05/SD-126-Sedra.pdf> (accessed 23 February 2014).

Shevlin, James, “Ethical Considerations for PRTs in Afghanistan”, *Journal of International Peace Operations*, 3(1), 2007, p.12.

Shiff, Rebecca, "Civil-military relations reconsidered: A theory of concordance", *Armed Forces and Society*, 22(1), Fall 1995, pp.7-24.

Schiff, Rebecca, "Concordance Theory, Targeted partnership, and Counterinsurgency Strategy", *Armed Forces and Society*, 38(2), 2012, pp.318-339.

Slim, Hugo, "The Stretcher and the Drum: Civil Military Relations in Peace Support Operations", *International Peacekeeping*, 3(2), Summer 1996, pp.123-140.

Sloan, Elinor, *Modern Military Strategy: An Introduction*, Abingdon: Routledge, 2012.

Smith, Rupert, *The Utility of Force: The Art of War in the Modern World*, London: Allen Lane, 2005.

Sørensen, Birgitte R., "Violence and humanitarian assistance: Reflections on an intricate relationship", *Journal of Humanitarian Assistance*, September 2006, pp.14-19.

Thruelsen, Peter Dahl, *Implementing the Comprehensive Approach in Helmand – Within the Context of Counterinsurgency*, Copenhagen: Royal Danish Defence College, 2008.

The International Committee of the Red Cross, "History of the ICRC", 2010. Available from: <http://www.icrc.org/eng/who-we-are/history/overview-section-history-icrc.htm>. (accessed 23 February 2014).

The Joint Doctrine and Concepts Centre, *The Comprehensive Approach*, JDN 4/05, London: Ministry of Defence, 2006.

The Save the Children Fund, "History". Available from: <http://www.savethechildren.org/site/c.8rKLIXMGIpI4E/b.6229507/k.C571/History.htm> (Accessed 23 February 2014).

UNSW Canberra, The Australian Defense Force Academy, *Counter-Insurgency and Civil-Military Relations for Stabilization, Peace-Building and Conflict Prevention*. Available from: <http://bus.unsw.adfa.edu.au/research/fsp5.php> (accessed 23 February 2014).

United Nations, *Report of the Secretary General: An agenda for Peace*, New York: United Nations, 1992.

United Nations, *Report on the Panel on United Nations Peace Operations*, New York: United Nations, 2000.

United States Army, *The Human Terrain System*. Available from: <http://humanterrainsystem.army.mil/> (accessed 23 February 2014).

United States Army and United States Marine Corps, *Counterinsurgency Field Manual*, FM3-24/MCWP3-35.5, New York: Cosimo, 2006.

Weir, Erin A., *Conflict and Compromise: UN Integrated Missions and the Humanitarian Imperative*, KAIPT Monograph 4, Accra: Kofi Annan International Peacekeeping Training Centre, 2006.

CHALLENGES FOR CIVIL-MILITARY COOPERATION IN PEACE SUPPORT
OPERATIONS: EXAMINING THE FRAMEWORK OF COMPREHENSIVE
APPROACHES

Wheeler, Victoria and Harmer, Adele (eds.), *Resettling the Rules of Engagement – Trends and Issues in Military-Humanitarian Relations*, Humanitarian Policy Group Report 21, London: Overseas Development Institute, 2006.

Williams, Michael J., “Empire Lite Revised: NATO, the Comprehensive Approach and State Building in Afghanistan”, *International Peacekeeping*, 18(1), 2011, pp.64-78.

United Nations *Peace and Progress*, Volume 2 (1), pp. 48-57.
<http://upp.unu.edu/>



TRACK TWO: COMMENTARY

Cluster 2: Development Governance

Cluster 4: Global Change and Sustainable Development

Transforming Environmental Values through Ecosystem Payments: Ecuador's *Socio Bosque* Programme

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TRANSFORMING ENVIRONMENTAL VALUES THROUGH ECOSYSTEM PAYMENTS: ECUADOR'S SOCIO BOSQUE PROGRAMME

ABSTRACT

In 2008, the national government of Ecuador introduced the Programa Socio Bosque (Forest Partner Programme). Under the programme, direct payments to forest inhabitants incentivized the conservation of global and national scale ecosystem benefits threatened by Amazon deforestation, with a particular focus on maintaining global climate regulation and biological diversity. Uptake of past programs and compliance with regulation was historically complicated by a lack of legitimacy amongst communities targeted by these policies. A voluntary program now with over 90,000 beneficiaries, Socio Bosque has instead directly fostered local participation in the investment of payments and monitoring of compliance. However, complementary returns for from carbon markets have been less than expected and the consistency of government payments is at risk from Ecuador's turbulent political climate. This paper discusses the capacity of payment-based programmes to drive long-term, sustained change in environmental management values beyond simply meeting the opportunity costs of avoiding deforestation and short political life-cycles. Similar programmes can learn from Socio Bosque's vulnerabilities and strengths to highlight livelihood co-benefits of conserving forest ecosystem benefits while meeting immediate needs through incentives, such as tying payments to long-term livelihood investments and community compliance monitoring.

KEYWORDS: *East Timor, Indonesia, International Relations, Peacebuilding, Peacekeeping, Timor-Leste, Transitional Justice, United Nations*

Introduction

In 2008, the national government of Ecuador introduced the *Programa Socio Bosque* (trans. Forest Partner Programme). Under the programme, direct payments to forest inhabitants incentivized the conservation of global and national scale ecosystem benefits threatened by Amazon deforestation, with a particular focus on maintaining global climate regulation and biological diversity. A voluntary program covering 900,000 hectares of land and now with over 90,000 beneficiaries (Krause and Loft, 2013), Socio Bosque has sought to address legitimacy failures of past regulation by directly fostering local participation in the investment of payments and monitoring of compliance.

However, assuring finance to compete against unstable opportunity costs driving land conversion can be uncertain, especially given volatile carbon trading markets and Ecuador's turbulent political history. The future of the Socio Bosque programme will require alternative sources of sustainable finance to ensure its immediate future, but ultimately must be designed to transition local managers to a land management ethic that can find value in ecologically sustainable development. This paper discusses the programme in the context of current research on market-based innovations in global environmental governance, drawing lessons from Socio Bosque for similar programmes on how embedding local preferences and values in payment design can secure the normative change required for this transition.

In recent years, much discussion has revolved around how best to manage the global public goods provided by our ecosystems. This focus is often around the multitudinous contribution of forests to human well-being that go unrecognized by market dynamics, such as sequestering the transboundary carbon emissions of distant human activities; regulating healthy water cycles for downstream urban and agricultural consumption; or 'banking'

biodiversity to secure ecosystem resilience and future bio-resources. For decades government roles in maintaining the contribution of environmental integrity to human and economic well-being have been increasingly emphasized in broad international development commitments, including the 1989 Indigenous and Tribal Peoples Convention of the International Labour Organization, the 1994 UN Convention to Combat Desertification (UNCCD), and the 2001 Cotonou Agreement for co-operation between the European Union and African, Pacific and Caribbean countries (Cordonier Segger, 2004).

Sustainable goals are, in the main, an attempt to balance ecosystem health and poverty alleviation - as Ecuadorian President Rafael Correa put it: “If the poor don’t receive direct benefits from conservation, conservation won’t be sustainable” (Pres. Rafael Correa, 2011, cited in Walsh, 2011). Ecuador’s Socio Bosque programme offers a means to provide such mutual benefits through direct government payments for fulfilling forest protection goals, seeking mutual benefits for both conservation and poverty alleviation.

The role of payments for ecosystem services in tropical forest conservation

Sustainable forestry management in the tropics has had difficulty getting traction, as continuous long-term production from standing forests typically runs counter to cut-and-move-on logic driven by abundant land, low timber value, and capital requirements for long-term planning (Vincent, 1992; Wunder, 2006). Furthermore, a vast body of literature indicates conventional approaches urging the value of sustainable forest logging are rarely considered an alternative to land-use conversion, especially for agriculture (Wunder, 2006).

Payments for ecosystem services are one attempt to recognise values of sustainable forest management by providing security of ongoing income with minimal investment by paying for the broader ecosystem benefits of community, downstream or global importance. Other government incentive programmes have had some success in securing lasting, community-wide change in management ethics after payment schemes withdrawal, such as in China’s Grain for Green Program (Cao et al., 2009), or in Australia’s BushCare program (Salzman, 2005). By highlighting the value of ecologically sustainable management, incentives can embed permanent livelihood improvements and have a demonstration effect, securing uptake of alternative land management techniques. By involving communities in specific livelihood improvements, payments can leverage social change, amplifying their impact further than if they targeted only rational economic opportunity costs. Payments must also be designed to incorporate known barriers to change, such as up-front capital costs, uncertain land tenure, or lack of information.

Carbon markets have not proven a sufficient alternative to deforestation regulation

In the Amazon, command and control regulations to conserve the environment have often proved very difficult to monitor and enforce, especially in developing countries where governance in remote or densely forested areas is weak, and funding and staffing resources are limited. Illegal logging and land clearing in contravention of government bans are often significant sources of income not only for forest inhabitants, but also intruders or settlers from outside, and is often undertaken with the aid of local officers (Otsuki, 2011; Wendland, Naughton and Suarez, 2010). The economic incentive for non-compliance often out-competes the weak threat of enforcement from central authorities.

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Conventional market mechanisms have also provided little reward for sound ecosystem management compared to more intense exploitation. Economic benefits for protecting most ecosystem benefits are often small and thinly spread across many recipients or concentrated in few, while the costs of sustainable management and conservation are borne sharply by the land stewards (MA, 2005). Conventional markets are widely recognized as incapable of compensating for these costs without intervention, well captured in Sir Nicholas Stern's influential contention that our poor history of addressing climate change presented the "greatest and widest-ranging market failure ever seen" (Stern, 2006: i). Markets do not value public goods like climate regulation, and managing land to secure our climate is not rewarded.

New market-based mechanisms have sought to redress these failures, with four main types of schemes dominating including carbon sequestration and storage, biodiversity protection, watershed protection, and landscape beauty (e.g. tourism operators pay communities to maintain wildlife habitats) (Wunder, 2006). The Socio Bosque programme addresses failings of regulation and markets through a combination of public participation and financial intervention. Payments for forest conservation are set to compete with the opportunity cost of not converting the land, high enough to have already built a strong base for voluntary subscription - by October 2010, over 500,000 hectares of forest and over 80,000 individual beneficiaries were committed to Socio Bosque contracts (de Koning et al., 2011: 537).

One popular proposal for the future is that the Socio Bosque forests eventually become eligible for under the UN Collaborative Programme for Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), whereby developed countries purchase shares in the sequestration capacity of forests to meet emission standards in their home countries and finance forest conservation livelihoods (de Koning, et al. 2011: 539; UN-REDD, 2009). However, with the current US carbon credit price plummeting from US\$20.00 per tonne in 2008 to US\$6.00 by 2010, the stability of livelihoods borne supplemented by international carbon markets alone are unstable (Bellassen and Gitz, 2008; Peters-Stanley et al., 2011). Further to the unreliability of the carbon market, there is much concern that under REDD+, forests will become commoditized property of overseas investors, with ownership of credits effectively wresting control of forest use from local people (Reed, 2011; Van Dam, 2011). One prominent Latin American NGO described Socio Bosque as little more than "an investor portfolio for the carbon market", prioritizing unpredictable shareholder values over local development needs (Acción Ecológica, 2010: 83).

Local 'user-fee' transactions with direct beneficiaries of forest ecosystem services are also possible financing alternatives. Already in Ecuador's capital, Quito, the government redirects water taxes and user fees to fund local protection of the upstream El Condor Biosphere Reserve in recognition of the forest's role in regulating and supplying clean water to the city and large industrial users. By 2007 the project reported raising \$5 million for conservation action (Krchnak, 2007). However, remote parts of the forest are unlikely to have wealthy or willing downstream beneficiaries, and user-fees may simply transfer disadvantage by incurring costs on similarly vulnerable urban and forest communities.

Participation and investment obligations to realise long-term improvement and monitoring

Socio Bosque seeks to tie community-driven outcomes to payments that redress these instability, equity and monitoring issues. The contracts for payments require submission to

the national government of an investment plan developed by community and individual family participants, documenting the decision process. This ostensibly reduces misinformation and benefit exclusion amongst communities, which further minimizes the risk of non-compliance and the extent of monitoring required. The 20-year contract period is designed for more predictable and reliable income than alternatives such as clearing for pasture and agriculture or timber sales (de Koning, et al., 2011). From the required plans detailing investment of programme funds, around 20% of community and 23% of individual family funds are allocated for conservation and territorial strengthening activities, bolstering monitoring and guarding of forest by decentralizing responsibility to local scales in Socio Bosque forests (de Koning et al., 2011: 537).

Socio Bosque makes a normative decision of rewarding forest dwellers as providers of potential services, rather than threatening penalties for breaching deforestation regulations. This raises the dilemma of whether it is fair for the public to pay actors *not* to undertake detrimental actions. However, Ecuador has chosen to prioritize local development over downstream beneficiaries, such as urban and industrial water users, recognizing deforestation as not always motivated by opportunism but often to meet basic needs (de Koning et al, 2011).

The programme has a strong focus on complementary poverty alleviation rather than solely environmental outcomes, forgoing the complexities of divining the precise, efficient, and marketable value of ecosystem services to determine reward. This is where the programme diverts from mainstream economic ‘payment for ecosystem services’ concepts (see Muradian and Kumar, 2009). Many valuation systems focus on establishing a market price for individual ecosystem services, such as calculating fine-grain carbon stock (e.g. Hett, Heinemann and Messerli, 2011, on preparing Laos for REDD+), or analysing the replacement value of lost watershed services (e.g. Salzman, 2005: 135 on Catskill watershed restoration in the USA). Instead under Socio Bosque the only variable in payments is the land plot size, meaning that same sized areas receive the same amount of payments regardless of the quality of services provided. By choosing simplicity of implementation, the programme has sought to maximize accessibility and equity for participants, but also risks inefficient achievement of environmental goals by not distributing resources according to more specific ecosystem importance.

It could be said that inefficiency is actually a goal of the program, by targeting the poorest private and communal landholders with government incentives for conservation regardless of the tradability of their assets or possession of prime environmental land. Essentially, Socio Bosque encourages all participants to maintain the services they are able to contribute, regardless of quality or significance. Using readily available information and transparent criteria, what the programme loses in efficient targeting it may gain in broader uptake. This was a conscious decision as differentiating between recipients based on scientific detail was feared by programme designers to generate community ill-will and potentially render the programme politically unviable (de Koning et al., 2011).

Clarifying ownership is required to progress equitable access

One of the clear equity weaknesses in the programme is that participants are only eligible if the community or family has recognized tenure over the land (or, in the case of inhabitants of national reserves, are recognized owners preceding nationalization). This may exclude

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significant stakeholders, including original customary rather than individual family owners of now nationalized lands (e.g. Kenfield, 2007, on indigenous challenge for privatized land in Brazil), immigrant settlers on indigenous lands (e.g. Otsuki, 2011, on settler forest incursions in Brazil), or households without defined rights to collective ownership (Krause and Loft, 2013). Furthermore, the programme also presumes that where land tenure exists it is uncontested.

In Ecuador and much of the Amazon, land claims often overlap. Efforts to distinguish title ownership between farmers, indigenous people and settler communities have in the past escalated to violence (Wendland, Naughton and Suárez, 2010). Solutions to similar problems in Brazil sought to prevent further incursion through negotiating secure tenure for existing forest settlers. However these efforts were often confounded by an inability to monitor the illegal on-selling of titles to new settlers before encroaching further into the forest. Furthermore, the Amazon is often regarded by interlopers as an open-access resource to benefit all regardless of formal national, private or community titles (Otsuki, 2011). The legal apparatus and enforcement reach of the government is limited, particularly in the deep forests of developing Ecuador, and it often falls upon communities or families to defend their land from contesting claims.

Investment plans are intended to direct funds to monitoring activities and documentation of the distribution of compliance benefits amongst all members of the community. This reduces internal community contest, and heightens the capacity of the programme to detect infractions. However, a recent study of 101 individuals in five Socio Bosque communities found 60% respondents did not know the amount of incentives their community received, and only 44% stated incentives were managed democratically (Krause, Collen and Nicholas, 2013).

If Socio Bosque premises its success on a system where tenure and access is agreed upon amongst relevant stakeholders, it must also enfranchise legal agencies in the area to help communities monitor and negotiate both external and internal land tenure conflict that leads to inequitable access to benefits.

Alternative livelihoods

Many communal land management regimes already maintain sustainable practices, particularly where deforestation may not occur for cultural reasons (such as sites of spiritual importance) or lack of profitability in clearing (such as marginal hillsides). However, poverty alleviation is the strongest driver of deforestation in Socio Bosque communities (de Koning et al., 2011). Payment schemes can be designed to capitalize on local values but must realize ongoing livelihood value from conservation, or face the politically complicated and economically unfeasible position of continually maintaining subsidies to compete with poverty alleviation benefits stemming from deforestation.

A major strength of the programme design is that its payments strive to produce multiplier effects, incentivizing and monitoring local socio-economic investment through its novel requirements for an investment plan approval before payments can be made. Complementary industries are thus fostered through the programme to address income as a driver of deforestation, such as by investing in developing non-timber forest product trade (e.g. medicines, dyes, or shaded coffee), and eco-tourism (de Koning et al., 2011). The parallel

realization of self-organized, alternative income streams could ultimately reduce reliance on payments to prevent timber trading or clearing for agriculture.

Unlike failed ‘command-and-control’ regulations and taxes where top-down land use decisions may be foisted on unwilling participants, Socio Bosque incentives generate nationwide conservation plan applications of farmer households and local and indigenous communities (de Koning et al., 2011). Enhancing local political and organizational capacity through participation in the decision-making process, Socio Bosque has strived to establish, and in many cases re-establish, links between local development and forest conservation.

Between 2008 and 2011, Socio Bosque had paid \$US 6,151,900 in incentives across 1,563 individual and collective contracts (Krause and Loft, 2013). An independent study found a slight majority (53%) of communities reporting benefits to the community from participating in Socio Bosque, and only 43% of individual households reported their families had received benefits (Krause, Collen and Nicholas, 2013). This suggests there remain mismatches in either perceptions of or actual benefits stemming from the programme, such as from tenure or monitoring as discussed above.

Legal stability required to survive domestic political change

Much of the detail on Socio Bosque in this paper is sourced from a 2010 article jointly authored by Conservation International and Ecuadorian national representatives (de Koning et al., 2011). In light of the article’s compelling commendation of the programme design, it is also important to discuss the stability of the programme’s national overseers. The focus of Socio Bosque is ensuring local compliance, but there must also be assurance that the government has the capacity and the will to maintain payments in the long-term. Under a typical Socio Bosque contract, communities are subject to 15 specific conditions with contravention penalized by suspension, termination and fund restitution, whilst the state is only subject to three conditions (Ramos, 2010: 46).

Considering the Ecuadorian government is empowered to expropriate land and claim ownership of mineral resources (Constitution of the Republic of Ecuador, 2008: Ch. IV, Art. 261), Socio Bosque contracts must also include obligations for the State. It is important to limit the ability of Ecuador’s powerful to overrule Socio Bosque in changing political winds, particularly as the country has produced seven presidents and two constitutions between 1996 and 2006, and endured an attempted violent coup in 2010 against current President Correa (Walsh, 2011). Further to this, opportunity costs of land conversion will vary across space and time, and if the value of alternative land-use increases there must be certainty that Ecuador will not only be politically bound, but also financially able to continue to afford the payment scheme.

Financing commitments and defensible tenure rights must be concentered before situations similar to Ecuador’s Yasuní-ITT Initiative become widespread throughout the country. Here Ecuador is requesting global payments worth half the value of the Ishpingo-Tiputini-Tambococha (ITT) oil reserves beneath the Yasuní National Park, on the grounds that social and environmental benefits for global stakeholders, notably biodiversity conservation and climate mitigation, are not sufficient to qualify Ecuador withholding the value of these resources from its people – around US\$7.2 billion worth of oil (Walsh, 2011; Larrea, 2010). In this context of shifting environmental and economic priorities, two primary options are

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available to sustain Socio Bosque's conservation and poverty alleviation goals: 1) an alternative non-state supported source of funding, such as a local user-fee system or global beneficiary-pays system; or 2) a shift in local ethics towards conservation and maintaining services (where this does not already exist).

Conclusion: Payments as a lever for normative land management change

While the unreliability of international and national financing may undermine the long-term sustainability of payment schemes to promote conservation, Socio Bosque's parallel goals of developing community organizational capacity and conservation-compatible industry may serve to re-centre sustainable forest management at the heart of local economic development. Relying solely on volatile state or irrational international markets to maintain opportunity cost payments risks the long-term stability of ecosystem friendly development. Cohesive communities with defensible claims to their land may be the strongest, most stable unit of foundation from which to transition from conditional payments as a temporary deterrent, towards the long-term recognition of ecosystem health as a foundation of social and economic development.

Programme design elsewhere can learn from Socio Bosque's vulnerabilities and barriers to change exposed over its recent history. Without strategies to embed lasting, sustained change in how people use the forest, incentives risk reconversion when opportunity costs are not met or political support for incentives wanes. By highlighting the multifunctional benefits of forests while dealing with immediate livelihood needs, forest communities can build sustainable livelihoods in harmony with stable ecosystem benefits. However, challenges to payment benefits due to unclear tenure or unmonitored ownership challenges from within and outside targeted communities must be remedied.

Works Cited

- Acción Ecológica (2010). "Socio Bosque: Another face of green capitalism" in *No REDD! A reader*. Carbon Trade Watch and Indigenous Environment Network: Sonora (Mexico), pp. 81-84.
- Bellassen, V. and Gitz, V. (2008). "Reducing Emissions from Deforestation and Degradation in Cameroon – Assessing costs and benefits," *Ecological Economics* 68, pp. 336-344.
- Cao, Shixiong, Chenguang Xu, Li Chen, and Xiuqing Wang (2009). "Attitudes of farmers in China's northern Shaanxi Province towards the land-use changes required under the Grain for Green Project, and implications for the project's success," *Land Use Policy*, 26:4, pp. 1182-1194.
- Constitution of the Republic of Ecuador* (2008), English translation retrieved Feb 20, 2014 from <http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html>.
- Cordonier Segger, Marie-Claire (2004). "Significant developments in sustainable development law and governance: A proposal," *Natural Resources Forum* 28, pp. 61-74.
- De Koning, Free, Marcela Aguiñaga, Manuel Bravo, Marco Chiu, Max Lascano, Tannya Lozada, and Luis Suarez (2011). "Bridging the gap between forest conservation and poverty alleviation: the Ecuadorian Socio Bosque program", *Environmental Science and Policy*, 14, pp. 531-542.
- Hett, Cornelia, Andreas Heinimann and Peter Messerli (2011). "Spatial assessment of carbon stocks of living vegetation at the national level in Lao PDR", *Danish Journal of Geography* 111:1, pp. 11-26.
- Kenfield, Isabella (2007). "Taking on Big Cellulose: Brazilian indigenous communities reclaim their land," *NACLA Report on the America*, Nov 26, 2007, retrieved Feb 22 2012 from <https://nacla.org/news/taking-big-cellulose-brazilian-indigenous-communities-reclaim-their-land>.
- Krchnak, K.M. (2007). *Watershed Valuation as a Tool for Biodiversity Conservation*, Nature Conservancy: Arlington, VA.
- Krause, Torsten and Lasse Loft (2013). "Benefit Distribution and Equity in Ecuador's Socio Bosque Program," *Society and Natural Resources: An International Journal*, 26:10, pp.1170-1184.
- Krause, Torsten, Wain Collen, and Kimberly A. Nicholas (2013). "Evaluating Safeguards in a Conservation Incentive Program: Participation, Consent, and Benefit Sharing in Indigenous Communities of the Ecuadorian Amazon," *Ecology and Society*, 18:4, pp.1-16.
- Kumar, Pushpam and Roldan Muradian (2009). "Payment for Ecosystem Services and Valuation: Challenges and Research Gaps", in Kumar, Pushpam and Roldan Muradian (eds.), *Payments for Ecosystem Services*, Oxford University Press: New Delhi, pp. 1-16.

TRANSFORMING ENVIRONMENTAL VALUES THROUGH ECOSYSTEM
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- Larrea, Carlos (2010). *Yasuni-ITT: An initiative to change history*, retrieved Feb 23, 2012 from <http://yasuni-itt.gob.ec/espanol/trust-fund-terms-of-reference/>.
- Leary, David and Balakrishna Pisupati (2010). "Introduction", in Leary, David and Balakrishna Pisupati (eds.), *The Future of International Environmental Law*, United Nations University Press: Tokyo, pp. 1-16.
- Morales Feijóo, M. (2002). "Paralegeles Comunitarios y la Tenencia de la Tierra", *Land Reform, Land Settlement and Cooperatives* 2, pp. 99-109.
- Muradian, Roldan, Esteve Corbera, Unai Pascual, Nicolás Kosoy, and Peter May (2010). "Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services", *Ecological Economics* 69:6, pp. 1202-1208.
- Otsuki, Kei (2011). "Framing frontier governance through territorial processes in the Brazilian Amazon," *Local Environment* 16:2, pp. 115-128.
- Peters-Stanley, Molly, Katherine Hamilton, Thomas Marcello, and Milo Sjardin (2011). *Back to the Future – The state of the voluntary carbon markets 2011*. Ecosystem Marketplace and Bloomberg New Energy Finance.
- Ramos, Yvonne (2010). "Socio Bosque: Another green face of capitalism," in *No REDD! A reader*. Carbon Trade Watch and Indigenous Environment Network: Sonora (Mexico), pp. 81-84.
- Reed, Pablo (2011). "REDD+ and the Indigenous Question: A case study from Ecuador", *Forests* 2:2, pp. 525-549.
- Salzman, James (2005). "Creating markets for ecosystem services: notes from the field," *New York University Law Review* 80:6, pp. 870-961.
- Stern, Nicholas (2006). "Stern Review on the Economics of Climate Change: Executive Summary", HM Treasury: London, retrieved Feb 23, 2012 from www.hm-treasury.gov.uk/sternreview_index.htm.
- UN-REDD (2009). *About REDD+*, retrieved Feb 22, 2012 from <http://www.un-redd.org/AboutREDD/tabid/582/Default.aspx>
- Van Dam, Chris (2011). "Indigenous territories and REDD in Latin America: Opportunity or threat?" *Forests* 2:1, pp. 394-414.
- Walsh, Bryan (2011). "Rain Forest for Ransom", *Time Magazine* Dec 19, 2011, retrieved February 22, 2012 from <http://www.time.com/time/magazine/article/0,9171,2101884,00.html>
- Wendland, Kelly, Lisa Naughton, and Luis Suárez (2010). "Rewards for Environmental Services and Collective Land Tenure: Lessons from Ecuador and Indonesia", *Mountain Forum Bulletin*, January 2010, pp. 17-19.

United Nations *Peace and Progress*, Volume 2 (1), pp. 58-65.
<http://upp.unu.edu/>



TRACK TWO: COMMENTARY

Cluster 4: Global Change and Sustainable Development

Economic and Legal Obstructions to Nuclear Safety Culture in International Law: A Study of Fukushima Dai- ichi

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ECONOMIC AND LEGAL OBSTRUCTIONS TO NUCLEAR SAFETY CULTURE IN INTERNATIONAL LAW: A STUDY OF FUKUSHIMA DAI-ICHI

ABSTRACT

Disasters at the scale of the Fukushima Dai-ichi after the 2011 Tohoku earthquake and tsunami can result in enormous pressures both domestically and internationally, which in turn can often lead to immediate and provisional responses. In the case of Japan, this response was to cease further nuclear power generation and create a national commission to draft the laws for the country's future energy policy with closer coherence to the Convention on Nuclear Safety. While harmonization with and through international law oftentimes represents a positive development, Japan is uniquely positioned in that it can contribute to the very fabric of regulation surrounding nuclear power. This paper examines and introduces a few of the challenges that Japan is likely to face as it further engages with international law in the process of solidifying its energy policy for the future by taking into consideration Japan's energy and economic contexts.

KEYWORDS: *Fukushima, Dai-ichi, Convention on Nuclear Safety, law and economics, international law, foreign energy dependence, safety culture.*

1. INTRODUCTION

On 26 April 1986, a technical failure that resulted in the meltdown of a nuclear facility in Chernobyl caused thousands of radiation-related deaths and the abandonment of a city. Nearly 25 years later, on 11 March 2011, another disaster rang similar tones of fear, but this time involving a far more technically advanced facility and a cause that was none other than a lack of planning for what became the most powerful earthquake and tsunami to have ever hit Japan. While the Japanese nuclear industry maintained some of the strictest safety regulations in the world involving nuclear energy following major reforms after the *Tokai-mura* uranium incident of 1999, the magnitude nine earthquake and the 40.5 metre tsunami that hit Tohoku taught Japan and the world a rather grim lesson. Given the sheer volatility of nuclear energy, any concept of acceptable levels of safety and the extent and frequency of technical improvements mandated by legal obligation is a difficult and inherently limited standard to specify.

This paper seeks to identify aspects from international law of the legal and macroeconomic challenges behind implementation of “safety culture” in responding to the Fukushima crisis. After identifying these challenges, this paper provides recommendations to avoid the potential consequences of transplantation and to instead contribute to the expansion of both the literal and legal iterations of safety culture.

2. SAFETY CULTURE IN INTERNATIONAL LAW

In the text of the widely ratified Convention on Nuclear Safety (CNS) of the International Atomic Energy Agency (IAEA), the third of the ten principles in the preamble states that the signatory states desire to “promote an effective nuclear safety culture.”⁷⁵ While this concept is not further expounded upon in the CNS, though one may identify Article 10 as being

⁷⁵International Atomic Energy Agency (IAEA), 38th Regular Session. *Convention on nuclear Safety* (1994). INFCIRC/449. 6 July 1994. Web. 11 March 2014. [www.iaea.org/Publications/Documents/Infcircs/Others/inf449.shtml]

further elucidating, this paper looks to the commonly accepted definition of safety culture authored by the International Nuclear Safety Advisory Group (INSAG) of the IAEA for substantiation: “Safety culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance.”⁷⁶ Japan employed the language of safety culture through an ongoing legislative process towards fulfilling the obligations provisioned by the CNS, such as the establishment of the Nuclear Regulatory Authority (NRA) in 2012. The creation of the NRA was, according to the Sixth National Report on the Convention on Nuclear Safety, a response to the “lack of a true safety culture at the [Tokyo Electric Power Company, TEPCO].”⁷⁷ Yet amidst these developments is a problem of interpretation of safety culture that may eventually result in a sort of a legal paradox.

Yet there are considerable complications to implementing safety culture, at least through accession, in the Japanese context, particularly given the country’s dependency on imported petroleum. This contradiction gives some insight into the legislative and institutional problems that Japan may continue to face as it finds an appropriate place for what was once an ambitious nuclear energy programme.

In terms of industrial safety, the creation of the NRA and other large revisions to Japanese law have tended to show that generally employed projections of industrial safety on nuclear power plants, which constitute a range of human factor databases and organizational factors, is most likely ill-fitting for Japan’s specific safety needs. This is because the country faces a unique set of natural hazards that serve to contest the high reliability often assigned to civic nuclear facilities. Indeed, Japanese nuclear power sites appear to be more stringent in safety assessments when compared to nuclear plants in the United States.⁷⁸ This was also applicable in the situation of *Dai-ichi* plant, which was equipped with contingency diesel generators and water injection mechanisms.⁷⁹ However, the combination of a high magnitude earthquake and the consequently sizable tsunami rendered these preparations inadequate. Thus, it is apt here to recall the conundrum highlighted earlier: there can be no end to the technical improvements that can be made to enhance industrial safety. This makes setting a legally mandated threshold, no matter how comprehensively drafted, an endeavour that is fundamentally limited and limiting from the start.

This has been noted regarding the CNS, which tends to employ fairly broad terminology in terms of nuclear safety: Article 1.1 identifies the goal of the CNS to ensure a “high level of nuclear safety” while Article 6 requires signatory states to make “all reasonably practicable improvements” to the safety systems of nuclear plants. Extensive commentary exists on whether the safety regulations within the CNS are legally meaningful.⁸⁰ Important to note here,

⁷⁶International Atomic Energy Agency. 1991. “Safety Culture: A Report by the International Nuclear Safety Advisory Group.” *Safety Series No. 75-INSAG-4*. Vienna, Austria (IAEA): p. 1.

⁷⁷Nuclear Regulatory Authority. 2013. “6th Review Meeting 2013.” *Convention on Nuclear Safety: National Report*. Tokyo, Japan: Nuclear Regulatory Authority, p 8.

⁷⁸Kuroda, Isao. 2001. “Lessons on Safety Culture: A Review of Industrial Safety on Japan” in Wilpert, Bernhard and Itoigawa, Naosuke, eds., *Safety Culture in Nuclear Power Operations*. London, England: Taylor & Francis: p. 175.

⁷⁹Soble, Jonathan and Dickie, Mure. “How Fukushima failed.” *Financial Times Magazine* 6 May 2011. Web. Accessed 11 March 2014. [<http://www.ft.com/cms/s/2/5207d550-76b9-11e0-bd5d-00144feabdc0.html>].

⁸⁰The volume edited by Horbach, Nathalie L.J.T. 1999. “Contemporary Developments in Nuclear Energy Law: Harmonizing Legislation in CEEC/NIS.” Alphen aan den Rijn, Netherlands: Kluwer Law International.

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however, is that even before the events at Fukushima, Japan was not only a signatory state to the CNS, which it signed in 1994 and entered into force in 1996, but also one of the leading countries in nuclear energy generation and consumption. Therefore, it is logically tenable that before the disaster, regular *Dai-ichi* improvements may have well been classified as satisfying the safety regulation provisions of the CNS. This means that in future interpretations of CNS, the industry safety standards of the *Dai-ichi* reactor may be employed as a sort of precedent in gauging a baseline standard for future facilities. In this way, Japan as precedent can serve as a useful *de facto* test to add precision to legal provisions such as Articles 1.1 and 6, adding to its overall efficacy in promoting safety culture.

However, enhancing safety standards and enacting new legislation surrounding the use of nuclear energy is only one aspect of the challenge facing Japan post-Fukushima. Another aspect, which is far more ubiquitous and historical, deals with Japan's foreign energy dependency and trying to envision a long-term energy policy that does not involve nuclear power. The interplay between these two aspects is perhaps best illustrated by Article 6, the first half of which emphasizes the "urgency to upgrade the safety of the nuclear installation," but whose latter half insists:

"If such upgrading cannot be achieved, plans should be implemented to shut down the nuclear installation as soon as practically possible. The timing of the shut-down may take into account the whole energy context and possible alternatives as well as the social, environmental and economic impact."

Herein lays the challenge of implementing nuclear safety culture: while the "social and environmental"⁸¹ concerns of continuing nuclear power generation may suggest that the shut-down of relevant facilities be the only plausible solution against the upgrading necessary to fully realize the safety culture implied by the INSAG post-Fukushima, the energy context and economic needs of Japan complicate accession.

3. TWO CHALLENGES TO JAPAN'S COMMITMENT

Regarding the energy context of Japan, the country decreased energy generation through nuclear power dramatically as an immediate and provisional response to the Fukushima event in hopes of subsequently switching to a mixed energy scheme.⁸² Yet, it is difficult to imagine a boost in energy generation from alternative sources to replace nuclear energy entirely. The drop in the electricity generation by nuclear sources in Japan went from 29.2% in 2010 to 2.1% in 2012,⁸³ but this dramatic decrease does not necessarily signal substantial progress in the transition of the Japanese power grid to a mixed energy scheme. This can be seen in the total percentage of energy consumption in Japan that is accounted for by alternative and nuclear energy, which dropped from 17.16% in 2010 to 2.91% in 2012 according to World Bank data.⁸⁴ This should illustrate just how little alternative energy sources are depended on

⁸¹While these aspects are not explored in this paper, one may refer to Kitada, Ato and Matsuda (2001) for survey-based studies on public perceptions on nuclear power plants and the transparency of their operations.

⁸²Koyama, Ken. 2014. "Japan's Future Energy Policy Challenges." *A Japanese Perspective on the International Energy Landscape*. Tokyo, Japan: Institute of International Energy Economics.

⁸³International Energy Agency (IEA). 2013. "Energy Statistics and Balances of Non-OECD Countries." *IEA Statistics*. Paris, France: International Energy Agency.

⁸⁴World Bank. 2014. Alternative and nuclear energy (% of total energy use). Data retrieved 11 March 2014 from World DataBank: World Development Indicators database.

to generate electricity in Japan. To fill its place, between 2010 and 2012, total energy consumption from fossil fuels increased from 81.01% to 94.8%, which is roughly similar to the percentage of energy use accounted for by energy imports in 2012 at 93.38%.⁸⁵

Beyond the energy context of Japan, the economic impact of shifting away from nuclear energy also deserves attention as returning to a state of near total foreign energy dependence can have serious macroeconomic consequences. First of all, there are the potential losses from adjustment when considering immobile factors of production, such as labour or capital, when moving from domestic energy production to foreign imports, particularly in the situations where there has been considerable private or public investment in related fields of education or innovation. Secondly, other potential long-run consequences of imported energy dependence include such risks as oil cartels and potentially predatory behaviour of petroleum exporters. Lastly, in case of a sudden discontinuation of the nuclear energy programme, lacking sufficient development in other forms of alternative energy sources, the elasticity of import supply is expected to decrease, at least in the short-run, raising the prices of the imported energy source. If one were to consider elasticity through the Bohi and Montgomery formulation (1982), which is reproduced below, then the so-called monopsony wedge is expected to widen.

$$n_I = n_X \left(\frac{X}{I} \right) + \frac{e_R I_R}{I} \quad (1)$$

This equation shows that elasticity, n_I , is the sum of the elasticity of global export supply, n_X , at total world exports, X , over domestic imports, I , and the absolute import demand elasticity of other countries that are oil importers, e_R , by the imports of countries, I_R , over total domestic imports. In doing so, the Bohi and Montgomery formulation as represented above demonstrates that the elasticity of imported energy sources can have a significant multiplier effect.

Given a few of the challenges identified above, the possibility of Japan discontinuing its nuclear energy programmes by permanently shutting down or decommissioning its nuclear power plants seem unlikely. This is also considering not only the recent creation of the NRS to implement future nuclear policy and law, but also the fact that 48 out of 60 facilities remain operational and two are currently under construction.⁸⁶

4. REDEFINING SAFETY CULTURE

When the situation surrounding the *Dai-ichi* reactor spiralled out of control, the exponential accumulation of international and domestic pressure quickly halted further nuclear development in Japan. Further operation of nuclear power plants in a country as prone to natural disasters as Japan became unthinkable. However, the extent to which Japan was able to implement a mixed energy scheme, while much of it was nuclear, is certainly remarkable considering that the country is traditionally dependent on imported energy. In fact, the relatively accident-free operation of nuclear generation facilities in the context of Japan is

⁸⁵World Bank. 2014. Fossil fuel energy consumption (% of total). Data retrieved 11 March 2014 from World DataBank: World Development Indicators database.

⁸⁶IAEA. 2014. "Country Statistics: Japan." *Power Reactor Information System* (PRIS). Vienna: IAEA.

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perhaps just further testimony to the level of development that this sector has enjoyed in the country.

The challenges described in the earlier sections of this paper identified an incompatibility of commonly accepted interpretations of nuclear safety culture, particularly if taken from the view of the obligations provisioned in the CNS, with the national interests of Japan- namely its energy context and macroeconomic concerns. While the specific obligations that apply *mutatis mutandis* to Japan post-Fukushima regarding the industrial safety standards of its nuclear power facilities are currently unclear, perhaps in part due to Japan still being in a drafting stage concerning its energy policy, one recommendation that this paper makes is to avoid the transplantation of safety culture. That is, ratification of international law, such as those related to nuclear safety culture, should be done so with amendments reflecting the country's context and needs, which have changed and perhaps better reflect the true volatility of nuclear energy than current international standards currently envisions. Japan is uniquely positioned to provide substantive additions to the definition, at least in legal interpretations, of safety culture, potentially offering greater precision to such provisions as Article 6 of the CNS. In this regard, Japan should look to add to the iterations of safety culture and relevant legal mechanisms such as the CNS.

As the only other nuclear disaster given a “major accident,” or level seven, the highest rating on the International Nuclear and Radiological Event Scale (INES) after Chernobyl, Japan is uniquely positioned to provide technical information on the details of the disasters and their fallout. The collection and dissemination of information involving nuclear power is undoubtedly important for an age that is more widely embracing the values of nuclear power. While the recovery effort should most certainly be a priority for Japan when addressing the Fukushima crisis, another task in the interest of a safety culture will be collecting data for research on the fallout of such a large-scale disaster. Fallout research from nuclear power plant failures depend largely on case studies. Fukushima *Dai-ichi* will undoubtedly become one of the most important references in nuclear power safety studies. In terms of recovery studies, research and short-term activities such as testing and further developing existing methodologies in remediation, such as resurfacing roads and potassium fertilizers, during the decades of caesium-137's half-life will be important. Since sustainable recovery cannot be realized due to the radioactivity of the area, an active radioactive zone can be conducive for such experiments in remediation and recovery. The documentation of these activities can add further specificity to definitions of safety culture and its influences on law, particular when operating in post-crisis or fallout conditions.

While this section only provided examples of the ways in which Japan can conduct research on subject areas that may otherwise be inaccessible, such research is vital as it can then influence the legal iterations of safety culture in application to energy regulations. The industrial safety provisions in the CNS can replace interpretively broad conditions like “high levels of safety,” with specific measures or procedures using Fukushima and Japanese regulations as a backdrop. This can provide greater clarity and precision for existing and future laws that regulate nuclear power generation. In doing so, Japan may be able to avoid transplanting international standards in situations where they do not apply or may even be harmful in the Japanese context. Furthermore, through the continued effort of Japan, the very regulatory environment surrounding nuclear energy generation can have greater specificity, narrowing legal ambiguities that make current *de facto* law either unattractive for ratification, or meaningless in practise.

5. CONCLUDING REMARKS

The road ahead for Japan as it deals with the Fukushima nuclear power plant will undoubtedly be a difficult journey for both the government and the people. Amongst the many challenges ahead, this paper attempted to contextualize and introduce those obstacles that Japan will face in upcoming years as it further embraces international law regarding nuclear power. The degree to which future energy policy in Japan harmonizes with international law will undoubtedly be dictated by the energy and economic needs of the country. However, in this harmonization process, Japan can contribute significantly to the very fabric of the regulatory framework surrounding nuclear power, the concept of safety culture and its interactions with legislation.

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WORKS CITED

1. Horbach, Nathalie L.J.T. 1999. "Contemporary Developments in Nuclear Energy Law: Harmonizing Legislation in CEEC/NIS." Alphen aan den Rijn, Netherlands: Kluwer Law International.
2. International Atomic Energy Agency (IAEA). 1991. "Safety Culture: A Report by the International Nuclear Safety Advisory Group." *Safety Series No. 75-INSAG-4*. Vienna, Austria: IAEA.
3. ---, 38th Regular Session. Convention on nuclear Safety (1994). INFCIRC/449. 6 July 1994. Web. 11 March 2014.
4. ---. 2014. "Country Statistics: Japan." *Power Reactor Information System (PRIS)*. Vienna, Austria: IAEA.
5. International Energy Agency. 2013. "Energy Statistics and Balances of Non-OECD Countries." *IEA Statistics*. Paris, France: IEA.
6. Koyama, Ken. 2014. "Japan's Future Energy Policy Challenges." *A Japanese Perspective on the International Energy Landscape*. Tokyo, Japan: Institute of International Energy Economics.
7. Kuroda, Isao. 2001. "Lessons on Safety Culture: A Review of Industrial Safety on Japan" in Wilpert, Bernhard and Itoigawa, Naosuke, eds., *Safety Culture in Nuclear Power Operations*. London, England: Taylor & Francis.
8. Nuclear Regulatory Authority. 2013. "6th Review Meeting 2013." Convention on Nuclear Safety: National Report. Tokyo, Japan: Nuclear Regulatory Authority.
9. Soble, Jonathan and Dickie, Mure. "How Fukushima failed." *Financial Times Magazine* 6 May 2011. Web. Accessed 11 March 2014. [<http://www.ft.com/cms/s/2/5207d550-76b9-11e0-bd5d-00144feabdc0.html>].
10. World Bank. 2014. Alternative and nuclear energy (% of total energy use). Data retrieved 11 March 2014 from World DataBank: World Development Indicators database.
11. ---, Fossil fuel energy consumption (% of total). Data retrieved 11 March 2014 from World DataBank: World Development Indicators database.