

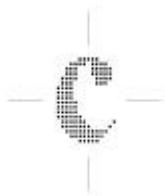
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Dealing with Scarcity and Violent Conflict:

Bart Klem

Netherlands Institute of International Relations 'Clingendael'
Conflict Research Unit
National Institute of Public Health and Environment (RIVM)
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Netherlands Institute of
International Relations
'Clingendael'
Clingendael 7
2597 VH The Hague
P.O. Box 93080
2509 AB The Hague
Phone number: # 31-70-3141950
Telefax: # 31-70-3141960
Email: research@clingendael.nl
Website: <http://www.clingendael.nl/cru>

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List of Abbreviations

ARW	Advanced Research Workshop
CPAF	Conflict and Policy Assessment Framework
CRU	Conflict Research Unit
ECOMAN	Environmental Change, Consensus Building and Resource Management in the Horn of Africa
ECONILE	Environment and Cooperation in the Nile Basin
ENCOP	Environment and Conflict Project
FAST	Early Analysis of Tensions and Fact-finding (German acronym)
FEWS	Famine Early Warning System
GECHS	Global Environmental Change and Security Project
HDI	Human Development Index
HEWS	Humanitarian Early Warning System
IHI	Index of Human Insecurity
MSP	Multi Stakeholder Platform
NATO	North Atlantic Treaty Organisation
NGO	Non Governmental Organisation
PRIO	Peace and Research Institute in Oslo
RIVM	Rijks Instituut voor Volksgezondheid en Milieu (National Institute of Public Health and Environment)
Swisspeace	Swiss Peace Foundation
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme

Introduction

This paper was prepared for the conference ‘Dealing with scarcity and violent conflict’ held in The Hague on July 3^d and 4^h, 2003. This conference, jointly organised by the Conflict Research Unit (CRU) of the Netherlands Institute of International Relations ‘Clingendael’ and the National Institute of Public Health and Environment (RIVM), focused on water, land and forest as an issue of contention. Moving beyond the academic debate on the link between environmental scarcity and conflict, the conference explored ways of dealing with scarcity in a peaceful manner.

This paper served as a background to the presentations and discussions at the conference. Chapter 1 explores the historical roots of the debate scarcity and conflict and introduces contemporary research initiatives. Chapter 2 focuses on the link between research and policy. Theoretical and empirical shortcomings are discussed. It is concluded that despite a number of efforts to devise indicators or mapping strategies in the field of conflict and environment, research has so far not managed to equip policy makers with adequate tools to frame their policy. Chapter 3 explores ways of dealing with scarcity in a peaceful manner. Crucial actors, approaches and dilemmas are brought to the fore. Finally, Chapter 4 draws conclusions and sums up the main issues discussed.

I Thinking About Resource and Conflict in Historical Perspective

Throughout human history, environmental resources have been an issue of contention. But it was only in recent times that the question whether the finiteness of resources itself is a cause of conflict became a controversial issue of debate. The staggering impact of modernity and human development has led numerous authors to observe that through excessive exploitation of environmental resources, development has a large potential to ignite violent conflicts. Others argue that resources may be one of the means through which a conflict manifests itself, but that they should not be seen as a primary cause.

The debate on the finiteness of environmental resources and the implications for human survival and peaceful coexistence has a long history. Already in the late eighteenth century, Thomas Malthus stated that the finiteness of environmental resources places strict limits to population and consumption. According to Malthus, exceeding these limits not only leads to environmental degradation, but to poverty and social breakdown as well. He further observed that human populations grow exponentially, whereas food production grows linearly. The simple difference between these two trends makes a human catastrophe unavoidable without an intervention to halt demographic growth. The views of Malthus and his followers were soon to be challenged by more optimistic economists. The neo-classical tradition argued that a properly functioning market provides the right incentives to avoid a Malthusian apocalypse. By stimulating innovation, conservation and substitution of scarce resources, the market corrects excessive human exploitation of the environment and allows for sustained development, the economists argued.

The Malthusian and the neo-classical school of thought represent the basic historical pillars of discussion on scarcity and conflict. Disagreement about the finiteness of environmental resources (and thus the limits to human development) and about the human capacity to adapt to scarcity continue to be the underlying questions of the debate in more recent times. Throughout the years, however, checks and balances to these bipolar views have been explored.

1.2. Environment, Security and Development on the Policy Agenda

In recent decades, the environment advanced to the centre of the global arena of public debate. It was especially within the United Nations that the environment became a hot topic in the 1970s and 1980s. The 1972 Stockholm conference was the first clear manifestation of international interest in protecting the environment. The Founex-Report on Environment and Development - the document on which the decisions taken in Stockholm were based - introduced the notion that environmental problems are a

major factor in causing poverty and lack of development.¹ The Founex report called for a broader definition of development that included an environmental dimension.

Yet, the definition did hardly include conflict and security issues. A few years later, however, the UN Commission on Disarmament and Security issues, chaired by the Swedish Prime Minister Olaf Palme, linked security both to development and the environment. The commission distinguished between *collective security* - encompassing a traditional military notion of security - and *common security*. The latter concept included much wider dimensions like economic change, resource scarcity and environmental degradation. This view was soon to be complemented with Mikhail Gorbachev's notion of *comprehensive security*, which he promoted as the basic foundation of international politics.²

Although significant, the terms common and comprehensive security did not develop into central concepts in international policy making. Rather, the term *sustainable development* was soon to occupy a prominent position on the international policy agenda. This term put great emphasis on the complex combination of development and the environment. However, the link to security and conflict was not yet articulated to the same degree.

The term sustainable development had been introduced by the Brundtland report of 1989 (named after the chairperson of the Commission responsible for drafting the report, the Norwegian Prime Minister Gro Brundtland). This document - specifically prepared for the UNCTAD conference 'Our Common Future' - defined sustainable development as 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs.'³ Environmental protection, economic growth and social equity were identified as the main components of sustainable development. The UNCTAD conference was an overture to the Rio conference of 1992 that would conclude twenty years of discussion with a number of concrete conventions, those on climate change and biodiversity being the most well-known. Implementation of and adherence to these conventions turned out to be problematic.

1.2. Conflict Studies

The attention for environmental degradation in the late 1980s and early 1990s coincided with a turbulent period in the field of conflict studies. Following the end of the Cold War, conflicts flared up or re-escalated in many areas throughout the world. Although violent conflict had been wide spread during the decades of American-Russian bipolarity, in many areas the sudden change - or even drop out - of external interests set off additional regional instability and allowed space for civil strife, insurgency, violent demands for autonomy and intra-state conflict.

More importantly for this paper, the early 1990s set the stage for approaching conflict and development in a comprehensive manner. The term *human security* provided for a more encompassing approach to conflict. Furthermore, it increasingly became acknowledged that conflict and development

¹ Baechler, G. (1999). *Violence through Environmental Discrimination: Causes, Rwanda Arena, and Conflict Model*. Social Indicators Research Series. Volume 2. Dordrecht: Kluwer Academic Publishers. p. 23.

² Dabelko, G., Lonergan, S. and Matthew, R. (2000). *State-of-the-Art Review on Environment, Security and Development Cooperation: For the Working Party on Development Cooperation and Environment, OECD Development Assistance Committee*. IUCN. <http://www.iucn.org/>. p. 14.

³ World Commission on Environment and Development (1987) *Our Common Future*. Cited on <http://www.earthsummit2002.org/ic/>.

are (inter-)related and that international development cooperation should thus not be approached separate of violent conflict. The following links have been the subject of debate:

- The conflict potential of development. Development entails a change in societal structures, entitlements and influence and has been argued to inevitably involve conflicts. Some are benefiting from development more than others.⁴ *Violent* conflict, however, is not a necessary consequence of development. Efforts should thus be aimed at channelling the conflicts evoked by development into peaceful means of resolution.
- The adverse effects of conflict on development. Although conflict is argued to be an essential element of development, violent conflict is usually destructive to it. Physical damage, war economies, psychological traumas, weakened or collapsed democratic institutions and erosion of the rule of law are some of the consequences violence may bring about.
- The complicating influence of conflicts on development cooperation. In conflict situations aid agencies have a limited space of manoeuvre in terms of logistics, staff security, cooperating with partners and longer-term planning. Given these limitations, aid is often confined to humanitarian assistance. It is especially in cases of ‘no war, no peace’ that some authors have observed a gap between pure relief and pure development cooperation.⁵ Increasingly, strategies combining pure humanitarian aid with rehabilitation, peace work or the first steps towards development cooperation are being explored.
- The potential of international cooperation to either support peace or conflict. Policy dilemmas drawing from the Do No Harm concept (how aid can support local capacities for peace, or war) have been given a salient spot on the agenda.⁶ Implicit or indirect support to warring parties, a strengthening of the war economy and increased tension between population groups are some of the conflict supporting phenomena assistance may contribute to. It has been argued that no form of aid can work *around* conflict. Rather, aid agencies should work *in* conflict (*i.e.*, take conflict generating side effects into account), or *on* conflict (*i.e.*, deliberately design assistance in a way that contributes to peace).⁷

These links between conflict and development include environmental dimensions as well. With regard to war economies, the violence sustaining effects of the exploitation of and illicit trade in abundant resources such as diamonds or oil have been stressed. With regard to tension between population groups, irrigation channels, land rights and entitlements to forest have been identified as issues of contention. This is also of concern to aid agencies involved in rehabilitation or resettlement of displaced people.

⁴ Schrijvers, J. (1992) *De boodschap van het vijfde ontwikkelingsdecennium*. Utrecht: Uitgeverij Jan van Arkel.

⁵ Frerks, G. (1999) *Refugees between Relief and Development: Continuum or Discontinuity?* Paper presented at the international conference ‘Refugees and the transformation of society: Loss and Recovery’, Soesterberg, the Netherlands.

⁶ Anderson, M. B. (1996) *Do No Harm: Supporting Local Capacities for Peace Through Aid*. Cambridge: Collaborative for Development Action Inc.

⁷ Goodhand, J. and Atkinson, P. (2001). *Conflict and Aid: Enhancing the Peacebuilding Impact of International Engagement. A Synthesis of Findings from Afghanistan, Liberia and Sri Lanka*. London: International Alert.

Although these links between conflict and development - including the environmental dimensions - have come to be globally acknowledged, not all actors are equally eager to incorporate them into policy and practice.

1.3. The 1990s: Academic Research into the Link Between Environment and Conflict

Given the simultaneous attention for the security dimensions of environment - with a strong emphasis on the link between environment and development - and the nexus between conflict and development, intensification of the debate on environmental resources and violent conflict was only to be expected. It is indeed in the 1990s that the link between scarcity and conflict comes to the fore.

Within a few years time, a wide range of research projects was launched and many conferences were organised.⁸ As usual in the exploration of a new academic field, the prelude to this thrust of interest involved a number of publications on related topics and critical views on conventional concepts and approaches. Baechler provides an excellent overview:

‘It was only in the late 1980s and early 1990s when the debate on war-related environmental destruction shifted away from classical military security topics. Previously ‘environmental destruction’ was mainly considered either as a side effect of military training (Krusewitz 1985), as a means of warfare (Westing 1976, 1986), as a by-product of wars (Weizsäcker 1971; Westing 1980, 1985), or as the catastrophic outcome of a future war waged with weapons of mass destruction (Westing 1977; Ehrlich *et a.* 1985). The debate moved on to ‘environmental factors in strategic policy and action’ (Westing 1986a,b; Brown 1990), focused on ‘redefining security’ bringing into the picture new threats such as global environmental change (Ullman 1993; Mathews 1989, 1991; Gleick 1991) and results in the concept of environmental degradation as a major cause of violent conflict and war (Lipschutz 1989; Renner 1989; Bächler 1990a,b; Brock 1991; Homer-Dixon 1991a,b).’⁹

This last notion as mentioned by Baechler resulted in a number of initiatives during the 1990s. Without pretending to be complete or exhaustive, the following paragraphs present an overview of some influential efforts.

1.3.1. Toronto School

The Toronto school - referring to the Environmental Change and Acute Conflict Project and the Project on Environment, Conflict and Security - was a leading school of research in the 1990s, with

⁸ Levy distinguishes successive waves of research. The first wave ‘circling around’ theoretical discussions and a redefinition of the concept of security in particular. The second – from the mid 1990s onwards – encompasses attempts to find empirical verification for these theories, whereas the third refers to the widening of the research agenda again to explore a number of conclusions and related themes in more detail. Levy, M. (1995) Time for a Third Wave of Environment and Security Scholarship? In: *The Environmental Change and Security Report*. Vol. 1 pp 44-46.

⁹ Baechler, G. (1999). *Violence through Environmental Discrimination*. Social Indicators Research Series, volume 2. Dordrecht: Kluwer Academic Publishers. p. 24. For reference, the publications cited are listed in the bibliography.

Thomas Homer-Dixon as the best-known researcher. This initiative substantiated the view that environmental scarcity contributes to civil violence, including insurgency and ethnic clashes.¹⁰ On the basis of case studies, an increase in violence was predicted as the availability of cropland, freshwater and forest decreased in many parts of the developing world.¹¹ Taking the distribution of scarce resources as a point of departure, Homer-Dixon pointed out it is not the entire society that is challenged by economic degradation, but certain segments of it. As a result, over-exploitation of the environment may lead to increased inequality and consequently to resentments. The two main processes at work here are ‘resource capture’: the tendency of elites taking control over resources; and ecological marginalization: the forced migration of vulnerable groups to less fertile and environmentally fragile areas. Both processes increase the pressure on the environment and thus increase inequality.

Drawing from these views, Homer-Dixon’s notion of the ‘ingenuity gap’ probably was his main contribution to the debate. While acknowledging the power of human ingenuity to deal with environmental scarcity, he observed that the human capacity to innovate is not evenly distributed. Ironically, the groups most affected by ecological scarcity are least capable of innovation, Homer-Dixon pointed out. Counter to the Malthusian view that scarcity challenges the world as a whole, scarcity in Homer-Dixon’s view aggravates an already existing inequality both internationally and within societies. As a result, a global apocalypse is not to be expected. Rather, the primary cause of concern should be with violent intra-state conflicts.

1.3.2. Swiss School

In Switzerland, a number of relevant initiatives have been undertaken in the past decade. The first salient one was the Environment and Conflict Project (ENCOP), which was jointly run by the Center for Security Studies and Conflict Research at the Swiss Federal Institute of Technology Zurich, and the Swiss Peace Foundation (Swisspeace). ENCOP approached the link between environment and security from a broader perspective of development and underdevelopment. The ‘transformation of society-nature relationships’ was a central topic here.

Through a series of case studies, the project came to its main conclusion, *i.e.* affirming that environmental degradation is a factor that contributes to violent conflict. It may act as a reason, a trigger, a target, a channel or a catalyst for violence.¹² ‘However, passing the threshold of violence definitely depends on *socio-political* factors and not on the degree of environmental degradation as such.’¹³

On the basis of qualitative case studies, ENCOP concludes that it is the unequal impact of development which is the overarching factor in explaining environmental conflict. Rural populations are often the victims of the imperfect penetration of modernity. Consequently, ENCOP identified

¹⁰ Homer-Dixon, T. (1999). *Environment, Scarcity and Violence*. Princeton: Princeton University Press. p. 177.

¹¹ Ibid.

¹² On a more detailed level, ENCOP uses a typology of seven kinds of conflicts, ranging from ethno-political conflict to global environmental conflict. The relation between environmental degradation and violence is different for different types of conflict. Inter-state conflict, for example, is not likely to be brought about by environmental scarcity, it is observed.

¹³ Baechler, G. (1999). *Violence through Environmental Discrimination*. Social Indicators Research Series, volume 2. Dordrecht: Kluwer Academic Publishers. p. 24. p. xviii. Italics in original.

certain regions running a larger risk of conflict over resources: arid and semi-arid areas, mountains with high and low land interaction, river basins across state boundaries, mining areas and dams, tropical forest belts and poverty clusters in metropolises.

More recently, Swisspeace provided a follow-up to ENCOP with initiatives such as Environmental Change, Consensus Building and Resource Management in the Horn of Africa (ECOMAN) and Environment and Cooperation in the Nile Basin (ECONILE), which took a stronger regional focus (eastern Africa) and moved beyond the link between development, resources and conflict in initiating a discussion on different ways of dealing with scarcity. Both the perceptions and strategies of different ethnic groups, households, communities and the state were included in these projects. Traditional and modern mechanisms are brought to the fore and the potential contribution of external intervention is discussed as well.

These initiatives underline the importance of local perspectives and stress that the resolution mechanisms should be embedded. With regard to external intervention, it is suggested that improved education in the field of reproductive health is needed in order to tackle the unchanged population growth. Secondly, the creation of employment opportunities may contribute to reduce the direct dependence on scarce resources. With the same aim, the third suggestion is that external actors introduce new technologies and market reform.¹⁴

1.3.3. PRIO

The Peace and Research Institute in Oslo (PRIO) has been a challenger of the Toronto school. Nils Petter Gleditsch - the main figurehead in the field of environment and conflict - has claimed that the conclusions of Homer-Dixon and his colleagues are based on insufficient and non-systematic research.¹⁵

PRIO's own research conclusions are a bit more modest. Quantitative PRIO analysis supported a weak link between environmental stress and civil war.¹⁶ The institute also found a correlation between soil degradation and civil conflict. However, PRIO concluded that economic and political variables are more significant contributors to conflict than are environmental variables.

More recently, the institute has emphasized the determining role of governance in shaping the link between scarcity and violent conflict. The relative degree of democracy is an important factor, PRIO research indicates. Currently, PRIO is closely cooperating with the World Bank in projects focussing on natural resources, external interventions, democracy, political economies of war and the role of the state.

PRIO also contributed to the debate on the influence of abundant resources, which has become a very fashionable topic of research and discussion in recent years.¹⁷ The struggle for diamonds, gold,

¹⁴ Ludi, E. (1999) *Household and Communal Strategies Dealing with Degradation of and Conflict over Natural Resources: Case Studies from the Ethiopian Highlands*. Bern: Swiss Peace Foundation. Institute for Conflict Resolution.

¹⁵ Gleditsch, N. (1998). Armed Conflict and the Environment: A Critique of the Literature. *Journal of Peace Research*. Vol. 35, No. 3. pp 381-400.

¹⁶ Dalby, S. (2002) Security and Ecology in the age of Globalization. *Environmental Change and Security Project Report*. 8. pp. 95-108.

¹⁷ World Bank (2003). *Breaking the Conflict Trap: Civil War and Development Policy*. World Bank policy report. <http://www.worldbank.org/> And: Berdal, Mats R. and David M. Malone (2000) *Greed and Grievance: Economic Agendas in Civil Wars*. Lynne Rienner.

oil and timber is the central theme here. The large revenue of these resources on the (illicit) international market, which is argued to be the financial fuel to many conflicts, is a concern here as well. It is advocated that both the greed (abundant resources) and the grievance (scarcity) side of conflict need to be approached comprehensively.

1.3.4. NATO

Challenged with major changes in the notion of security and far-reaching consequences for its own role in the international arena, the North Atlantic Treaty Organisation (NATO) began to pay considerable attention to non-conventional threats to security in the late 1990s. NATO's Scientific and Environmental Affairs Division, for example, designated environmental security as one of its priority areas for cooperation with Central and Eastern Europe and Russia.¹⁸ The division organised a number of Advanced Research Workshops (ARW's) that brought together a wide range of international experts. The input and outcome of these conferences were published in substantial reports providing an overview of relevant issues and discussion themes.¹⁹

These reports underlined that conflicts are multi-causal processes, that scarcity tends to play a role at intra-state level and that the term 'environmental security' was functional to set the policy agenda, but too broad to be used in practice. Recommendations were made with regard to future research (advocating a balance of qualitative and quantitative methodologies as well as an analysis of cases where scarcity does not cause violence) and the creation of a preventative mechanism to address scarcity and conflict.²⁰

Given the wide range of issues and participants to these conferences, this initiative should not be regarded as a separate school of thought but rather as a broad-based attempt to put the environment and conflict nexus on the policy agenda and set the stage to explore ways of addressing it.

1.3.5. Oregon State University

The work at Oregon State University does not in the first place distinguish itself in conceptual approach or specific thematic field that it intends to explore. Rather, it is the methodology used that is of interest here. In contrast to most researchers who use case studies or related methods, Aaron Wolf and his colleagues have attempted to construct global historical databases on freshwater conflicts and agreements.

The most remarkable conclusion resulting that comes out of this approach is that water agreements are very resilient. In fact, it is argued that water scarcity has never led to international armed conflict. Instead, collaboration in this field may act as a foundation for broader cooperation between states. In other words, water scarcity is a catalyst of international cooperation rather than of war.

¹⁸ Gleditsch, N. (Ed.) (1997). *Conflict and the Environment*. Dordrecht: Kluwer Academic Publishers. p. 1.

¹⁹ Ibid. and: Lonergan, S. (Ed.) (1999) *Environmental Change, Adaptation, and Security*. Dordrecht: Kluwer Academic Publishers.

²⁰ Gleditsch, N. (Ed.) (1997). *Conflict and the Environment*. Dordrecht: Kluwer Academic Publishers. p. 578.

1.3.6. World Bank

Given its large economic and political influence, the World Bank is generally considered a major player in the development of ideas and policies. Counter to the stereotype that large bureaucratic institutions find it hard to introduce new or controversial ideas, the Bank has published quite a number of provocative views. In a recent study, World Bank researchers argue against the popular view that grievances of population groups (e.g. related to scarcity of resources) are an essential cause of violent conflict. Rather, they take the emergence of insurgent groups and armed militias as a point of departure and argue that the existence of large groups of unemployed youth and the availability of easily tradable and valuable resources like diamonds have a much stronger correlation with armed conflict. Using a combination of quantitative indicators and qualitative interpretations, the report is a provocation to the debate on scarcity and abundance in relation to conflict.²¹

1.4. Beyond the 1990s: More Questions than Answers?

Research and debate may yield more questions than answers. Drawing from the progress made in the 1990s, a number of controversial subjects continue to challenge our understanding of the linkages between conflict and scarcity. The following three subjects are salient ones.

1.4.1. Conflict or Cooperation?

Scarcity may lead to conflict, but it may also lead to cooperation. Both views have been substantiated with research.²² The factors determining either outcome are rather ambiguous. Conflict and cooperation may not be exclusive categories and scarcity may have different consequences in different situations. One question to ask is whether it is the level of scarcity that matters (e.g., identifying certain thresholds). This would imply a largely environmental dimension. On the other hand, it may be opted that contextual factors like political representation and economic opportunities are determining. Another question concerns the differences between the various kinds of resources. Scarcity of fresh water has been observed to lead to cooperation. May the same relation be observed for fertile land or wood supplies?

1.4.2. Scarcity or Abundance?

If scarcity yields conflict (or cooperation) abundance of resources would be expected to yield the opposite. As was mentioned before, this logic would be too simplistic. In recent years, various authors have argued that abundance of resources can be detrimental. Whether this natural wealth may also lead to cooperation is an issue of debate.

The point to be underlined though is that there may not be a dichotomy between scarcity and abundance. Some authors advocate an integrated approach of the impact of large reserves of diamonds and gold and a lack of water, wood and land.

²¹ World Bank (2003). *Breaking the Conflict Trap: Civil War and Development Policy*. World Bank policy report. <http://www.worldbank.org/>.

²² See also Conca, K. and Dabelko, G. (eds.) (2002) *Environmental Peacemaking*. Washington D. C.: Woodrow Wilson Center Press.

1.4.3. Environment: a Separate Factor?

Should we regard the environment as a separate factor in the causation of conflict? The extensive debate and research in the 1990s has not produced a general consensus in this respect. The protagonist views are still in place: some argue that ‘ecoconflicts’ will be the wars of the near future, others say this phenomenon doesn’t really exist, whereas yet others argue that ‘ecoconflicts’ are nothing new.²³

Integrating the (perceived) environmental dimension of conflict into the broader social, economic and political context has raised the question whether the environment needs to be taken into account separately. Some authors have stressed that environmental aspects always manifest themselves through social, economic or political channels in the causation of conflict and hence do not add any complementary insights.²⁴

Homer-Dixon has challenged these views with three arguments. 1) The environment is a factor that influences politics and economics. 2) The environment is partly influenced by factors outside the human range of control. 3) Environmental degradation may be irreversible. For these three reasons, he argues, the environment should not be seen as a function of politics and economics.

Matthew, Halle and Switzer acknowledge that conflicts over resources may largely be attributed to poor governance. Yet they argue that ‘better governance will solve many - but not all - environmental security problems.’²⁵ Many environmental trends operate independently of human institutions, they observe.

Moving to the policy level, the argument that the environmental dimension is not subordinate to political or economic factors manifests itself in the observation of numerous authors that environmental factors may create opportunities for peace building.²⁶ The line of thought here is that environmental cooperation - whether or not resulting from scarcity - creates an alternative opportunity to work towards peace or to prevent conflicts. The environmental realm may have comparative advantages. It may, for instance, be more neutral, it may lead to more tangible results or may involve more common interests as compared to conflict resolution based on political or socio-economic issues. Different ways of dealing with scarcity at the local level may provide incentives for cooperation or peaceful co-existence, albeit they are not labelled as peace building measures. In tense or politicised circumstances, this may come in handy.

1.5. Conclusions

In the past decades concepts in the realm of development and security were steadily broadened to include environmental dimensions. After roughly ten years of research, views on environmental

²³ Baechler, G. (1999). *Violence through Environmental Discrimination: Causes, Rwanda Arena, and Conflict Model*. Social Indicators Research Series. Volume 2. Dordrecht: Kluwer Academic Publishers.

²⁴ Some have even argued that the environmental dimension is deliberately pushed in an attempt to conceal selfish political and economic motives. “I think that the struggle for resources is just an excuse to distract the attention from what it is really about: more power and wealth for local elites.” (Witsenburg, K. (2002) Waterschaarste leidt tot samenwerking. In *Geografie*. Volume 11, 1, pp. 19.)

²⁵ Matthew, Halle and Switzer (eds) (2002) *Conserving the Peace: Resources, Livelihoods and Security*. IUCN. p. 391.

²⁶ Conca, K. and Dabelko, G. (eds.) (2002) *Environmental Peacemaking*. Washington D. C.: Woodrow Wilson Center Press.

scarcity or degradation causing violent conflict are far from consolidated. Many elementary theoretical notions are still hotly contested.

Scarcity may lead to conflict, but so may abundance. And either one may be a catalyst for cooperation as well. It is furthermore unclear whether environmental factors have a separate stake in these causalities or whether they should merely be seen as derivatives of political, social and economic dimensions. Despite the continuing disparities a number of general lines may be drawn to provide an overview of the debate:

- The view that human exploitation of the world's resources would exceed its limits and cause large-scale resource wars and a global apocalypse has generally come to be considered as somewhat alarmist. However, it is generally acknowledged that development, security and the environment engage in a complex interrelationship.
- The notion of security has been a continuous issue of debate. The need to redefine the traditional (military) conception of security is widely acknowledged. Suggestions like 'common security', 'comprehensive security', 'environmental security' and 'human security' have been brought to the fore. However, the continuously re-iterated need to come up with widely supported concepts has not resulted in consensus. The UNDP term human security - which includes, among others, environmental security - is probably the most widely known and used concept.
- It was established that political and economic factors are of crucial importance in the relation between environmental variables and the occurrence of violent conflict.²⁷ 'Environmental change [...] is related to insecurity through conditions of inequality and impoverishment.'²⁸ 'Environmental scarcity is not sufficient, by itself, to cause violence; when it does contribute to violence, research shows, it always interacts with other political, economic, and social factors.'²⁹ How the environmental interactions with these factors are related to conflict, continues to be a challenging question. One of the suggestions brought forward was the so-called 'ingenuity gap', which is used to refer to the limited options of the groups most affected by environmental degradation to be innovative.
- Inter-state resource wars are extremely rare. On the contrary, analysis of water agreements has shown that scarcity may lead to international cooperation rather than to conflict. Conflicts with environmental components are much more likely to occur at the intra-state level.
- Scarcity may be an incentive for conflict or for cooperation. Research has not produced conclusive findings on which factors are decisive for the outcome. To complicate matters, the abundance of resources has also been observed to be a catalyst for violent conflict. It thus appears there are no simple causal relations between the availability of resources and the occurrence of conflict.

²⁷ Dabelko, G., Lonergan, S. and Matthew, R. (2000). *State-of-the-Art Review on Environment, Security and Development Cooperation: For the Working Party on Development Cooperation and Environment, OECD Development Assistance Committee*. IUCN. p 22.

²⁸ Ibid. p. 20.

²⁹ Homer-Dixon, T. (1999). *Environment, Scarcity and Violence*. Princeton: Princeton University Press. p. 178.

II Shortcomings and Challenges of Research

As discussed in the previous chapter, the past decade of research in the field of environment and conflict has managed to produce some substantial findings and to place the resulting issues on the policy agenda. However, academic efforts have not succeeded in providing policy makers with clear tools for framing their policies. Research is still largely in its exploratory phase. Theory, concepts and empirical verification are still relatively weak. As a result academics have been unable to make well-founded predictions.

2.1. Concepts and Theory

Academic attempts to explore environmental scarcity as a cause of violent conflict have produced new views and concepts. Theories encompassing both the environment and conflict have resulted in terms like ‘environmental security’ and ‘environmental refugee’. In many cases these concepts served as a catalyst of discussion. Some analysts have sceptically stated they should thus be seen as rhetorical devices. By joining notions of environment and security, an agenda is set for approaching the two fields in a comprehensive manner.

No matter how effective these concepts may be in setting an agenda, it must be noted they inevitably suffer from the syndrome most emerging concepts suffer from: they lack clarity. The definition of the term environmental security has been highly contested, for example. The fact that different people use the concept to refer to different things hampers debate. Many conferences have addressed this lack of clarity. Participants time and again voiced the need to come to a consensus. It remains questionable whether they succeeded in reaching this goal.

The exact meaning of concepts, the differences between them and their relative complementariness continue to be unclear. The United Nations Development Programme (UNDP), for example, introduced the term ‘human security’ in its Human Development Report of 1994. This report acknowledges the term is ‘more easily defined through its absence than through its presence.’³⁰ It furthermore observes that ‘most people instinctively understand what security means.’³¹ Admitting this observation does not enhance the operational use of the concept, the report maps out seven dimensions of human security: economic, food, health, environmental, personal, community and political security. However, the report does not define the environmental dimension in the sense that it may cause violent conflict, but solely in terms of environmental degradation that challenges the welfare of a country.³² Thus, security refers to the need of protecting people against economic

³⁰ UNDP (1995) *Human Development Report 1994: New Dimensions of Human Security*. UNDP. <http://www.undp.org/hdro>. p. 24-25.

³¹ Ibid.

³² Interestingly, the report takes the country as a point of departure when it comes to the environmental component of human security. The threats to a country are put on central stage. This is surprising given the general principle earlier in the report, that human security is a people-centred concept, concerned with ‘how

environmental threats. The traditional notion of security - referring to ways of managing conflict and counterbalancing threats of violence - is an entirely different matter. Some authors feel this definition of human security is too narrow and should include the conflict potential of environmental scarcity as well.

There is also a discrepancy with regard to environmental scarcity. The observation that a resource is scarce is somewhat subjective. Contrary to scarcity, degradation may be measured as a decrease of availability. Some authors have argued that the term scarcity is 'muddled' and hard to pin down. Research, in their view, should take 'environmental degradation' as a starting point.³³ The previously discussed term 'sustainable development' is another example of a concept subject to varying perceptions and debate. The term is almost all-inclusive and may or may not be defined to include elements of security.

The ambiguous nature of the notions and the unclear relation between them is not just a debate among 'definition freaks'. It raises challenging questions as to how reality should be viewed and it is indicative of the absence of consensus on the links between environment and violent conflict. For example, with regard to 'environmental security', it may be asked whether it is the guarantee that people have access to environmental resources like food and water that is at central stage. Or does it refer to the way environmental challenges affect security in the traditional military sense of the word? The problem with the term sustainable development is that the dimension of development complicates the discussion. Should we see conflict as a necessary result of development and environmental degradation as an undesired side effect? Or is development the mechanism to manage resources in such a way that violent conflict is evaded? The widespread disagreement about the answers to these questions is indicative of the still exploratory phase of research in this respect.

Despite the lack of consensus, the 1990s have produced a number of theories. As discussed in the previous chapter, relative agreement has been reached on a number of issues. All in all, however, these insights do not equip policy makers with a solid foundation to shape their interventions. Elementary questions - what kind of security, security for whom, against what, who is to provide it and how?³⁴ - have been left unanswered. If effective policies are formulated, they should probably be attributed to the creativity of policy makers, rather than to the contribution of academic research to the policy debate.

2.2. Empirical Verification

Researchers plead for more research. Consultants advise investing in more analysis. Undesirable as it may seem to adhere to this stereotype, it must be noted that academic efforts to provide insight into the environment-conflict nexus are hampered by lack of empirical back up.

Like conceptual clarity, methodology has been a widely discussed issue in the past decade. Analysts called for research moving beyond case studies and progress towards quantitative analysis.

people live and breathe in a society.' UNDP (1995) *Human Development Report 1994: New Dimensions of Human Security*. UNDP. <http://www.undp.org/hdro>. p. 23.

³³ Dabelko, G., Lonergan, S. and Matthew, R. (2000). *State-of-the-Art Review on Environment, Security and Development Cooperation: For the Working Party on Development Cooperation and Environment, OECD Development Assistance Committee*. IUCN. <http://www.iucn.org/>. p. 18.

³⁴ Ibid. p. 17.

Case studies fail to show the relative importance of environmental scarcity as a cause of conflict, it was argued. In addition, the selection of cases may be biased, because researchers have a tendency to select cases where scarcity is presumed to be a cause of conflict. For this reason, critics have discarded the research done as invalid. During the 1990s it became widely accepted that an investigation of ‘null cases’ - areas with environmental scarcity that did not lead to violent conflicts - would enhance our understanding. Cross-country statistical analysis has been suggested as another option.³⁵

Convincing as this plea for more systematic research may seem, it must be acknowledged that enhanced methodology may not solve the problem. Empirical research is challenging in this field. Both conflict and scarcity of environmental resources are extremely complex phenomena that are difficult to map out. They include a wide variety of potentially significant elements, making it practically impossible to assign a certain variable as a necessary or sufficient factor in the causation of conflict. Research has been criticized for its inclination to focus on *how* a situation turns into war (proximate causes), rather than on the structural root causes. In this way studies may inadequately cut off history and exclude contextual factors.³⁶

Langeweg and Hilderink conclude that ‘failures of social institutions, armed conflict and displacement of people can only be included in a system of indicators in a descriptive empirical manner because of the lack of sound validated predictive theories.’³⁷ They therefore propose further research into these fields. Whether research will succeed in pinning down complex phenomena such as conflict, institutional development and migration, so that enhanced indicators and policy tools can be established, remains to be seen.

An additional challenge to empirical verification is posed by the availability of data. Although significant progress is being made in the field of methodology, the widespread absence of reliable figures has been an obstacle to systematic verification of theories. Given the advanced technologies with regard to environmental monitoring (using instruments such as electronic databases, military intelligence systems and satellite images³⁸) and advancing instruments in the field of peace and conflict (such as early warning mechanisms and analysis of indicators) progress may be made in this field.

2.3. Developing Policy Instruments

Both environmental conservation and conflict management have become issues of concern to many policy makers throughout the past decades. A wide range of organisations is engaged in these issues. In line with international agreements, the policy, and to a lesser extent the practice, of organisations representing the international community have integrated the environment as a major issue of concern. It has grown into a mainstream of the wider international development efforts.

³⁵ Gleditsch, N. (1998). Armed Conflict and the Environment: A Critique of the Literature. *Journal of Peace Research*. 35: 3, pp 381-400.

³⁶ Baechler, G. (1999). *Violence through Environmental Discrimination: Causes, Rwanda Arena, and Conflict Model*. Social Indicators Research Series. Volume 2. Dordrecht: Kluwer Academic Publishers.

³⁷ Langeweg, F. and Hilderink, H. (2001) *Global Environmental Change and Human Security: what do indicators indicate?: a contribution to the ENRICH Networking Programme*. RIVM: Bilthoven. p. 22

³⁸ Dabelko, G., Lonergan, S. and Matthew, R. (2000). *State-of-the-Art Review on Environment, Security and Development Cooperation: For the Working Party on Development Cooperation and Environment, OECD Development Assistance Committee*. IUCN. <http://www.iucn.org/>. p. 38.

A similar picture may be observed as regards activities in the field of conflict management. In addition to many specialised agencies in the field of peace and pacifism, the 1990s witnessed the initiation of efforts to mainstream conflict sensitive approaches into the general policies of the development industry, *i.e.* bilateral donors, multilateral agencies and NGOs in the field of development cooperation.

These developments are in line with the widely heard plea for integrated and holistic policies. But contrary to this trend an integrated approach to environment and conflict has been largely absent in policy. Peace organisations and agencies engaged in peace and development have not usually adopted an environmental perspective on their work. Similarly, most agencies aiming at natural conservation and sustainable use of resources have not explicitly taken a peace and conflict approach.

Organisations with a broad mandate may have included both environmental and conflict dimensions, but tend to approach them as separate realms of activity nonetheless. One of the factors here may be the observed mutual distrust between the ‘environmental community’ (be it researchers or policy makers) and the ‘conflict community’, which has posed an obstacle to closer cooperation. ‘[...] the mutual distrust between these disparate spheres will require skilful diplomacy to overcome,’ Matthew, Halle and Switzer conclude.³⁹

In addition to these human and institutional obstacles, the challenges and shortcomings of research in this field - as discussed previously in this chapter - may largely explain the fact that the fields of conflict and environment are approached separately. The ‘confusion’⁴⁰ about the link between environmental scarcity and conflict may well not have convinced policy makers to adopt a comprehensive approach to peace and environment. Furthermore, the resulting lack of policy instruments has left them ill-equipped to do so. In spite of the progress made, a peace and environment agenda may continue to be hampered by the absence of these instruments.

The Human Development Index (HDI), formulated and continuously updated by the UNDP, has become a generally accepted indicator. As discussed above, it includes aspects that are highly relevant to the field of environment and conflict, but it is not concentrating on environmental degradation and scarcity as a cause of conflict. The mechanism is frequently taken as a starting or reference point for the development of more specialised policy instruments.

Other relevant instruments are the numerous early warning systems that have been designed in recent years to enhance preventive action. For example, more or less fine-grained mechanisms have been developed for famine (Famine Early Warning System, FEWS) and humanitarian crises (Humanitarian Early Warning System, HEWS). In addition, the 1990s witnessed the emergence of mechanisms with regard to conflict (e.g. Conflict and Policy Assessment Framework, CPAF of the Netherlands Institute of International Relations ‘Clingendael’, the Conflict Analysis Framework of the World Bank, the Minorities at Risk project based at the University of Maryland and the Swisspeace initiative Early Analysis of Tensions and Fact-finding, FAST).

The methodology of these instruments varies. Some are quantitative, others qualitative; some are based on statistics, others on field observations; some are confined to basic indicators, others use complex network analysis; some are descriptive, others prescriptive; some include multiple

³⁹ Matthew, Halle and Switzer (eds) (2002) *Conserving the Peace: Resources, Livelihoods and Security*. IUCN. p. 397.

⁴⁰ Dabelko, G., Lonergan, S. and Matthew, R. (2000). *State-of-the-Art Review on Environment, Security and Development Cooperation: For the Working Party on Development Cooperation and Environment, OECD Development Assistance Committee*. IUCN. <http://www.iusun.org/>. p. 16.

stakeholders, others are relatively top-down or focus on just one organisation. What all these instruments have in common is that they represent work in progress, rather than consolidated frameworks of direct reliable use for policy.⁴¹

Another indicator we should refer to here is the Index of Human Insecurity (IHI).⁴² IHI ranks countries according to their level of human insecurity, drawing from four kinds of variables:

1. environment (e.g. safe water and soil degradation);
2. economy (e.g. GDP per capita illiteracy rate);
3. society (demographic figures) and
4. institutions (public expenditure, human rights and degree of democracy).

The IHI is intended to ‘identify vulnerable or insecure regions, and also to help inform policy and aid decision-makers in development assistance efforts.’

The creators of the instrument argue that the IHI provides an insight into the causes of insecurity and as such provides a forum for discussion on the types of policy to be implemented. Also, it indicates changes of insecurity over time and as such could be fine-tuned to serve as an ‘early warning mechanism’. The IHI has identified Western and Central Africa and the Horn of Africa as the world’s most insecure regions. The IHI shows a considerable overlap with UNDP’s Human Development Index. Yet, it is argued there is a complementary value to the IHI since it provides a better insight into the variability of human insecurity, it has a stronger theoretical base and it includes qualitative in addition to quantitative data.

One of the forerunners of the IHI from the same group of scholars (within the context of Global Environmental Change and Security Project, GECHS) focused on migration as a result of environmental degradation. Migration has been described as a process through which environmental factors may indirectly feed conflict. This so-called Index of Vulnerability includes twelve indicators, including factors like scarcity and access to resources, income democratization and demographic figures. The potential link between migration, scarcity and conflict is, however, not included in the Vulnerability Index.

All in all, no policy tool has been developed to monitor the quality of the environment and the availability of resources in an effort to prevent the escalation of violent conflict. Thus, it may not be surprising that few organisations have taken efforts to address environmental scarcity or degradation as a potential cause of conflict.

2.4. Conclusions

- A progressive number of policy instruments are developed in areas such as environmental degradation, development and conflict. Yet, we must conclude that there are no well-

⁴¹ Van der Goor, L and Versteegen, S. (2000) *Conflict Prognosis: A Conflict and Policy Assessment Framework*. Part 2. The Hague: Netherlands Institute of International Relations ‘Clingendael’.

⁴² Lonergan, S., Gustavson, K. and Carter, B. (2000). The Index of Human Insecurity. In: *Aviso*, 6. GECHS. <http://www.gechs.org/aviso>.

established instruments that concentrate on the potential inter-relationship between violent conflict and environmental scarcity.

- This is understandable because conflict and environment are complex and dynamic processes that are difficult to pin down. In addition, this interdisciplinary field of research still has to do without a solid theoretical, conceptual and empirical base. Lack of consensus on notions of security, lack of data and weaknesses in methodology will continue to hamper the further development of both instruments and policy.

III Dealing with Scarcity

Environmental scarcity may be an issue of contention between groups of people. Many cases - particularly at the intra-state level - may illustrate that scarcity has contributed to violence. However, scarcity may also be the basis of cooperation. As discussed earlier, there are many examples of (threatening) water shortage resulting in international water agreements, which in turn constitute a platform for broader structural cooperation between countries. Within the state there are also a number of examples of scarcity having induced cooperation and scarcity may thus act as a 'catalyst' for peace.⁴³

It has furthermore been noted that both conflict and scarcity are normal phenomena inherent to human development.⁴⁴ Rather than avoiding conflict and scarcity as such, the key is to manage them in a way that leads to constructive change and not to violence.

The previous chapters showed that research in the field of environmental scarcity and violent conflict has not been consolidated. It has contributed to introduce the issue on the policy agenda, but it has hardly started to develop instruments that serve the purpose of drafting concrete policies and interventions. Thus, the question of dealing with scarcity in a way that contributes to peace rather than to conflict has been left largely unanswered.

It has been argued that the 'environmental factor' should be considered as part of a larger multi-causal process of which politics and economics are central components. Hence, exploration of political and economic approaches to dealing with scarcity is called for. This will be the main issue of this chapter. In spite of the lack of an established framework to draw from, we may map out some relevant dimensions. This chapter will thus explore key questions with regard to managing scarcity, the actors at stage in this process and some potential challenges.

3.1. Approaches to Dealing with Scarcity

There are roughly four ways of dealing with scarcity: demographic measures, conservation, innovation and distribution. Though these are four distinguished policy directions, they are not exclusive.

3.1.1. Demographic Measures

The demand for resources may be expected to be lower for a smaller number of people. According to some observers overpopulation has become an issue of concern in the past decades. Family planning programmes came into fashion. Both sexual education and more pressing approaches have been

⁴³ Matthew, Halle and Switzer (eds) (2002) *Conserving the Peace: Resources, Livelihoods and Security*. IUCN. And: Witsenburg, K. (2002) Waterschaarste leidt tot samenwerking. In *Geografie*. Volume 11, 1.

⁴⁴ Matthew, Halle and Switzer (eds) (2002) *Conserving the Peace: Resources, Livelihoods and Security*. IUCN. And: Schrijvers, J. (1992) *De boodschap van het vijfde ontwikkelingsdecennium*. Utrecht: Uitgeverij Jan van Arkel.

employed. However, predictions on the growth of populations vary and the potential consequences for scarcity and eventual conflict are ambiguous.

It would be a mistake to put all family planning initiatives under the banner of supporting peace. It remains questionable to what extent demographic pressure may be considered a factor contributing to violent conflict. Given the fact that this measure has an impact only at macro level and over a long time span, the contribution to peaceful co-existence is difficult to establish.

3.1.2. Conservation

In a situation of scarcity, more efficient use of resources may be a solution. In theory, a free market will automatically see to this, but - as is argued - in practice the market often fails. Different ways of stimulating - or safeguarding - conservation are therefore required.

Environmental degradation may be very difficult to reverse. Hence, there is a general plea for using scarce resources economically *before* the exploitation of the environment has progressed to such a level that it threatens people's livelihoods. This is the basic logic behind sustainable development. Including the future dimension into market mechanisms has proven to be extremely difficult.

The strategy of conservation is rooted in the 'environment movement' and has traditionally not been employed to manage conflicts. It must also be acknowledged that there are many interfering factors at stake here. It would be a mistake to label all conservation efforts as conflict prevention. Depending on the social, economic and political situation, conservation efforts may contribute to peace or may be counterproductive. Stimulating or enforcing a more efficient use of a specific resource may actually stir up resentments between different groups relying on this resource.

The logic of this strategy is based on the broader picture with long time frames. Safeguarding the availability of a resource in the future may be one factor in contributing to peaceful relations between people in the long run. In cases where the scarcity of a resource already causes tension, conservation efforts are less likely to contribute to peace.

3.1.3. Innovation

If resources are scarce, people may find ways of living so as no longer to have to rely on them. Scientific and technical progress as well as socio-cultural dimensions are essential for the diversification of the economy.

Like conservation, innovation is supposed to be the natural behaviour in a free-market system. But again, it is observed that the market mechanism may fail. The term 'ingenuity gap' was coined to indicate that the people most affected by scarcity are least capable of adapting to the situation and of finding alternative ways to survive. Market failure, social friction and lack of capital have been identified as the main obstacles to ingenuity.⁴⁵ Thus, ingenuity would be strengthened by:

1. enhanced markets (with, among others, open access, free supply and demand and adequate intellectual property rights);
2. better social networks (no segmentation; enhanced socio-economic relations) and

⁴⁵ Homer-Dixon, T. (1999). *Environment, Scarcity and Violence*. Princeton: Princeton University Press.

3. the capital to invest in knowledge and alternative economic strategies.⁴⁶

The questions to be asked are: is this analysis correct? Are these factors indeed determining for ingenuity? Also, which actors have the capacity to address these factors and what is their interest in doing so. How may a change be materialised in the case where market structures, social networks and capital are controlled by the elites who are less affected by resource scarcity? Furthermore, it is emphasized that innovation as such may not be a peace building measure.⁴⁷ Thus, the question is, how may innovation be employed in a peace contributing manner? This brings the debate back to the realm of ‘regular’ development cooperation with changing power structures and enhancing entitlements at the core.

3.1.4. Distribution

Scarcity is usually a relative, not an absolute term. One may ask: ‘Whose scarcity?’ In many conflict situations, it is the distribution of resources, rather than the absolute shortage that is the cause of resentments. Resource capture by rent seeking elites or ecological marginalization are processes affecting the distribution of environmental resources in a way that may threaten people’s livelihoods and, ultimately, their survival.⁴⁸ Violent conflict may be the result.

In an attempt to prevent this scenario, issues of governance and representation, distribution mechanisms and entitlements to resources are the key problem areas that have to be addressed. Fifty years of experience with development cooperation has shown that the road to power-sharing, inclusive governance and adequate distribution of entitlements is long and rocky.

Similar to strategies of innovation and conservation, a variety of interests and goals is at stake. Among them the prevention of conflict may not be the most salient one. Although the prevention of conflict has been widely advocated as a necessary strategy - to prevent is better and easier than to cure - finding the will and capacity to do so has proven to be hard, even apart from the problems of predicting an accurate warning *per se*. Once a conflict has escalated and turned violent, the need for intervention may be recognised. By the time earlier windows of opportunity are lost, distribution issues are likely to be put higher on the agenda, while longer-term strategies such as innovation and conservation may be drawn to the background.

3.2. Actors

In an attempt to manage scarcity and prevent violence, it is crucial to map out the stakeholders in the process. The following actors usually have a role to play as regards environmental resources.

⁴⁶ Homer-Dixon, T. (1999). *Environment, Scarcity and Violence*. Princeton: Princeton University Press. pp. 114-124.

⁴⁷ Innovation may aggravate inequality. Arsano describes how new technology resulted in the diversion of water, which in turn gave rise to conflict in Ethiopia. Arsano, Y. (2002) *Conflict Management over Water Rights in Ethiopia: the case of the Woiyto Valley in Southern Ethiopia*. Bern: Swisspeace.

⁴⁸ Homer-Dixon, T. (1999). *Environment, Scarcity and Violence*. Princeton: Princeton University Press.

3.2.1. *The State*

The state has a paradoxical role when it comes to managing intra-state conflict. On one hand, it is expected to be the overarching power that intervenes to preserve security and economic welfare and to manage grievances and hostilities between intra-state actors. On the other hand, the state usually has a stake in the conflict as well. In fact, in many conflicts the state is one of the parties.

With regard to managing environmental scarcity at the intra-state level, the situation is hardly any different. Assuring that contentions over resources are sorted out in a peaceful manner is generally considered to be a state responsibility. The government has a leading role to play in managing a process of peaceful co-existence and facilitating channels for intra-state actors to express their concerns and protect their interests. On the other hand, the state is far from neutral when it comes to the use of natural resources. It tends to identify crucial interests in large projects such as hydropower dams and mining activities.⁴⁹

These points must be viewed against the background of a larger discussion on the role of the state in the contemporary world. The traditional role of the state - employing the monopoly of violence to guarantee security, facilitate the economy and organise essential public services - has been an issue of debate. It has been observed that the state is hollowed out from two sides. On one hand, the process of globalisation has brought multinational companies and inter-governmental agencies to the fore. As a result, in many fields the state no longer is the dominant actor in the international or - in some cases - the national sphere.

Secondly, the role of intra-state actors - and the so-called civil society in particular - has been increased. In developing countries, donors tend to support this trend. Due to the large role of NGO's in addressing governance issues, in delivering basic services, in advocating certain issues within the government and among the public, the role of the state seems to be caved out from below as well. In some cases, this has been compounded by Structural Adjustment Programmes that have weakened state performance and affected its legitimacy.

In addition, it must be noted that in many developing countries confronted with environmental scarcity, the state does not adhere to the generally accepted western notion of statehood. Failed states, collapsed states and façade states are the terms that have been invented to refer to these 'institutions'. Hence the question is: how capable is the state to manage intra-state conflict or the scarcity of natural resources? How does the state define its interests in this field and how and to what extent can these views be influenced?

3.2.2. *The Private Sector*

Private companies - in particular large multinationals - are bulk consumers of natural resources. They are also the providers of employment to the population and represent a crucial source of income to the state.

In the past decade many discussions have figured on the responsibility of these companies. The view that profit and consumer demand are the cornerstones authorising any intervention is widely

⁴⁹ Tyler, S. R. (1999). Policy Implications of Natural Resource Conflict Management. In: Buckles, D. (Ed). *Cultivating Peace: Conflict and Collaboration in Natural Resource Management*. Washington D.C.: World Bank Institute. p. 265. And: Arsano, Y. (2002) *Conflict Management over Water Rights in Ethiopia: the case of the Woiyto Valley in Southern Ethiopia*. Bern: Swisspeace.

criticised. The broader responsibility of companies to guarantee the welfare of their employees, to support the community they work with, to prevent over-exploitation of resources and to prevent support to criminal gangs or armed militias has been advocated both outside and within multinationals. Consumers have displayed an increasing demand for 'fair' and 'sustainable' products. Local communities have put up (armed) resistance to companies they perceive as abusing their rights.

As a result, many companies have publicly started a process of redefining their role and have acknowledged their responsibility. Codes of conduct and certification systems have been set up. In most cases these codes and systems are subject to continuous development.

Most of these initiatives are aimed at the welfare of the people or the conservation of the environment. The view that the private sector may contribute to conflict due to inadequate exploitation of natural resources has not generally been the central issue. Direct or indirect support to warring states or militias through tax money or trade in valuable resources like diamonds and timber has however been raised as a concern in recent years.

Although the discussion on corporate responsibility has hardly focused on the role of companies in dealing with scarcity in a way that evades conflict, it must be concluded that companies are often crucial stakeholders to disputes over scarce resources. Yacob Arsano presents an example of a company - Birale Enterprise - having a major impact on the local availability of water in parts of Ethiopia. Conflict and resource management mechanisms proved unable to prevent disagreement over water rights from turning violent.⁵⁰ Due to its consumption and its influence on other actors, the private sector must be included in a conservation, innovation or enhanced distribution effort.

The question at stake is: what is the most effective way to inclusion? Through codes of conduct, cooperation mechanisms, legislation, through market incentives like fair trade certificates or in any other way?

3.2.3. *The Public*

The inclusion of the public in issues of governance has been a topic for some time. Although many of these points are not new, it should be mentioned here that much contemporary research emphasises the need to involve 'the people' into processes of governance. Pleas for decentralisation of the government, enhanced accountability and the recognition of the population as a crucial stakeholder are omnipresent. It is argued that a lack of participation results in governance failure and potentially in violence. Lack of representation is widely cited as a cause of conflict.

Thus, it must be acknowledged that 'the people' are a crucial stakeholder to processes regarding natural resources as well. Local populations are usually most dependent on resources and most affected by environmental degradation or restricted access to water, land or wood.

Apart from the moral right to be involved, a realist perspective requires us to take the power of the people to defend their interests into account. Governments and companies may not see the need to involve local populations in their decisions.

Although this may be considered morally unjust, such a situation does not necessarily lead to conflict. As Baechler pointed out, state repression and marginalization or apathy among the population

⁵⁰ Arsano, Y. (2002) *Conflict Management over Water Rights in Ethiopia: the case of the Woiyto Valley in Southern Ethiopia*. Bern: Swisspeace.

may well prevent the escalation of violence.⁵¹ There are many examples of traditional clientelist elites, who generally do not represent a very inclusive decision-making process, actually having prevented violent conflict from breaking out.⁵² It may also be argued that the inclusion of different stakeholders among the population into a decision-making process may cause or trigger the escalation of conflict.

The argument here is not that local populations must be excluded. Rather, it is argued that inclusion of these stakeholders does not automatically lead to peace. This concern must be viewed in the context of a larger discussion. It is a widespread conviction that ‘development’ and ‘democracy’ ultimately provide people with the channels to manage and determine their own lives and solve conflicts peacefully. However, it is also argued that the process of development and the process towards democracy inevitably involve conflicts and are potentially - or, in the view of some authors, inherently - violent.⁵³ Obviously, ‘the people’ are not homogeneous and populations harbour a significant amount of resentment. Hence changing power structures or channels of influence may trigger conflicts.

The question is not whether the ‘public’ should be involved in issues regarding scarce local resources. It is rather how a process of involving these stakeholders can be shaped in such a way so that it produces constructive and widely supported solutions and does not result in violent conflict. This question should be kept in mind, when anticipating the overwhelming plea for participation and ownership of local populations.

3.4.4. Civil Society

‘Civil society’ has become a highly popular term in recent years. It is the hope and glory of the ‘development industry’, the catchall phrase of policy-oriented research and a buzz word in international political debate. The vagueness of the term is probably one of the explanations for its popularity. Definitions of ‘civil society’ vary and often do not really provide clarity.

It is generally assumed that civil society organisations are crucial to a well functioning democracy. As representatives of (segments of) society, they constitute a bridge between the government (and international organisations or companies) and the people.

Given the extensive plea for including the population in the decision-making process and the difficulty of involving large and diverse groups of people into such a process, the widely cited role of the civil society is understandable. The question is therefore not whether to involve the ‘civil society’, but rather to determine who is the civil society in a certain case? On what grounds should they be considered for inclusion and how can they be included in a constructive way?

In this respect it must be noted that the term civil society may be used as a normative rather than as a descriptive term. It seems to implicitly refer to organisations that take a ‘constructive’ approach and ‘properly’ protect the interests of the people they represent. Given the definition’s normative

⁵¹ Baechler, G. (1999). *Violence through Environmental Discrimination: Causes, Rwanda Arena, and Conflict Model*. Social Indicators Research Series. Volume 2. Dordrecht: Kluwer Academic Publishers.

⁵² Douma, P. (2003, forthcoming) *A socio-economic perspective on the emergence of internal conflict*. The Hague: Clingendael.

⁵³ Among others: Schrijvers, J. (1992) *De boodschap van het vijfde ontwikkelingsdecennium*. Utrecht: Uitgeverij Jan van Arkel. And: Frerks, G. and J. de Zeeuw (2001) *Conflict en ontwikkeling vanuit Nederlands perspectief*. in: L. Schulpen (ed.) *Hulp in Ontwikkeling, bouwstenen voor de toekomst van internationale samenwerking*. Assen: Koninklijke Van Gorcum, pp. 111-142. And: Pronk, J.P. (1996) *Development in Conflict: Speech for the Conference ‘Healing the wounds: Refugees, Reconstruction and Reconciliation’*. Princeton University, 30 June.

component the argument that inclusion of the civil society would enhance the decision-making process runs the risk of being tautological. The argument made is part and parcel of the definition of civil society.

3.2.5. The Development Community

In most countries struggling with environmental scarcity and violent conflict, development cooperation agencies have a large presence. International organisations like UN agencies and the World Bank, along with bilateral donors and international NGOs, play a significant role in many developing countries.

Although these agencies may propagate very different viewpoints - to some of them, influencing others is their core business - some general trends may be distilled with regard to policy focus. As mentioned in chapter 1, sustainable development has become a catchphrase to the development industry. Stimulating economic development, tackling poverty, and safeguarding people's livelihoods continue to be central themes, but the policy agenda has increasingly widened. Democratic governance and representation, human rights, environmental conservation, gender and conflict management are some of the themes that have been included in policy.

In spite of the fact that many organisations and programmes address some of these themes in relative isolation, the holistic, interrelated nature of these issues is generally acknowledged. Many agencies attempt to take all these dimensions into account within their programmes. Policy development combining environment and conflict has, however, been very limited.

With regard to the approach taken, the terms 'participation', 'good governance' and 'ownership' have become cornerstones for many agencies. The inclusion of local stakeholders, stimulating the government to adopt an inclusive democratic approach and the acknowledgement of the crucial role of the civil society - they all have grown into elementary principles of international aid. However, the implementation of those principles has proved to be problematic, and truly integrated approaches are rare.

The role and responsibility of international agencies in facilitating a peaceful management of environmental scarcity is ambiguous. Foreign actors may provide incentives and may offer alternative channels, but given the wide range of policy goals and the large number of actors in this field, the capacity of this sector must not be overestimated.

The main questions to be asked are thus: how desirable and feasible are co-ordination and policy coherence? And what are the role, the leverage and the capacity of external agencies in influencing scarcity and conflict?

3.3. Challenges in the Process From Analysis to Implementation

3.3.1. Analysis and Information Sharing

Adequate information is essential to any effort focused on demographic changes, conservation, innovation or distribution. The previous chapter identified shortcomings and challenges of research in the field of environment and conflict. This has consequences for policy makers.

Gathering basic information and gaining an elementary understanding of the situation is argued to be crucial for all actors involved. Possibly even more important than analysis as such, information *sharing* is an essential part of dealing with scarcity. 'Information sharing can increase transparency,

build trust, resolve issues of fact, and distinguish these from issues of interest.⁵⁴ In addition, it is argued that the process of gathering and sharing information may serve to identify stakeholders.

3.3.2. Approach and Policy

Having identified issues of concern and having recognised the need to address them, a number of approaches may be adopted. There are roughly three channels of working towards decreased population growth, conservation, innovation or enhanced distribution: through legal measures, through an adequately functioning market and through proper governance.

A *legal approach* of dealing with scarcity seems straightforward. Rights and access to resources and overarching mechanisms to support conservation and distribution are at the core of the issue. Thus, an approach of establishing and enforcing rules seems very relevant. But is it also a feasible approach?

Some authors have argued that a legal approach may not be practical. ‘The issues at stake are typically not amenable to legal definition and adjudication, and attempts to define them in terms of narrow ‘rights’ through formal legislation are both clumsy and inflexible.’⁵⁵ The authors as cited by Tyler do not dispute that the creation of a legitimate intermediary may not be effective. Their point is, rather, that a judiciary may not be the most suitable institution to act as an intermediary. A credible independent public agency, the state, or a culturally appropriate ‘insider’ may well be better equipped to mediate in resource conflicts.

Culturally appropriate insiders are diverse and it is difficult to comment on them at a general level. Some authors have emphasized the large potential of local councils, village heads, wise men, religious institutions or other entities as it comes to mediating in local conflicts over resources. Eva Ludi provides a case study from the Ethiopian highlands, in which villagers argued that traditional conflict resolution mechanisms are adequate, because they are free of politics, they are participatory and location specific.⁵⁶ They reflect local norms and values and take individual circumstances into account. Moving away from traditional entities to modern judiciary bodies, the role of wise men is taken over by judges, who create winners and losers rather than a solution acceptable to all concerned. In addition, these new mechanisms may give rise to an additional struggle, namely for political power, thereby moving conflicts away from the original issue, *i.e.* natural resources. Yet, Ludi argues that old and new mechanisms are complementary. Research and debate should thus focus on the comparative edge of these mechanisms and the relative role they should be allotted.

A second approach, favoured by classical economists, encompasses the *market*. These scientists argue that the market mechanism should automatically make up for scarcity. As scarcity increases, the market will stimulate innovation and conservation, which will eventually solve the problem. But it has been observed that this theory does not always correspond to reality. The question to be asked is thus: why does the market fail and what can be done to prevent this?

⁵⁴ Tyler, S. R. (1999). Policy Implications of Natural Resource Conflict Management. In: Buckles, D. (Ed). *Cultivating Peace: Conflict and Collaboration in Natural Resource Management*. Washington D.C.: World Bank Institute. p. 274.

⁵⁵ *Ibid.* p. 275.

⁵⁶ Ludi, E. (1999) *Household and Communal Strategies Dealing with Degradation of and Conflict over Natural Resources: Case Studies from the Ethiopian Highlands*. Bern: Swiss Peace Foundation. Institute for Conflict Resolution.

What structures and incentives can be provided to stimulate resource users to adequately respond to scarcity and how can they be equipped with the appropriate means? How can governments or other actors make up for the ingenuity gap of marginalized groups and stimulate the private sector to take the harmful consequences of their actions into account? Particularly in the case of weak states, situations of anarchy or so-called ‘predator economies’ - where armed groups exploit both people and resources by violent means - these issues are posing problems.

More salient than market and legal strategies, there is a massive plea for *enhanced local governance*, decentralisation of the government and the inclusion of various stakeholders in the decision-making process. In this way, it is argued, people are equipped with channels to voice their concerns and protect their interests. As a result, they are less likely to resort to violence. This train of thought seems straightforward. The challenge, however, lies in putting this strategy into practice.

These difficulties hit the core of development. How to overcome resistance of actors who feel their position challenged by these changes? How to move from traditional to more inclusive mechanisms? How to move beyond petty structures and address attitudes? Few actors have the legitimacy, the willingness as well as the power to change an oppressive system. Moreover, there is a risk the process of changing such a system may not be solved by peaceful means.

Quite a lot of research has been done in the field of decentralising government structures. It has been observed that the main challenge here is not the structure itself, but the changing role of the government, *i.e.* moving from a directive to a more facilitative role.⁵⁷ Given the tough and lengthy process of changing government structures at large, specific inclusive bodies may be created for a specific issue.

In this respect, the multi-stakeholder platform (MSP) has become a rather popular format over the past decade. ‘A multi-stakeholder platform is where the different actors that have a stake in the management of a common-pool resource come together and discuss issues of mutual concern.’⁵⁸ MSPs may be used for a variety of purposes, it is argued. ‘Some see the MSP as the locality where social learning takes place, others see it as the arena of negotiation and conflict management, or the space where co-governance is pursued by value-sharing and consensus building on management strategies. Still others attribute an emancipatory, empowering capacity to it,’ Warner, Waalewijn and Hilhorst observe.⁵⁹

In the opinion of these authors, ‘MSPs form a promising new development that can eradicate many of the past failures of participation.’⁶⁰ The argument offered here is that MSPs institutionalise participation, they are specifically geared towards diversity, social justice and democracy and they are capable of bridging the gap between grass-roots action and top-down policy.

Obviously, its success will not lay in the platform itself, but in the way it functions. Who sets the agenda, who influences the decisions taken and who’s in charge of implementing decisions? This brings us to the third level of the process: implementation.

⁵⁷ Tyler, S. R. (1999). Policy Implications of Natural Resource Conflict Management. In: Buckles, D. (Ed). *Cultivating Peace: Conflict and Collaboration in Natural Resource Management*. Washington D.C.: World Bank Institute. p. 271.

⁵⁸ Warner, J, Waalewijn, P. and Hilhorst, D. (2002). *Public Participation in Disaster-Prone Watersheds: Time for Multi-Stakeholder Platforms?* Paper for the Water and Climate Dialogue. Wageningen University. p. 21.

⁵⁹ *Ibid.* p. 22.

⁶⁰ *Ibid.* p. 30.

3.3.3. Implementation

Both analysis and policy may be sound, in the end the prevention of conflict and the tackling of scarcity depends on implementation. The capacity and the willingness of the actors involved as well as their mutual co-ordination are obviously crucial here. The knowledge and attitudes of the staff, the organisational structure, transparency and accountability and the general culture within a certain organisation (be it a government, a multilateral agency or a small NGO) are elementary ingredients to success. Perceiving staff as an instrument that is subordinate to policy may prove to be a terrible mistake. Interventions, as a consequence, should take the personnel and organisational culture into account.

Yet, poor implementation may not always simply be caused by a lack of willingness or capacity. It would be over-simplistic to view analysis, policy and implementation as sequential steps in a linear process. The relation between these aspects of intervention is more complex. Poor implementation may be an indication that there are more fundamental difficulties at stake, rather than mere issues of properly directing the means to the ends.

To give one example: the lack of co-ordination is probably one of the most cited problems with regard to development programmes. An over-simplistic view may discard this observation merely as an issue of implementation. In most cases, it will be acknowledged this is an issue of policy formulation and analysis as well. The observed lack of co-ordination may be a manifestation of a much more complex challenge. The fundamental problematic nature of combining different parts of reality - ecological systems, economic processes, political structures, human perceptions - may be at stake here.

Broadening concepts and mainstreaming a wide variety of issues into policy do not necessarily result in true integration or coherent analysis, policy and implementation. The basic principle of social sciences that there are (unavoidably) multiple theories and multiple ways of looking at reality - multiple realities in short - poses a fundamental challenge to any intervention.

Given the large number of stakeholders involved when it comes to issues of scarcity and conflict, it may be an illusion to think that adequate analysis will reveal the truth, which will consequently be the input to policy negotiations, which in turn will result in implementation. Obviously, analysis, policy and implementation have a role to play, but the key point is to take the multiplicity of stakeholders and the resulting multiplicity of interests and perceptions into account.

3.4. Conclusions

- Four ways of dealing with scarcity were identified: demographic interventions, conservation, innovation and distribution.
- The state, the private sector, the public at large, the civil society and the development community were identified as the main stakeholders. Questions were raised with regard to the willingness, capacity and role of each group.
- Suggested were three approaches to dealing with scarcity: through legislation, enhanced governance or an improved market mechanism.
- Given the multitude of issues, actors and approaches, the complexity of reality must be acknowledged. The basic principle of social sciences that there are (unavoidably) multiple

theories and multiple ways of looking at reality - multiple realities in short - poses a fundamental challenge to any intervention.

- The strategies mentioned map out some relevant dimensions of dealing with scarcity in a peaceful manner. It must be noted, however, that each strategy may lead to cooperation as well as to conflict. Innovation may decrease the pressure on scarce resources, but may increase inequality and so create an additional asset to be fought for. Changes in governance may result in more inclusive systems, but they may also unleash a wave of discord. Inclusion of stakeholders in a Multi Stakeholder Platform may or may not lead to successful cooperation.
- Thus the primary question may not be what to do, but how to do it. It may be acknowledged that the different strategies, actors and approaches are relevant, but the question is how to go about them in a way that contributes to non-violent cooperation, rather than to conflict. The determining checks and balances continue to be an issue of debate.

IV Conclusions

- There is a relative consensus that environmental scarcity may be a factor causing intra-state conflict. Whether it is either a necessary or a sufficient factor remains questionable. Alarmist theories predicting an apocalypse resulting from environmental degradation and over-exploitation and from violence over increasingly scarce resources have mostly lost support.
- Scarcity may not only lead to violent conflict; it may also be a catalyst for peace. To complicate things, the absence of scarcity - abundance - of resources - has also been argued to be a factor that may generate conflict.
- There is a general consensus that political and economic factors are at the core in the causation of conflict. Environmental factors may contribute to discord and violence through processes of impoverishment and inequality.
- There is a space and a time component to environmental scarcity as an issue of contention. With regard to space, migration was discussed as a process that may cause ecological marginalization and increasing pressure between population groups. With regard to time, the term sustainable development was discussed. This term brings into the picture the ability of future generations to meet their needs.
- It was observed that research in the field of scarcity and security has multiple shortcomings. Theories and concepts are in an exploratory phase, empirical evidence has been relatively weak and the challenges of testing hypotheses with systematic quantitative research are large.
- In theory, there are basically four ways of dealing with scarcity in an attempt to prevent conflict: slowing population growth, conserving scarce resources, innovating economic opportunities and balancing the distribution of resources. These four strategies are the cornerstones to policy, but they may be combined. The three channels to address these issues were summarized under the headings of legal strategies, managing the market and changes in the field of governance.
- The need to involve all principle stakeholders into the decision-making process is frequently stressed. The people, the state, the private sector, the civil society and external (aid) agencies were the five (groups of) actors discussed. Providing people and organisations with a channel to voice their concerns and protect their interests will make them less likely to resort to violence. One way to enhance this kind of participation is through multi-stakeholder platforms.
- Some relevant dimensions of dealing with scarcity were suggested. However, most strategies may not only lead to constructive cooperation, but to conflict as well. Thus the primary question may not be what to do, but how to do it. The factors determining the outcome - confrontation or cooperation - of interventions are ambiguous.
- Integrating issues of conflict and environmental scarcity into wider policy and research efforts is a challenging undertaking. Moving beyond the stage of ‘taking these aspects into account’ and to attain a coherent and integrated viewpoint has proved to be difficult, if not impossible.

There is a variety of actors and processes at stake and there is no one way of looking at these fields. The existence of multiple realities and inclusion of the large number of stakeholders may be at squares with a holistic and coherent policy. The current challenge for the actors at stake is thus to deal with scarcity in the absence of a coherent viewpoint and the presence of multiple actors, interests and realities.

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