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Livelihood Conflicts: Linking poverty and environment as causes of conflict

Poverty increasingly is caused by environmental scarcities of arable land and water, resulting in loss of livelihoods. A common denominator for causes of conflict in many recent internal wars is the loss of livelihoods resulting in young men being unable to reach the positions in life earlier generations of men could expect. Policy attempts to break the vicious path to conflict need to address both poverty and environmental issues. Reconstruction of exhausted environmental resources will work towards both these ends.

Executive summary

This piece is built on the – perhaps self-evident – observation that the common denominator for many, if not most, of the internal wars and conflict plaguing Africa, South Asia, and Latin America during the last decade, is poverty as a result of *loss of livelihoods*, in turn often caused or exacerbated by environmental degradation.

Empirically, it has been difficult to demonstrate that either poverty *or* environmental factors, in and by themselves, are strong determinants of conflict. I will argue that losses of livelihood constitutes an often missing link in explanations of current conflict patterns, and that an exposition of it will bring out the full salience of both poverty *and* environment. (The elimination of poverty, and environmental reconstruction, needless to say, remain first-order goals *per se*, not requiring further grounds for policy action.)

While poverty may be a near-endemic condition in certain societies, loss of livelihood marks a rapid transition from a previous stable condition of relative welfare into a condition of poverty or destitution. It is the *rapid process of change* resulting in a sudden fall into poverty, more than the endemic condition of poverty, which creates the potential for what here will be termed *livelihood conflicts*.

A common feature of many such livelihood conflicts at present is that the rank and file of most atrocious militias around the world are filled by large cohorts of young men, who have been subjected to a rapid devaluation of their expectations as a result of loss of family livelihoods, and forced to accept a much more lowly situation in society than their prevalent culture has led them to believe they were entitled to in their position as men.

Young women form a much smaller, if any at all, part of these militias. Instead, they commonly first have to forgo their school in order to help out at home as a consequence of loss of family livelihoods; later they take on the role of family providers themselves in subsistence agriculture. Loss of livelihoods in subsistence agriculture predominantly undermines the social security of women and their dependants, children and ageing family members. In livelihood con-

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flicts they regularly become the first victims, and the first to lose their livelihoods.

Losses of livelihoods have many causes in the world today, some of them amenable to immediate policy changes, while others are not and have to be met by addressing the challenges they pose. Developing countries are particularly severly challenged by the social consequences resulting from a scarcity of job opportunities in relation to the number required as a result of the unavoidable part of the population increase to come.

Failures to meet such challenges create opportunities for extremely vile political forces. In Kosovo, both the KLA and Slobodan Milosevic managed to mobilize popular support at a rate they would never otherwise have been able to, if poverty, unemployment, and environmental degradation had not spread at such a rapid rate during the decades preceding the open conflict.

The losses of livelihood resulting from environmental scarcities of arable land and water form a special case of growing importance. Although roughly half the human population now at the turn of the century are living in cities, agriculture is still by far the largest single source of livelihoods and income. Losses of those livelihoods as a result of environmental scarcities of arable land and water demonstratively was one of the major factors enabling the *genocidaires* of Rwanda to mobilize a large part of the population as perpetrators in the first fullblown genocide after the Holocaust, and they remain a driving force for mobilizing the foot-soldiers of many, if not most, of the on-going livelihood conflicts.

Agriculture forms the economic and material base for livelihoods also in cities, as well as for the larger part of poverty elimination policies. A basic productive resource for agriculture, water and competition for scarce water resources has been portrayed as a source of international conflict. Nations, however, and the international system have learnt to manage this threat. There is now a growing consensus that water scarcity will not create wars between nations – but there is also a growing conviction that water scarcity may work in a direction to exacerbate the basic conditions that fuel livelihood conflicts, particularly as countries go through the crucial transition period between dependence on agriculture and a modern society, based on economic growth in cities.

The argument put forward in what follows is that a great and growing scarcity of healthy, productive eco-systems in the world today seems to co-exist with an equally great and unused asset made up by all those women and men who have suffered losses of livelihood due to environmental destruction or unsustainable agriculture. Combining these two glaring facets of poverty and environment offers a potential for both conflict prevention, poverty elimination *and* environmental reconstruction.

1. Beyond the poverty-environment controversy

The quest for explanatory clarity sometimes creates unwarranted and counterproductive controversies, such as, for example, whether poverty *or* environmental degradation is *the* major source of conflict. Such disputes arise from a misunderstanding of what the scientific need of studying a limited number of variables at a time entails.

If two studies, each pursuing the search for explanations of conflicts and the causal mechanisms leading up to them from different independent variables (e.g. "poverty" or "environment"), are poised against each other, the resulting controversy may become extremely counterproductive, for at least three reasons: i) explanatory pathways departing from "poverty" and "environment", respectively, are best viewed as complementary rather than contesting; ii) further studies may very likely reveal that both poverty *and* environmental degradation work together in common or parallell causal mechanisms; iii) if so, the needs of policy-making for a rich variety of explanations are ill served by poising the two sets of explanations and causal pathways against each other.

For explanations on a higher level, that would bring two independent variables already studied in detail, such as "poverty" and "environment", together in a new explanatory pathway, other sets of intervening variables may have to be explored in equal depth. Choosing those variables invariably requires the researcher to step back and take a broader, as yet not fully substantiated, view.

In that sense, this piece is very much exploratory. It builds on the supposition that there are important causal mechanisms linking both poverty and environmental factors to conflict. It promotes, as an hypothesis, that "livelihoods" would be a hitherto missing link in formulating such mechanisms.

The argument is based on the concept *environmental scarcity*, and the rich volume of research departing from it (Homer-Dixon 1999).[1] The end results of the vicious circle entailed by growing environmental scarcities are vastly increased social inequalities, a rapid increase of economically marginalized people, and, as a consequence of threatened livelihoods, the involuntary need of those marginalized from that point and onwards to utilize the resource unsustainably. The conflict mechanisms put in motion by the process include relative deprivation and the strengthening of bonds along ethnic, linguistic, national or regional fault lines prevalent in almost all societies, but not gaining full salience until livelihoods are threatened in rapid, and sometimes dramatic, processes of change.

The concept is uniquely applicable for the linking of poverty and environmental factors in causal pathways leading to conflict, since it includes both economic, environmental and social factors. It is also well suited from a policy-making point of view, since the causal mechanisms leading to conflict predicted by the environmental-scarcity model posit that the state, and, more precisely, state

1. Environmental scarcity denotes the social effects of the combined impacts of i) *environmental degradation* shrinking the total size of an imagined environmental "resource pie", e.g. arable land or an aquifer; ii) *population increase* shrinking the size of the equitably alloted "slices" of the resource pie; and iii) *unequal resource access* allowing powerful segments of the population to access inequitably large amounts of resource slices in a process of "resource capture", resulting in ecological marginalization and loss of livelihoods for large but weaker groups of the population.

legitimacy, will be the first target of frustrations created by loss of livelihoods caused by environmental scarcities.[2]

2. The economic logic of militia livelihoods

In the late nineties the search for the causal mechanisms behind internal wars widened to include frustrated expectations, among excluded élites as well as marginalized segments of the population. In a seminal article, "The Economic Functions of Violence in Civil Wars", David Keen (1998) maintains that internal wars, pervasive to many parts of the developing world, ought not to be understood as "irrational". Instead, the chaos created by them is readily exploited for economic purposes by segments of the élite whose aspirations to climb to a powerful position in society have been stymied by competing élites.

Wars, according to Keen, constitute more than a breakdown of the social order. They are also a way of creating new systems for profits, power, and even security of a kind. In areas controlled by warlords new kinds of war economies are created, each with its own particular logic.

This view provides one explanation to the persistence and longevity of internal wars, since winning, in fact, may not be a goal of the combattants. The objective of wars, such as they have become during the later part of the last century, may be exactly to attain legitimacy for actions that in peacetime would be considered as crimes. In other words: Fuelling internal wars has become a means to the end of criminal activities.

The analysis also throws some light on the immense difficulties facing the international community in bringing these devastating conflicts to an end. A tacit and common understanding underpinning such attempts is that both parties to an internal war share an interest in ending their strife. Keen's argument is that the warring parties instead may have a common interest in keeping the war going.

This does not preclude meaningful attempts of peace-making. The war objectives of the parties to the conflict may turn out to be remarkably similar: survival, power, a life more filled with excitement than a peaceful existence might offer, and, perhaps more important than all of the above, economic advantages. The key to peace-making is to build societies where such common goals may be attained by peace rather than by war. Easier said than done, it nevertheless puts the focus squarely on livelihoods, and peace-time sources for livelihoods.

Keen's analysis would seem to be amply born out by an analysis of the role of diamonds in the internal wars of Angola, Sierra Leone and Liberia; the role of narcotics in countries as far apart as Afghanistan and Colombia; and the role of mineral wealth in the "seven-nation war" in DR Congo. Although none of this at first sight would seem to have any bearing whatsoever on environmental scarcities of renewable resources – rather the opposite, since the internal wars in developing countries, if anything, seem to be about non-renewable resources – there is a very important link which does not become visible until loss of livelihoods is brought into the picture.

2. A number of cases from the literature, citing environmental scarcities as a cause of conflict, are reviewed in an accompanying Sida paper in Swedish, "Sambanden mellan miljö och konflikter" (Ohlsson 1998).

The missing link is found by looking for the factors which make it possible to mobilize such large numbers of foot-soldiers in the militias of the warlords of this world. No presumptive warlord, however charismatic or ruthless, could ever hope to gain a substantive following of the necessary number of foot-soldiers, unless there already exists in society a sufficiently large number of not only poor, but also fairly recently deprived, young men. There is no larger single source of such deprivation in the world today, than scarcities of arable land, forcing young men to migrate to cities in search of livelihoods.

Unemployed young men, in cities as well as in rural areas, become easy targets for hate-propaganda directed at easily identifiable ethnic, linguistic, national or regional cleavages in a particular society. From there it is but a short step to accept the promise of a salary – and the prospective of looting – held out by joining one or another militia under a powerful emerging leader. In Rwanda, employment in the state administration, in the army, or – at the end – in the murderous militias was virtually the only way for a young man to reach his expectations. The prize they had to pay was undivided loyalty to the instigators of genocide. Similarly, in the Westbank and Gaza, fully a quarter of the available jobs are provided by the Palestinian authority, and half of those are in the security or police forces.

Young women may be equally susceptible to hate propaganda; their gendered role, however, rather prescribes for them to abandon all expectations of even getting started towards bettering their lives. As an example, in the West Bank and Gaza employment rates are a low 66 percent for men, but an excruciatingly low – even for the region – 12 percent for women.

In rural areas, young women are the first to be forced out of school when the livelihood of families require that they help out at home, carrying water, chopping wood or tilling the soil. Very soon, they will find themselves in charge of providing not only for a husband who has migrated to the nearest city, but also a growing number of children, in addition to ageing parents and in-laws. When conflict breaks out, they will be the first to find themselves robbed of the fruit of their toil, frequently abused and abducted, and finally forced to find refuge for themselves and their dependents in the camps of a growing number of internally displaced persons.

Against this backdrop, there would seem to be few more pressing issues than finding the means to stem this vicious circle of conflict and violence by attempts to safe-guard as much as possible of peace-time livelihoods, and the environmental resources on which they build, in poor countries with still high population increases. There is no such source more important than agriculture, crucially dependent on healthy ecosystems and undepleted environmental resources of arable land and water.

3. Livelihood conflicts creasted by agricultural failure

The link between loss of peace-time livelihoods and conflict is made by de Soysa & Gleditsch et al. in their (1999) article, “To Cultivate Peace: Agriculture in a World of Conflict”. Reviewing the research on links between environment and conflict, they arrive at a common denominator for the intra-state wars of the 90s:

> Most of the armed conflicts, whether domestic or international, are concentrated in regions heavily dependent on agriculture, such as South Asia, Central Africa, and parts of Latin America. In countries that have a low dependence on agriculture […], we find only a handful of conflicts. Indeed, only five out of 63 states who exhibit a low dependence on agriculture have suffered armed conflict after the Cold War."
>
> (de Soysa & Gleditsch et al. 1999, p. 17)

The authors cite several cases in Africa, South Asia, South and Central America, the Middle East and elsewhere, where a conflict analysis reveals clear links between issues related to agriculture and the origin of an armed conflict. In spite of such sometimes clear links, the authors are very careful not to infer an averall causal link between heavy dependence on agriculture and the incidence of armed conflict.

Instead they argue strongly for the missing link being *poverty*, defined as "the lack of physical, human, and social capital". The lack of these factors generates conditions which are unfavourable for development, and hence for peace:

> "The conflict-producing conditions that may emanate from acricultural and rural issues, such as land tenure conflcts, are manifestations of the incapacity of social and political systems to handle such crises. Moreover, capricious politics are likely to create conditions of underdevelopment such as low economic growth and simultaneously cause the extreme grievances that drive individuals and groups to take up arms."
>
> (ibid. p. 18)

I would argue that the authors have indeed found a missing link, but that the missing link connecting poverty to conflicts is best captured, not by simply designating it as poverty *per se*, but by a slightly more elaborated approach aimed at capturing certain aspects of the large processes of change going on in the world: A three-step delineation of such a "livelihood conflicts" approach might look like this:

1) Departing from the de Soysa & Gleditsch et al., the hypothesis would be that poverty indeed is an important conflict-generating factor; not however as much the *state* of poverty, as the *rapid falling into poverty.*

   Rapid processes of pauperization, in turn, may be identified in the widely acknowledged trend of rapidly *increasing inequalities*, both within and between countries. For analytical purposes this trend may be dissociated into i) an unprecedented and welcome gain in welfare for larger groups of people than ever, but also ii) equally rapid and deleterious processes of *deprivation* and *marginalization.*

   Building on this, conflict-generating mechanisms therefore should be sought for in processes that i) *rapidly make* people poor; and/or ii) results in *increased inequality* in a society or community.

2) The overall and almost self-evident reason *why* people are pauperized at an unprecedented rate is that they lose or are unable to attain *livelihoods*.

   In order to understand the magnitude and character of the challenges for policy-making, the research effort arguably therefore ought to be directed at describing in detail the major *reasons* why so many people are losing or find themselves unable to attain livelihoods.

3) Agriculture traditionally has been the *single largest source of livelihoods*. The present difficulties of agriculture to sustain this role therefore should be described and researched. Two levels of investigation may be identified:

   i) The failure of agriculture as an economic sector to *absorb still growing populations*, who instead increasingly have to search for livelihoods in urban areas; and the social consequences of that failure, including risks of conflict.

   ii) The part of the reasons why agriculture no longer can fulfill its traditional role that stems from *environmental factors*, such as degeneration of arable land and ecosystems in general as a result of unsustainable practices; and the social consequences of those.

The concept *livelihood conflicts* thus would include, although not be restricted to, what has previously been investigated as "environmental conflicts" (environmental conflicts, in fact, could be regarded as a special case of livelihood conflicts).

The core concept in the approach is *livelihoods*; the process in focus is *loss of livelihoods*; the delimitation is to study loss of livelihoods in *agriculture* (with specialized studies carried out with a further sub-limitation, namely the loss of livelihoods in agriculture due to *environmental factors*); and the final goal of the approach is to identify and describe the *mechanisms* whereby loss of livelihoods in agriculture could lead to *livelihood conflicts*, as demonstrated by by past or present cases.

From a policy point of view a particular task would be to identify, from such research and other sources of knowledge, the role that the *reconstruction of environmental assets* could play in *creating and sustaining livelihoods*, in order to avoid the vicious circle of loss of livelihoods, poverty, environmental degradation, and the ensuing risks of livelihood conflicts.

Much of the rationale for a livelihood conflicts approach is well captured by de Soysa & Gleditsch et al. Compare for their description of the conflicts in West Africa:

> "The wars in Liberia and Sierra Leone, for example, can be viewed as emanating from subsistence crises. Indeed, many of the state failures emanate from the inability of these weak states to provide the basic needs of people. High numbers of unemployed youth [*sic!*] in the cities and the countryside are ready combatants within various criminal insurgency groups that form to battle over the control of resources and whatever state power is left intact."
>
> (ibid. p. 19)

Here, a remark is necessary – the ungendered identification of unemployed "youth" as the main culprits is seriously misleading. Young women and girls are not found in "high numbers" among the "various criminal insurgency groups". Those that are found, generally have been brought there by abduction, and they are forced to accept roles as carriers, cooks, servants for militias, and sex-slaves for militia commanders.

The "ready combatants" that "battle over the control of resources and whatever state power is left intact" are first and foremost young men and boys, some of which tragically also has been abducted and forced to join the growing ranks of child soldiers in the world, but others having joined readily at the promise of looting and plundering, as a direct result of loss of livelihoods:

> "The new conflicts may be traced to the loss of livelihood, the hopelessness of surviving at the margins, and the alternative life of crime and baditry. The bulk of the rural population seems to be non-participant victims rather than the active and passive supporters of utopian revolution. […] Ironically, the foot soldiers of much of the armed violence today might just be trying to stay alive."
>
> (ibid. p 19)

Here, the authors without making the connection explicity, in fact provide material salient to the controversy touched upon earlier, whether the apparent focus in many on-going livelihood conflicts on non-renewable resources, such as gold and diamonds, and illegal activities, such as drug-trading, does not in fact constitute a refutal of the hypothesis that renewable resources and environmental factors play an important role in conflict-creating mechanisms. This controversy is sometimes captioned "need or greed": Is the main reason for the present pattern of conflict destitution and poverty, or is it the opportunity to enrich oneself by, e.g., illegal diamond trading?

In a livelihood conflicts approach the apparent contradiction between the two parts of the question would be transcended. Young men do not (at least not in significant numbers) regularly seek immediate rewards in illegal activities and looting, as long as the society they live in can provide livelihoods (usually based on agriculture, renewable resources, and depending on healthy ecosystems) and a social position which they have been culturally taught to expect as men in that society.

When such expectations are frustrated, however, young men *in particular* (since their gendered roles have taught them to expect more of life as their birthright) become easy targets for the attempts by political forces serving their own purposes to mobilize them also for extremely violent actions, in pursuit of easy gains (often based on control over and exploitation of non-renewable resources and illegal trade).

Young women, on the other hand, most often long before that have had their expectations of a better life stymied from the start, by having had to leave school early (or not attending at all) as a result of having to assist in sustaining family livelihood, or by a culturally prescribed role as providers (in subsistence agriculture), not only of their own new and growing family, but also of a husband who may have migrated to the nearest city, as well as of elderly dependents. As a consequence, they are particularly vulnerable to environmental effects degrading their main source of livelihood, agriculture.

The authors cite many cases of present or past conflicts (e.g. Somalia, Uganda, DR Congo, Malawi, Rep. Kongo, and others), which would merit to be fleshed out in full-blown case-studies according to a livelihood conflicts approach. In addition, one or several null cases (where larges-scale open conflict has not yet broken out, despite wide-spread loss of livelihoods and/or ravaging environmental degradation) would be needed for methodological stringency.

The case of India would seem to be such a case. It is commonly noted that in India poverty for a long time seems to have been compatible with relative stability. India therefore is often discussed as an example of culture's mitigating role; the social ability of creating a culture of "spreading poverty equally" (although this "equal spreading" of course never applied to the extremely rich in India).

The crucial test for the validity of the approach in the case of India would be to apply it to developments in the immediate decade to come, when successful economic growth is creating a whole new prosperous middle class – and inequalities thus increase rapidly – while environmental destruction still is rampant.

According to the livelihood conflicts approach, the critical factor would not necessarily be increased inequalities as such, but the point when increased inequalities and/or environmental degradaton lead to the further marginalization of large segments of populations, whether this is caused by losing their present livelihoods, or by new generations never being able to attain livelihoods in the first place. If the Indian society manages to avoid this pitfall, the conflict potential, according to the hypothesis, might still be kept within bounds. If further rapid marginalization occurs, the conflict potential would increase.

Below, three further sketches are provided of how livelihood conflicts could be portrayed. The order is chosen to form a progression from loss of livelihoods making ethnic cleavages more salient (Kosovo); over scarcity of agricultural land creating conditions that ultimately facilitated genocide (Rwanda); to the imperative of creating jobs in cities experienced by water-scarce societies (Egypt).

4. The case of Kosovo - loss of livelihoods fuelling extremism

In 1976 the per-capita income in the province of Kosovo was 86 percent of Jugoslavia's average with a positive trend. Even the most out-of-reach villages were connected to the power-grid and enjoyed piped water. 95 percent of children in Kosovo were enrolled in elementary schools. Life expectancy had gone up to 68 years, due mainly to the number of doctors having increased to one per 2,009 people, up from one per 8,527 in 1952.[3]

The rapid population increase which is to be expected from such a benign development, in addition to an overly large dependence on heavy industry, and in combinaton with increasing land scarcity, and land degradation, led to a very rapidly increasing unemployment. The unemployment rate rose from 19 percent 1971 to 28 percent 1981, 56 percent 1989, and 70 percent 1995.

In 1999 there were 2 million people in Kosovo, a doubling since 1960. The rate of annual population increase was 2,1 percent, which exceeded economic growth. It is also a higher rate than in many developing countries.

The biological productivity of Kosovo's 10,000 square kilometers has been much higher previously than it is today. Forests have been cut down as a result of land scarcity. Cities have great problems with waste management. A large part of the persistent environmental problems have their origin in the out-dated heavy industrial infrastructure. (The closure of the Mitrovica smelter for environmental reasons by the UNMIK forces is a good example here.)

Kaufmann (1999) argues convincingly that the environmental destruction in Kosovo was used by the Kosovo-albanians as an argument against Jugoslav rule (although other parts of Jugoslavia was equally polluted). In other aspects as well, his main argument runs parallell to the livelihood conflict approach.

3. All data from Kaufmann (1999).

The discontent that finally led to open conflict was created by poverty, in turn caused by unemployment due to industrial decline. Other sources of fresh livelihoods were limited by land scarcity and degradation, in turn creating conflicts over land-rights. The discontent caused by poverty, led to increased politicization of relations between the two main ethnic groups. This, in turn, enabled both KLA and Slobodan Milosevic to mobilize support for their extreme policies to a degree they would never have been able to otherwise.

In traditional analyses, the ethnic aspect of conflicts is often high-lighted. Conveniently forgotten here is the fact the two or more ethnic groups may lead perfectly harmonious lives together for long periods – as long as society is able to satisfy the welfare demands of all citizens. When this no longer was possible in Kosovo, traditional analyses concentrate on the "apartheid" system of job redistribution created by the Serbs. Conveniently forgotten in this case is the fact that internal population increase was responsible for the greater part of unemployment.

A livelihood conflict approach thus would high-light the causal contributions of demographic, as well as environmental degradation and resource scarcities. Conventional analyses tend to shirk from these issues – understandably so, since the challenges posed by these large and rapid processes of change are very difficult to deal with on a policy level. And yet, there is no getting away from them, in the Balkans, or in the rest of the world.

5. The case of Rwanda - environmental scarcity enabling genocide

Nowhere were these pressures greater than in Rwanda at the beginning of the nineties. And no person may have been better placed at the time to judge the severity of the situation than James Gasana, minister of agriculture, livestock and environment (1990-92), and minister of defense (1992-93) in the Rwandan government at the time.[4]

The case of Rwanda is crucial to the validity of a livelihood conflicts approach, both since it constitutes the first full-blown genocide after the Holocaust, and since Rwanda was exhibiting widespread poverty and loss of livelihoods as a result of, among other hardships, environmental scarcity.

Gasana (2001 forthcoming) demonstrates how environmental scarcities became acute in the 80s as an effect of soil degradation, continuing high population pressures, and inequitable land distribution (i.e. the text-book definition of environmental scarcity, as defined by Homer-Dixon 1999). The resulting scarcity of arable land led to a high rate of rural unemployment, leading to dissatisfaction among the poor peasantry, mostly in the southern region.

4. Gasana went into exile shortly before the genocide. His analysis of environmental scarcities as a cause of conflict and how it enabled the instigators of genocide in their extreme pursuits, will be published in a 2001 IUCN book on environment and conflict. For this very brief condensation I rely on the author's manuscript. Researchers eager to get in contact with the author will find his email address in the References.

   To my mind, this is without doubt the best and most reliable treatise of the role of environmental scarcities in Rwanda. It is far superior to e.g. Percival & Homer-Dixon's early study. Gratifyingly, Gasana's analysis fully corroborates my own attempt (Ohlsson 1999, chapter 4), necessarily built on far less access to privileged knowledge.

The socio-economic crisis converged with power rivalries between different segments of the élite and strengthened the opportunity for internal opposition, threatening the regime's legitimacy. In a series of linked events, the author notes, "environmental scarcities not only influenced the strategies and tactics of political and military actors but also […] amplified the political violence".

Here is the sequence of events identifed by Gasana:

1) Following a ravaging famine 1988-89, regime legitimacy was severly weakened by the dissatisfaction of the peasantry of southern Rwanda with the weak government response.

2) The regime failed to inform the nation on the seriousness of environmental scarcity in general, and on the famine in the south in particular. Lack of free debate on appropriate responses further alienated the southern élite.

3) The mounting political dissension distilled into organizations of dissatisfied peasantry.[5]

4) Rebelling forces of exiled Rwandans in the Ugandan armed forces created the RPF, and seized the opportunity created by the dissatisfaction of the peasantry and by the regime's decreased legitimacy to launch an invasion of Rwanda.

5) The tyrannical reaction of the regime to war further reduced its legitimacy and strengthened the opposition.

6) War in the north against the invading RPF forces caused displacement of up to 1 million inhabitants, inducing additional resource demand and reducing supply, thus causing sharp grievances and strong anti-rebellion sentiment among the Rwandan people.

These were the conditions that created a situation ripe for ruthless exploitation by segments of the élite. Against the backdrop of extreme poverty and rapid pauperization, due to loss of livelihoods for a long time caused by environmental scarcity, and acutely aggravated by a large part of the population being turned into internal refugees as a result of civil war, the existing ethnic cleavages and historical animosities between groups were possible to exploit by extremist forces in order to mobilize a very large part of the majority group of the population as perpetrators against the minority group in the first full-blown genocide since the Holocaust.[6]

5. As Gasana remarks, environmental scarcities thus in fact hastened the move to increased political pluralism, which is one of the peculiarities of this case.

6. Genocide in Rwanda has many particularities, one of them being that women took part as perpetrators to an unusually high degree. An explanation for this would *not* start out from the extremely subordinated and insecure position of women in Rwanda (which is a fact, but it would not help to explain the collaboration of women in administrative positions and even nuns); but rather the extreme, also in an African context, obedience to and reliance on state authorities among the population at large, including educated persons; and the fact that the organizers of the genocide in the tumultuous sequence of events preceding the genocide had seized the position of legitimate government of the country.

   Members of the killing militias, however, the *Interahamwe* and the *Impuzamugambi*, were almost exlusively young men, an overwhelming majority of them unemployed, a pattern which conforms to other cases. (My remark, LOh.)

Gasana is at great pains, however, to underline that at no time was this outcome *determined* by growing environmentals scarcities. Scarcities, by way of loss of livelihoods, merely provided an *opportunity* for opportunistic political forces to mobilize people made vulnerable by poverty into atrocious acts. The lesson to remember here is that losses of livelihood continue to create such opportunities in a growing part of the world at present.

In the policy sphere, Gasana authoritatively concludes that conserving the environment is essential for long-term poverty reduction, in order to break the vicious circle entailed by environmental scarcitites.

6. The case of water - the imperative of livelihoods in cities

If a single river, and a single country, were to be chosen to epitomize the challenges posed by and the conflict risks ensuing from water scarcity, the Nile and Egypt certainly comes to mind first. Here, for thousands of years civilizations have bloomed along the banks of the Nile, providing sustainable livelihoods for hundreds of generations.

Then, in a time-span of just about a single generation, from 1970 to 1990, Egypt as a country regressed from complete self-reliance in food production, to a 70 percent import dependence. Three factors mainly account for this momentous change:

1) The limiting factor for food production in Egypt is not arable land as such, but the area which can be sustainably irrigated by the necessarily limited amount of water flowing into the country through the Nile. No other major renewable source of water exists, since there are virtually no rains.

2) The limiting factor of productivity increases on the severly restricted agricultural land along the Nile is water. Although the period coincided with the great era of increased agricultural productivity through the Green Revolution, the full benefits of these techniques could not be reaped in Egypt, due to the fact that all available water in the Nile was already utilized.

3) When, in a situation like this, the demands of a still rapidly growing population exceed the productive capacity of the agricultural sector, rapid import dependence will follow, since all populations additions from then on will have to be fed by imports. Legitimate development expectations from the total population will add further to the pressure for imports.

Evolving scenarios of this kind have given rise to regularly voiced fears of “water wars” (in the case of Egypt most likely with Ethiopia, who provides 80 percent of the water that is carried into Egypt by the Nile) in many parts of the world, mainly the Middle East (Israel against several neighbouring countries; Turkey against downstream states Syria and Iraq), but also the Indian sub-continent, and Southeast Asia.

No such water wars have materialized, in spite of acutely growing water scarcity, and it now appears unlikely that they will. Nations, prompted both by the necessity to cooperate over shared water resources, and by international efforts to promote such cooperation, have learned to negotiate their way out of open conflict about water. A major reason for this success may be that it is very difficult to imagine how such a water war would be waged. It is not that easy to conquer water resources, or to get control over their usage.

Instead, a realization is growing that the most insidious conflict risks connected to water scarcity is not the risk of first-order conflicts about water itself, but the risk of *second-order conflicts*, caused by the inability of a society to deal with the social consequences of not being able to aquire a sufficient amount of water for the needs of the agricultural sector in that country.[7]

The focus on agriculture here is important, since this sector is the greatest water consumer by far of any society. On a global average, some two-thirds of all water diverted from rivers or aquifers go to agriculture. In countries or regions heavily dependent on agriculture this proportion may be as high as 90 percent of the total amount of diverted water (whether in desert but still industrialized California, or in a dry-region developing country).

Not being able to allocate a sufficient amount of water to agriculture, does not necessarily mean food scarcity. Egypt has managed very well, albeit at a high cost to their foreign currency reserve, to compensate by importing food. What it does mean, however, is immediate problems with livelihoods. New generations in the rural areas of Egypt no longer can expect to make a living out of agriculture, as previous generations way back to the Pharaoes, have become used to.

Instead, the big cities of Egypt are swelling, as are all cities in developing countries. Kairo and Alexandria are bursting under the pressure of new arrivals from rural areas, unable to find a livelihood in agriculture, and hoping to find one in the city. On the success of the Egyptian state to create the necessary number of new jobs in the cities depends the political stability, not only of Egypt, but of the entire region, since unemployed workers regularly move between countries in the region in search of jobs.

Finding jobs for this rapidly growing potential workforce is a formidable challenge, and requires an exceptionally strong and rapid economic growth. As an example the economy of Egypt would have to grow at an annual rate of 7 percent for at least five years if the employment rate is to increase. Similar figures are required for all countries with still young and growing populations.

These problems are creating social turmoil, including conflicts, in all countries in the Middle East. Recently, frustrated Egyptian workers created the worst social turmoil in the history of Kuwait. In a relatively prosperous country as Jordania the unemployment rate is around 25 percent, and 300.000 illegal immigrants are competing with the indigenous workforce for largely non-existent jobs.[8]

In the political hot-beds of big cities, unemployed young men thus today already are forming the potential armies of future livelihood conflicts, all too ready to be mobilized by political extremist leaders. Whether such conflicts will materialize to an even greater extent than they already have (Algeria would be a particularly apt case in comparison to Egypt), crucially depends on the capacity of societies to adapt to the challenges posed by the risk of second-order livelihood conflicts.

7. I discuss the concept of first- and second-order conflicts over water in greater depth in Ohlsson 1999, chapter 5.

8. *Middle East Economic Survey*, Vol. XLII, No. 46, Nov. 1999. Cited from *Nytt om befolkning och hälsa*, Nr 3/2000, Sida Health Policy Unit.

7. Livelihoods and the need to liberate social resources

By the livelihood conflicts approach employed so far, I hope to have showed, first of all the crucial importance of generating and sustaining livelihoods for avoiding conflicts. Secondly, the importance of maintaining environmental resources above critical sustainability levels, in order to facitilitate the task of sustaining livelihoods, has been stressed. The third and last point to emphasize is that even the necessity of creating livelihoods in cities have to be underpinned by healthy ecosystems for their immediate and day-to-day survival, but also in order to reduce the pressure on creating jobs in cities. Those who can maintain a life in rural areas, will not become foot-soldiers in the potential armies of unemployed fomenting in cities.

Against that backdrop, the most recent report from the World Wildllife Fund on the state of the world's ecosystems raises serious alarm. The report (WWF 2000) states that the productivity and resilience of ecosystems have deteriorated by at least 30 percent during the last thirty years. During the same span of time human pressure on the environment (the "ecological footprint" of human societies) has increased by some 50 percent. The report further concludes that sustainability levels of ecosystems as a whole in facts were transgressed already at some time during the 70s.

What these figures imply is, that at the exact period of time when environmental resources would be most needed in order to provide livelihoods, they are depleted below their regenerating ability – ironically to a large degree as a result of the imperative to maintain and create livelihoods. In the future, larger populations will not even have access to the same amounts of environmental services previous generations enjoyed, but less. On a per-capita level environmental services of course will be far less.

The world at present thus seems to abound with one great scarcity, namely that of renewable resources and healthy ecosystems, forming the base for livelihoods; and one potential great affluence, namely the productive capacity of all those women and men rendered powerless and poor by the unability to find an opportunity for livelihood. In the combination of these two facets fortunately also lies a potential for overcoming the glaring discrepancy posed by them.

A new study by the WorldWatch Institute reports that creating an environmentally sustainable economy already has generated an estimated 14 million jobs worldwide, with the promise of millions more in the century ahead of us. The often voiced fear of a contradiction between jobs and environmental protection is, in fact, fiction, according to the report. "Jobs are more likely to be at risk where environmental standards are low and where innovation in favour of cleaner technologies is lagging", says author Michael Renner (2000).

Environmental job creation today may be largest in developed countries (e.g. in the wind-power generating sector), while job creation is particularly important in the developing world, where almost all of the growth in population will take place in the coming decades. "The trouble is that human labour appears too expensive, while energy and raw material inputs appear dirt cheap", says Renner. "Businesses have long sought to compete by economizing on their use of labour. To build a sustainable economy, we need to economize on the use of energy and materials instead."

Here lies the greatest challenge ahead. Protecting and regenerating ecosystems and environmental resources to as much as possible of their former wealth will take enormous amounts of the ultimate resource available to humans, namely *social resources*; the capacity to adapt successfully to a changing environment and to new challenges.[9] Fortunately, this ultimate resource is not scarce, but abundant. What it takes to liberate it is insight in the mechanisms that may lead to further deterioration, the will to brake away from that path, and the persistence of agencies to change their policies accordingly.

Effective policy measures will be far-reaching if conflict already has set in. In that case, the international community very likely will have to resort to the full gamut of measures increasingly necessitated by the growing number of man-made complex humanitarian emergencies. If, on the other hand, development cooperation is targeted towards the overriding goal of maintaining existing and creating new livelihoods, the vicious path to conflict may be broken.

Policy measures still would have to be multifacetted, however, including environmental reconstruction,[10] support for marginalized people (women first among them), and, ideally, conditionalities requiring national policies limiting or ameliorating the consequences of social inequalities (between social strata, and, not least, between men and women).

9. The concept “social resources”, as necessitated by growing environmental scarcities, is introduced more fully in Ohlsson (1999). The concept is roughly comparable to what now is vigourously discussed as “social capital” by the World Bank and other multilateral organizations.

10. For a comprehensive review of policy options, see Segnestam & Sterner 2000.

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