GLOBAL LAND OUTLOOK WORKING PAPER

PEACE, SECURITY, LAND AND SUSTAINABLE DEVELOPMENT

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September 2017

United Nations
Convention to Combat
Desertification

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EXECUTIVE SUMMARY

The state of the environment, taken as a complex whole, fundamentally impacts the stability of human societies; it can enable or hinder peace and security through composite and interconnected dynamics. Most often, land acts as the catalyzing element.

The security-environment relationship exists within the bounds of both planetary geographical interconnectedness, and global systemic interconnectedness. It can be understood by investigating the cyclical repercussions - the ripples of cause and effect - that occur between and among environment, peace and stability, development, and human rights. A feedback loop is at work among these four dimensions: if, for instance, a field is contaminated, it will no longer sustain its owner, who can become vulnerable to abuses, prone to migrate or an easier pray to fanaticism, and so on. Conversely, if the small farmer is granted a sounder education, he can better manage his land, defend it from contamination, count on a more dignified livelihood, and therefore be less likely to engage in conflict, etc. This interconnectivity is also portrayed within the 2030 Sustainable Development Agenda, where the bridges between various goals are clear: "life on land" affects "quality education", that in turn impacts on "no poverty" and "zero hunger", which again are factors that influence "peace, justice, and strong institutions", that are equally pivotal with regard to shaping – and reshaping – "life on land" and "quality education". In other words, we are dealing with trans-sector local, regional, or even global feedback loops.

Through this prism, we can identify various forms of environmental degradation that impact human welfare. Environmental modifications affect the chances of fair and orderly development – a basic condition of peace and stability – most of all when they reduce, randomize or shift the location of ecosystem services essential to human livelihood. However, it is impossible to separately safeguard each ecosystem service, because they are fundamentally interconnected; the demise of one being often a prelude to the erosion of others. Moreover, ecosystem services are both numerous and varied, changing according to each landscape; they range from agricultural productivity services to bio-sanitary, infrastructure and even cultural identity services. It is, therefore, more practical to consider landscapes in their overall balance – both human and natural – and to deal with them as a complex whole; as a unit and a value to protect.

Eighty-eight percent, that is to say the vast majority, of the world's population relies on ecosystem services rooted in soils. In view of this, the health of land - due to its direct and indirect influences on the economy, degree of empowerment and on human rights - catalyzes the impact of environmental degradation on peace, security and stability. This puts the state of lands at the core of the most crucial feedback loop of our times: one that mankind could use as a multiplier of quality of life, or neglect with uncertain and threatening results. The positive angle of this central and fundamental link between humanity and land is that the pendulum may swing in both directions: protecting lands and seas could thus trigger a broad peace, stability and ecosystem recovery cycle; a constructive feedback loop extending far beyond an initial choice to protect the environment.

The link between environmental degradation and peace and security is particularly strong in the case of socioeconomically fragile regions. Environmental degradation tends to display the same chain of societal consequences in every ecosystem, but these vary in magnitude as a direct function of local fragility in the human context. All forms of environmental degradation, indeed, act as "crisis and conflict accelerators". Yet, the very idea that environmental stress is foremost an "accelerator" - rather than a stand-alone cause of conflict, instability, and migration - reflects the notion that ecosystem service depletion can be absorbed and countered in richer societies. This is, however, far from being the case in socially fragile or poorer communities where stress on ecosystem services overburdens their cohesion and security structure, initiating or amplifying latent tensions and conflicts. It is nevertheless worth noting that such conflicts have the potential to spread globally. It is thus clearly of common interest to mankind to give priority to the protection of poorer and fragile communities and of their ecosystems viability. This would serve both to ensure they remain active participants in the global challenge of environmental recovery, as well as to prevent them from engaging in destabilizing dynamics likely to spill over beyond their regions. An overview of the planet's more fragile regions suggests that, in many cases, they are already directly or indirectly engaged in these destabilizing dynamics, which also acts as a factor in the growing waves of forced population movements.

In these same regions, land – especially degraded surfaces - is available as an accessible means of synergic empowerment for both nature and human communities, both collaborating towards long term sustainability. A clever revitalization of soils can "empower nature", fostering biodiversity, rebalancing hydric cycles, curbing erosion and, from a more global perspective, providing a significant and renewable carbon sink. Beyond these broader dimensions, proper land care ordinarily engenders simple, concrete, understandable and short-term impact cycles of human and environmental co-recovery and co-growth. In other words, the revitalization of soils and other proper forms of land care effectuate change across multidimensional strata, being consonant to deep human needs that, once satisfied, build the foundations of a peacefully productive society but, once denied, directly create conditions of abuse, tension, poverty and conflict.

Vital soils not only provide a production opportunity, but also tend to result in a plethora of positive societal repercussions, such as: fairer income distribution; community cohesion and cooperation; improved gender equality; better education; cultural identification and generation; intergenerational solidarity and transmission of knowledge; and local community based projects for the future. In view of this, land - as the first and foremost renewable asset -, once well managed could provide the true booster of balanced, non-conflictual development: namely, empowerment and trust in the future. Following this line of thought, the health of land also embodies, in a simple and practical way, all the complexity of the interconnected goals of the 2030 Sustainable Development Agenda.

1. INTRODUCTION - TWO UNEXPECTED NOBEL PEACE PRIZES

In Alfred Nobel's final will and testament, through which he founded the famous Peace Prize that bears his name, it is stated that the Peace Prize shall be bestowed upon whoever "shall have done the most or the best work for fraternity between nations, for the abolition or reduction of standing armies and for the holding and promotion of peace congresses"(Nobel, 1895).

In the light of Nobel's intentions, it might then seem surprising that such a prize was awarded, in 2007, to former US Vice-President Al Gore together with a group of climate scientists – the members of the International Panel on Climate Change (IPCC). One might wonder how pointing out climate trends could in any way equate to promoting fraternity among nations or reducing standing armies. In the same vein, one might find the Peace Prize awarded in 2004 to Wangari Muta Maathai, a Kenyan woman who became chair of the Department of Veterinary Anatomy at the University of Nairobi, even more unexpected.

A closer look, however, tells a different story. Wangari Maathai had an intuition: in 1976, while she was serving in the Kenyan National Council of Women, Professor Maathai introduced a community-based tree planting initiative. She continued to develop this idea into a broad-based grassroots organization, the Green Belt Movement, whose main focus was – and still is - poverty reduction and environmental conservation through tree planting. And for doing so, she was awarded a Nobel Peace Prize that, according to the Norwegian Nobel Committee, recognized her contribution to "sustainable development, democracy and peace". The jury of the prestigious prize therefore recognized a link between, on the one hand, trees and their importance for healthy land, and, on the other, the establishment and solidity of democracy and peace.

Wangari Maathai passed away in 2011, but it can be accurately said that the fruits of her efforts are outliving her: more than fifty million trees have been planted in Africa by dint of her initial work. Furthermore, her achievements were a clear demonstration, on the ground, of a new idea: that what we do with our lands and soils matters for peace and security, for human rights, and for fair and sustainable development. Trees, and the lands we protect and enrich with them, can give us a better, more peaceful and safer future.

It is the state of the environment as a whole, and the way we manage our relationship with the biosphere, that make a difference for peace, security and stability of human societies. This occurs through multiple, complex and interconnected dynamics. But in many if not most cases, land acts as the catalyzing element.

2. LESSONS LEARNT FROM HISTORY AND A NEW UNDERSTANDING OF PEACE AND SECURITY

For centuries, the political and academic worlds have faced the predicament of war and peace in terms of a "choice" based on national, economic, and/or power ambitions. A deeper and parallel analysis was also cultivated through calculations regarding a "balance of power", pursued as a condition of mutual dissuasion. These interpretations provided an understanding of - and sometimes a solution to - the problem of non-belligerence: merely by avoiding a declared state of war.

It took two world wars - the tragedies of the 20th century - to understand that peace is much more than simple non-belligerence; to realize that although ambitions and power calculations may well trigger conflict, they do so within an enabling environment, characterized by social, political, economic or even cultural pressures or unbalances affecting peoples' livelihoods. In other words, during the last century we became aware that conflict is generally the result of stress on societies. Following the embryonic attempt represented by the Society of Nations that failed to prevent the 2nd World War, this fresh and more complex understanding of conflict shaped the modern international machinery launched to prevent it: the United Nations. This machinery was built with full awareness of the role played by the 1929 financial crisis, for instance, in bringing nations to arms. The international community thus constructed the institution with a rather more advanced set of ideas in mind. It became a body that although bestowed with emergency instruments of peace keeping - governed by the Security Council -, was nonetheless mainly devoted to creating those conditions of human dignity and development that prevent societies from becoming trapped in conflict in the first place. Over the years, the United Nations and its family of related institutions have, thus, coherently in pursuit of peace, spent much more energy on health, nutrition, human rights, education, poverty eradication, cultural rights, fair and open relations among nations (even on international postal networks and other services that States need to share) than on solving or managing specific situations of open warfare.

For all that, when the United Nations were designed, in 1944, it was too soon to realize that the pursuit of peace was not only a question restricted to human relations and balances. Later on, with the growing worldwide involvement of peoples in the industrial economy, it became visible that we, as a species, were eroding the stock of natural capital upon which we based both our livelihoods and our plans for the future. Initially, it was a mere sense of loss of beauty and variety that motivated environmental movements in their conservationist efforts to protect natural vitality.

But a new awareness soon came to complement the understanding of peace that had guided the United Nations and the global community. It became clear that the health of the environment also impacted productivity and human livelihoods, thus influencing security, human rights and dignity. Environmental considerations, therefore, became relevant in the pursuit of peace, with issues relating to land playing a pivotal part.

Based on this new awareness, we identified periods in the past in which an imbalance in the relationship between mankind and nature favored conditions of insecurity and conflict. In some cases spontaneous fluctuations of natural cycles create social stress. For instance, until now mankind could do little to prevent the socioeconomic impacts of El Nino Southern Oscillation (ENSO) on the southern Pacific and beyond (Lee et al, 2013).

ENSO is a recurring five year cycle caused by a coupled and resonant interaction between oceanic and atmospheric temperatures. It leads to alternate phases of drought or heavier rainfall: during the El Nino phase, the ocean warms up and the drier climate affects soil fertility – i.e., lands -, while during La Nina phase, a more humid climate restores productivity. Statistical proof that, in affected areas, the El Nino phase has historically been accompanied by a probability of conflict that is roughly double that of the La Nina phase, did not come as a surprise. Our ancestors had similar difficulties dealing with the consequences of periods of colder weather in Asia. According to research from London University College examining a timespan of almost a millennium since the year 1000, the probability of conflict increased 2, 24 times in moments of diminished agricultural yields (University College, University of East Anglia, 2005).

In these and other similar situations, causes for the increase in probable conflict are multiple, but they can be generally coalesced into the following pattern: land degradation and fertility reduction pave the way to food insecurity and poverty, and, ultimately, to social unrest, conflict and migration.

In other cases, human communities themselves mismanaged their lands to the point of creating insecurity, strife, and even the demise of entire civilizations (Zhang 2006, 2007; Peterson 2003). Easter Island, the most remote land of all, provides a paradigm (Gee, 2004). Due to its isolated position, Easter Island represents a micro model of a relatively self-sufficient ecosystem subject to human management. Colonized by Polynesian sailors in the 10th century, it was originally covered with forests. Over time, the Easter Island woods were subjected to irrational management and gradual destruction. Due to demographic expansion, as well as, if not more so, to growing rivalries among clans, more and more agricultural lands were needed. Clan rivalries also led to a competition in building ever bigger and more numerous Moais, the island's famous stone statues. Eight hundred and eighty-seven giant Moai statues were erected, requiring a disproportionally vast amount of tree felling, since logs were used to roll the giant artifacts from the stone mines uphill to the coasts, where they still marvel us today. However these activities took their toll: at a given point Easter Island's natural system chain-collapsed due to deforestation. Archaeological proofs indicate that what was a rather flourishing and peaceful society gradually entered an era of poverty and conflict. Easter Island's ecosystem has never recovered. In 1877, when the island was reached by western explorers, only 111 indigenous inhabitants remained out of a population that had once reached 30.000 at its peak, in more prosperous periods.

The case of Easter Island teaches us a great deal. Today, roughly 1.5 billion people in 168 countries are affected by land degradation - and this does not appear to be merely a natural fatality, but rather the result of human misunderstanding and mismanagement of the ecosystem.

3. PEACE, SECURITY, LAND AND SUSTAINABLE DEVELOPMENT

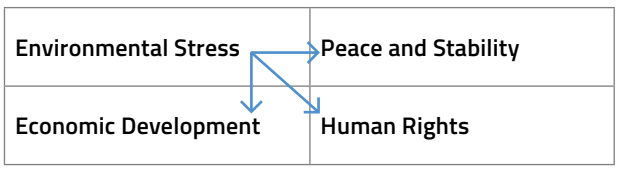
In the 1980s Ulrich Beck and Anthony Giddens paved the way for the growing popularity of a new idea: the "Risk Society". Their concerns were focused on the insecurity brought by modernity, and on the ever swifter changes in social balances due to fast technology improvements, pervasive dependence on communication etc. In the following years it also became clear that the risk society we were bound to face might equally have an environmental dimension.

There it is, it stands before our eyes: climate change, biodiversity loss, ocean acidification, an impairment of both the nitrogen and phosphorus cycles, ozone depletion, increasing fresh water scarcity, and more. These are global and accelerating trends, modifying the whole set of biophysical references on which human society is built. The interactions among these separate but interconnected dynamics are summing up, casting the shadows of a comprehensive shift of paradigm. The main effect of environmental impoverishment, if taking only mankind's interests into account, already is - and increasingly will be - to modify the availability, location, and conditions of access to a wide variety of commodities, goods and services: what we broadly define as "ecosystem services". In turn, this threat to ecosystem services puts in motion various cycles of consequences that impact society; past a certain point, we reach a situation of pervasive fluidity and unpredictability, in other words, a true "risk society" (U.N., 2009).

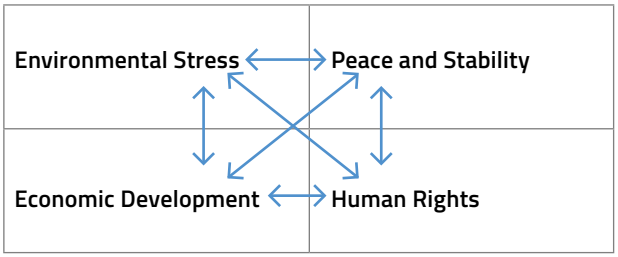
With some historical exceptions – that even brought about the collapse of entire civilizations, as we have seen above – mankind was able to build an increasingly complex society, taking for granted what appeared to be a predictable ecosystem. Without such environmental reliability it would have been impossible to develop and enhance agriculture, other production processes, infrastructure, and a stable, enduring society. Yet, we have now kick-started a trend of environmental modifications with knock-on effects on all aspects of human life; the changes we have induced cumulate and interact with one another, and must be monitored, managed, and understood in all their complexity.

Repercussions on, and interactions between, the various dynamics and sectors – from security issues to soil vitality - can be described in terms of a matrix, reflecting two aspects of global balance: geographical worldwide interconnectedness, and global systemic interconnectedness. This global balance is an essential condition of stable livelihoods – one that we underestimated and took for granted. In view of this global dimension, environmental impoverishment and its consequences cannot be tackled on a narrowly national scale.. It is, instead, necessary to establish relationships among the different orders of factors occurring all over the earth. The difficulty is in determining which, and which degree of complexity, ought to be taken into account when considering these factors. A comparison of approaches so far undertaken suggests that a good balance between simplicity and the need to cover relevant sectors is ensured by investigating cyclical repercussions among environment, peace and stability, development, and human rights (World Bank, 2010).

In this light, if our immediate goal is to assess likely impacts of environmental degradation on human society, we could conceive and be guided by a unilateral matrix:



This provides a guideline to assess immediate impacts of environmental modifications on the most relevant aspects of human society. Yet it is not enough: we are not only victims of a change that we have ourselves caused, we are also actors in its future developments. This fact becomes clear, and broader repercussions become predictable, when the analytical matrix is not unilateral, but instead dynamic, specifying where, and in which context, heterogeneous dynamics connect, trapping mankind in situations, or knots, which lead to dangerous feedback loops. The most central of these knots appears to be the productivity of lands and of marine ecosystems.



This is not an easy prism to handle. Still, it shows the interconnectedness of the planet and prevents the illusions which are frequently created when using sector-by-sector analyses and forecasts. Moreover, it highlights where systemic human involvement is central: in the health and vitality of lands and seas. This is where we find the resources for peaceful social organization and for our hopes of growth and progress. A diminution of productivity, or other broader services provided by the environment, meanwhile, leads to socioeconomic pressure, instability, and conflict (Deligiannis, 2012). In simple terms, this matrix indicates that a feedback loop is at work among the four dimensions, as shown above. If a field is contaminated, for instance, it will no longer sustain its owner, who may become vulnerable to abuses, prone to migrate or an easier pray to fanaticism, and so on. Conversely, if the small farmer in question is granted a sounder education, he can better manage better his land, defend it from contamination, count on a more dignified livelihood, and therefore be less likely to engage in conflict, etc. Whichever dimension of the matrix is subjected to a modifying influence - be it a stress or improvement factor-, its consequences will cyclically reverberate on the three related dimensions, growing thus in scope and impact. In other words, we are intrinsically connected to the health of the environment, both as victims - and perpetrators - of its demise. We can equally, however, be both beneficiaries and agents of its vigor.

A similar matrix – although sub-specified in more boxes - has been adopted by the international community as a tool to manage global development challenges in the coming fifteen years. Indeed, in 2016, a new era for development began: a new Agenda, adopted by the United Nations, focused on 17 goals, will set the course of international development efforts until 2030, building on the results achieved by the previous international framework, known as the Millennium Development Goals. The latter, a list of eight simple and easy to understand objectives, paved the way to a much more articulated architecture. The goals have been multiplied in the 2030 Agenda, specified in 169 sub-targets, and subjected to a hopefully rigorous monitoring through a set of quantitative indicators. Yet, its more complex articulation is only the surface of a deeper revolution in mentality. The true novelty in the 2030 Development Agenda is not that it focuses on more goals in a more detailed way, but that it finally fully reflects a new understanding about the world we live in: one of global balance.

Figure 1: **Millenium Development Goals (MDGs) - 2000 to 2015**

Figure 2: **Sustainable Devlopment Goals (SDGs) – 2016 to 2030**

Compared with that of the MDGs, the 2030 Development Agenda is characterized by three main features:

- its development goals are qualified as sustainable;
- it shifts from the perspective of one way development aid from the "rich" to the "poor", to the horizon of a shared and common interest to further develop together in a sustainable way; and, fundamentally,
- it lists goals conceived as interconnected and synergic

Another way to describe the many novelties of the 2030 Agenda is to say that it also takes care of the environment. Besides the fact that four out of seventeen goals directly refer to the health of the ecosystem – including its land components - the inclusion of the environment further implies all the advancements in the new Agenda. Indeed, introducing the environment deviates from considering another supplementary set of goals for mankind to reach.

This means that classical development goals have to be redefined and managed within the reactive system that surrounds us all. It portrays a radical shift in perspective, as we start to look at the future of mankind not as an independent absolute, but within the grid of relationships and balances that shape the functioning of a broader system to which we belong: one that is common, and therefore has to be managed together; and one that, like a home shared by a family, has to be kept in balance in all its elements, both human and physical.

Sustainability, the health of the environment, and the idea that we all have to take the path of improved development together, constitute revolutionary advances. But they cannot be understood as three separate innovations. Instead, they are all symptoms of a new perception of the human condition: everyone and everything is interconnected within a biophysical system that sustains life and enables development, and which needs to be protected and kept in a state of vital, equitable, and generous balance. In this sense, the 2030 Development Agenda unintentionally exceeded its highest ambitions: it ended up being much more than a development roadmap focused on helping poorer communities to bridge the gap- looking, instead, rather like a new economy, shaped by new values, for the whole of mankind.

The MDGs' and SDGs' similar graphics – that ascribe each goal to a box, in a manner akin to a matrix - are not merely the result of marketing the idea that both agendas are part of the same path, but stem, rather, out of a growing awareness of balance. The understanding that the goals were interconnected and part of a planetary-wide balance was already present when the MDGs were adopted in the year 2000. Consequently, representing them as a matrix was a natural choice. In both tables, the difference between taking them as a matrix, instead of as a mere list of goals consists in identifying functions that connect all the different boxes. This is what we are only now starting to explore in quantitative terms. Not unrelated to this logic is the fact that each goal of the 2030 Agenda will be monitored through quantitative indicators, which is just one small step away from monitoring their interactions and grouped impacts.

This interconnectivity is especially evident when examining the more evolved 2030 Agenda: "life on land" affects "quality education", that in turn impacts on "no poverty" and "zero hunger", which again are factors that influence "peace, justice, and strong institutions", that are equally pivotal with regard to shaping – and reshaping – "life on land" and "quality education". In other words, we are dealing with trans-sector local, regional, or even global feedback loops.

Through this prism, we can identify various forms of environmental degradation that impact human welfare without greatly affecting the health of soils or seas. Heat waves, particulate pollution due to the burning of dirty fossil fuels , or the depletion of the ozone layer, all directly affect human health before influencing the vitality of ecosystems, although in the long run they generally also impact on the broader condition of nature.

Nonetheless, environmental modifications mostly affect our chances of fair and orderly development – basic conditions of peace and stability - most of all when they when they reduce, randomize or shift the location of ecosystem services essential to extract a livelihood from oceans and lands. However, it is impossible to separately safeguard each ecosystem service, because they are fundamentally interconnected; the demise of one being often a prelude to the erosion of others. Moreover, ecosystem services are both numerous and varied, changing according to each landscape; they range from agricultural productivity services to bio-sanitary, infrastructure and even cultural identity services. It is, therefore, more practical to consider landscapes in their overall balance – both human and natural - and to deal with them as a complex whole; as a unit and a value to protect.

Oceanic and terrestrial ecosystems are closely interconnected and cannot, thus, be ranked in importance, nor would it make sense, in the long run, to prioritize one over the other. A significant portion of gross world product (GWP) relies on marine productivity; the annual economic output of oceans is calculated to be around USD 2.5 trillion (Rashid, 2011). On average, nearly 17% of animal protein consumed worldwide comes from fisheries and aquaculture, and in many coastal or small island developing states the figure is much higher. At the same time, the livelihoods of 12% of the world's population depend on fisheries and aquaculture, mainly in the developing world. Their challenge runs in parallel - and is linked to - the challenge of those relying on terrestrial ecosystem services: the remaining 88% of the world's population (Sumaila, 2011).

From all that has been noted above, it becomes clear that, for the majority of the world's population, the health of land catalyzes the impact of environmental degradation as a whole on peace, security and stability, through the pivotal influence of land on the economy, empowerment and human rights.

This puts the state of lands at the core of the most crucial feedback loop of our times: one that mankind could use as a multiplier of quality of life, or neglect with uncertain and threatening results. The positive angle of this central and fundamental link between humanity and land is that the pendulum may swing in both directions: protecting lands and seas could thus trigger a broad peace, stability and ecosystem recovery cycle; a constructive feedback loop extending far beyond an initial choice to protect the environment.

The 2030 Agenda in fact reveals one fundamental progression in our understanding, which provides the basic guideline for managing our well-being, stability and security on our shared planet: our planetary balance is coherent and harbors fewer trade-offs than originally thought. Fundamentally, the idea of a trade-off between nature and development – one that used to dominate the debate – emerges as a misunderstanding.

4. LANDS: LEVERAGING LOOPS, WITH NO TRADE-OFFS, IN A COHERENT BALANCE

The notion of feedback loops allows us to better understand and counter local dynamics of combined societal-environmental disruption. It is a notion which aids in the deciphering of numerous critical situa tions in which underdevelopment, compression of basic rights, violence, and environmental decay seem interlinked, trapped within an inextricable cycle where every stress factor appears both as cause and effect. For instance, seventy-nine ongoing conflicts have been identified as having climate change among their causes and, at a closer look, are all simultaneously characterized by a perversely growing resonance between natural and societal disruption.[1] Analyzing cycles that propel these localized crises can help identify crucial interference knots to act upon, in order to defuse the whole loop.

Currently active cycles exist within the interconnectedness of the global system; they are a threatening and disturbing prospect, portending disruption at a rate higher than foreseen, and introducing a worrying degree of complexity into the equation. On the other hand, such cycles help us to better focus the goal at hand: our task is not to solve a collection of unrelated problems, but to halt and reverse interlinked loops. It requires an analysis of complex interactions, but - once sensitive connection knots are identified - this will provide us with a very powerful tool to restore balance: namely, by leveraging the interconnectedness of the system in the opposite direction, towards rebalance, with a few well targeted initiatives.

1 https://www.newclimateforpeace.org/thematic-reading/factbook

Indeed, an imbalance in one sector tends to propagate to others, leading to cumulative cycles. But the opposite also seems true: rebalancing certain crucial regions, sectors or dynamics could, therefore, start a positive cascade and cycle of wider rebalancing. This notion is surfacing at the operational level as we start to identify more and more societal co-benefits of environmental actions. Sustainable family farming, for instance, benefits the environment, while also giving hope and empowerment to local communities. When both parts of the equation – mankind and nature – benefit from the initiative, a self-sustaining rebalancing cycle is born, wherein the health of the ecosystem fuels the well-being of society, with the safeguarding of nature emerging as an opportunity instead of as a limitation to growth. Such cycles consolidate communities, putting them in better shape as to start caring about their collective future, and therefore to sustainably manage their environment.

In a system that hosts cycles, both directions can be taken: it is increasingly clear that social protection initiatives have environmental co-benefits, and that protecting the environment can put in motion a cycle of socioeconomic progress. These observations bring us one step beyond the long standing notion of a trade-off between nature and progress.[2]

2 At this stage, co-benefits pose a problem in international negotiations about development finance, especially with respect to climate finance. Developing countries have claimed that the climate co-benefits of socially oriented aid, for instance, should not serve as an excuse to establish double accounting through which one same initiative would appear twice: both in the book of social aid and in the book of climate finance. This very tension shows that approaching development aid in terms of trans-sector feedback loops is simplifying the problem, not complicating it. In the end, it means that we simply have to increase the volume of aid, and that improvement on the human side of the equation help to solve difficulties on the side of nature, provided said improvements are environmentally compliant. Beyond the accounting methods disputes, this reality is imposing itself, as the most recent OECD indications about climate finance accounting allow ascribing a climate/environmental marker to development initiatives focused on sectors as disparate as governance or gender equality.

Co-benefits, in both directions, are just the first symptom of feedback loops, and, thus, of a coherent global balance that can host both disruptive and constructive trans-sector cycles. The one feature that makes this balance coherent is that "mixed" loops – with both beneficial and destructive cascade consequences, among which a trade-off could eventually be considered – ultimately seem incompatible with the system. In the end, all dynamics seem to resolve either in a comprehensively constructive cycle, or in its opposite. Mixed balances, meanwhile, mostly characterize transition phases or, more often, are considered "progress" by a group of temporary "winners" to the detriment of "losers" - but the total sum remains negative for the system.

This means that what is truly good for mankind tends to also be beneficial for nature, and, vice versa, that a healthy nature improves people's quality of life and sustains the form of development proposed by the 2030 Agenda -without trade-offs. Cyclical interlinkages merge into the form of equivalences: fighting poverty adds up to protecting the environment; involving excluded women in building green belts adds up to security and economic growth; what we do in a given region of the world adds up to improvements affecting other portions of the planet too. Possible combinations are endless. This does not mean we can avoid selecting priorities; it is the law of marginal utility that tells us we should intervene first where the problem is most severe, namely in poorer communities and more fragile ecosystems, which,– it is no coincidence, tend to overlap on the map. The revitalization of land provides a concrete context to kick-start constructive feedback loops where these are most needed, to the benefit of humanity as a whole.

5. THE POOR FIRST: ADAPTATION AND PROTECTING LANDS IN FRAGILE REGIONS AS A GLOBAL SECURITY STAKE

That which all forms of environmental degradation have in common is that they affect human stability mainly via the erosion of ecosystem services. Beyond extreme weather events and their consequences, the main connectors between environmental and societal stability are the ecosystem services that all disparate environmental changes affect.

Therefore, while it is strategically imperative to restore environmental health as such and to solve the root causes of the environmental side of the instability equation, in the medium term - and tactically - it is essential to identify and protect useful ecosystem services. These two goals are largely overlapping but, operationally, do not always coincide. Preserving ecosystem services that provide human stability, taken as a clear goal in and of itself, aside from preserving environmental balance as such, is essential because it is the way to defuse the most dangerous, and too often neglected, feedback loop of all.

The growing trends of ecosystem degradation are generally analyzed conceiving mankind as the initiating actor of a pattern that gives rise to change in nature. However, in some cases, these analyses continue to project future scenarios as if they developed in a vacuum within the "natural world" alone, humanity being taken as a non-reactive spectator. This approach overshadows the fact that the greatest unknown and most threatening variable for the future remains that of human behavior in the context of a growingly dysfunctional ecosystem, not the ecosystem itself.

While nature keeps challenging human organization with its ever swifter modifications, the fundamental question is whether mankind will be able to stay united in order to restore the balance of the ecosystem in a rational way, or will rather turn to irrationally competitive behaviors that could continue feeding its disruption (Anderson, 2010). The commonly feared and condemned scenario is a "business as usual" protracted neglect of natural balance. But the grim truth is that a far worse turn is looming and could take the shape of a catastrophic feedback loop much more calamitous than business as usual. If the impairment of ecosystem services is pushed beyond a given threshold, it triggers a certain degree of insecurity; societal and institutional fragility; instability and conflict, which, in turn, will paralyze the international community's capacity to unite and rationally manage the ecosystem. Moreover, in such a situation, the blind behaviors which cause deep scars to nature - typical of exacerbated competition, warfare, or instability - would very likely be triggered. This, in turn, could worsen environmental degradation creating even greater instability and conflict in a dangerous and globally spreading cycle (Baker, 2011, Austin, 2000). Defusing this loop is imperative. This necessarily involves granting sufficient - and fairly distributed - access to the ecosystem services which are essential for an orderly economy and social cohesion. The need to protect services and "stay functional" concerns all societies, but it is an absolute priority in developing regions.

This policy-oriented perspective – i.e., protecting environmental services to ensure the policy commitment to protecting the environment remains firm – must be applied first and foremost in poorer or more fragile areas. This is because if adaptation fails in such places, they will, from the very outset, be unable to contribute to mitigation, and will thus be the first to opt out of the longer term strategic challenge of global environmental recovery – an outcome detrimental to all. In addition, poorer communities are more likely to become hotspots of instability and conflict.

This is a significant risk for it is precisely in such cases that human-environmental disruption cycles start, grow, and gain global momentum, finally impacting wider regions, dragging them into a wider sphere of mitigation paralysis.

Environmental degradation tends to display the same chain of societal consequences in every ecosystem, but these vary in magnitude. It is not the bio-physical features of a given territory that determine the magnitude of societal consequences; they are rather a direct function of local fragility in the human context. All forms of environmental degradation act according to a definition that the US Department of Defense and NATO have developed referring to climate change: namely as "crisis and conflict accelerators" or "threat multipliers". The idea that environmental stress is foremost an "accelerator" rather than a stand-alone cause of conflict, instability, and migration, reflects the notion that ecosystem service depletion can be absorbed and countered in richer societies. This is especially true if they provide emergency safety nets or social and productive assistance to concerned families, and if they have the means to access the global market to compensate local depletion. In socially fragile and/or poorer communities, however, stress on ecosystem services overburdens social cohesion and security structure; it initiates or amplifies latent tensions and conflicts. These conflicts have the potential to spread globally. It is, therefore, clearly a common interest of mankind to give priority to the protection of poorer and more fragile communities, and of their ecosystems viability: both to keep them on board in the global challenge of environmental recovery, and to prevent them from engaging in destabilizing dynamics likely to spill over beyond their regions.

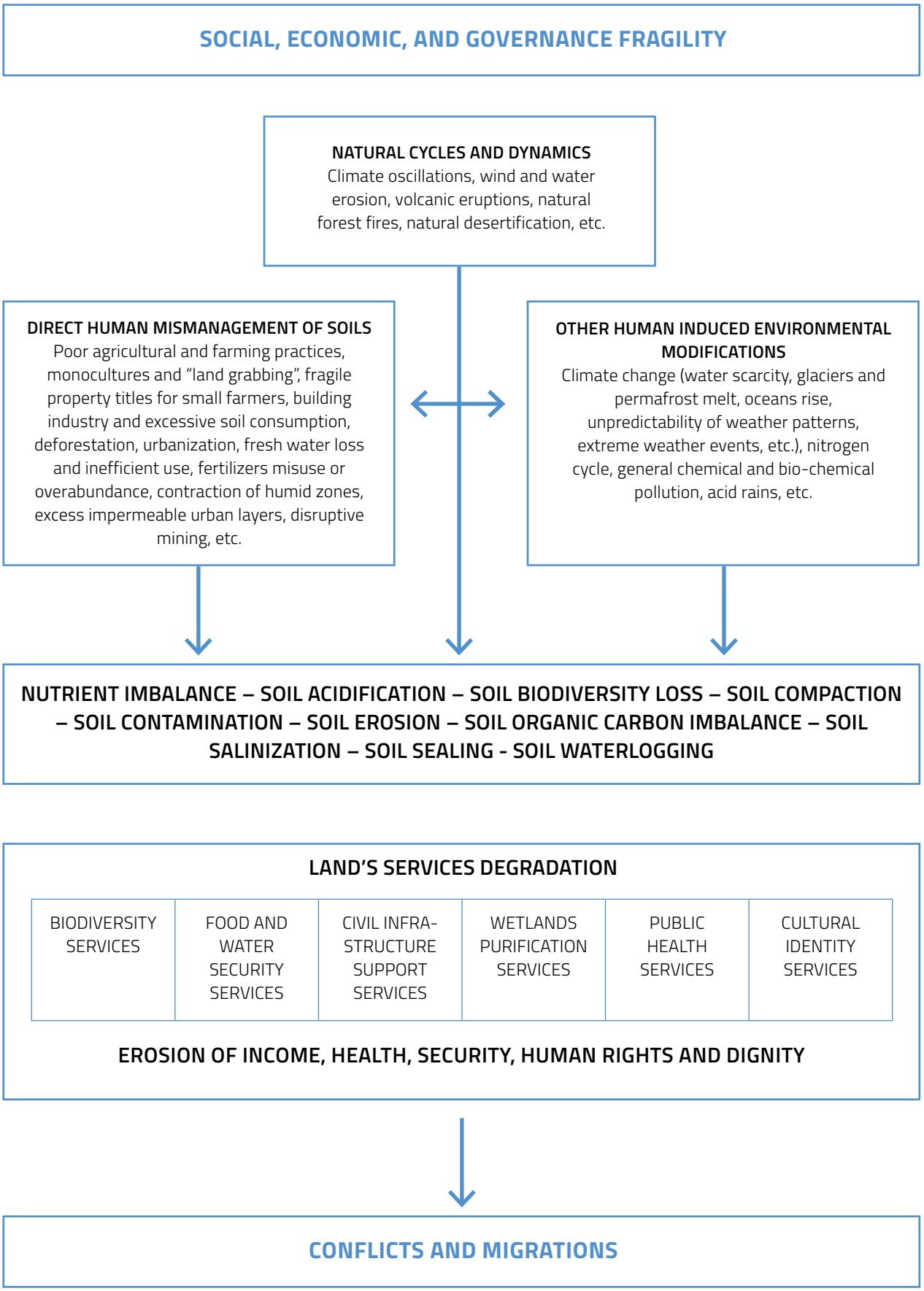
In this scenario, no nation can consider itself safe and isolated: even if it is solid enough to face environment degradation on its own territory, or if it is temporarily benefitting from environmental modifications, the deleterious fate of the poor will end up affecting the whole system. Development aid - provided it is environmentally compliant, integrated, and mainstreamed - acquires, in this perspective, a new status: far beyond an overdue instrument to bridge a gap in justice and opportunities, it stands out as the first action needed to defuse a planet-wide loop of disruption. Following this analysis, lands count all the more because they are a concrete object of interventions, which can be locally delineated and prioritized where most needed.

6. LANDS: R2P

The proper management of soils and lands thus emerges as a crucial challenge for the sustainable progress of all mankind. In its obvious and first implication, this means that direct organization of land use has to be improved. But the stakes are now so high for human stability, that it further implies that, in addition to direct land mismanagement, lands also need to be protected from the impacts of spontaneous ecosystem fluctuations, and other forms of man-induced environmental modifications. Equally, beyond preserving the healthy soils that are left, it is necessary - and potentially a remarkably cost-effective investment - to recover the vitality of lands that have already lost this quality (Carney, 1998).

These are difficult tasks in a difficult context, characterized by intense competition for land, which is in itself a harbinger of conflict and does not encourage rational land management on either the national or the global scale. Indeed, the present situation is that of a constantly rising human population and continuously growing agricultural production, which - unless very high gains in land productivity are achieved in the short run – threatens to exacerbate the competition for ecosystem services provided by lands, a source of tension that has ever accompanied the course of human history. The beginning of the 21st century is already showing symptoms of a veiled pre-conflict in the form of the recent waves of massive investments in agricultural land. This is often referred to as "land-grabbing", a term that not only emphasizes the asymmetric appropriation of resources by prepotent investors, but also implies a criticism of the potential impacts of such activities on the livelihoods and ecosystems of target countries.

In this context and perspective, a responsibility to protect the health of lands emerges both as a priority strategy and as a practical identification of the most prominent mankind-nature interference knot. This knot is the point within the wider matrix, as detailed above, upon which action can be concentrated to prevent further impacts on human stability and the impairment of our collective aptitude to respond to the current environmental crisis in all its complex interrelated dimensions.


SOCIAL, ECONOMIC, AND GOVERNANCE FRAGILITY
NATURAL CYCLES AND DYNAMICS
Climate oscillations, wind and water erosion, volcanic eruptions, natural forest fires, natural desertification, etc.
DIRECT HUMAN MISMANAGEMENT OF SOILS
Poor agricultural and farming practices, monocultures and "land grabbing", fragile property titles for small farmers, building industry and excessive soil consumption, deforestation, urbanization, fresh water loss and inefficient use, fertilizers misuse or overabundance, contraction of humid zones, excess impermeable urban layers, disruptive mining, etc.
OTHER HUMAN INDUCED ENVIRONMENTAL MODIFICATIONS
Climate change (water scarcity, glaciers and permafrost melt, oceans rise, unpredictability of weather patterns, extreme weather events, etc.), nitrogen cycle, general chemical and bio-chemical pollution, acid rains, etc.
NUTRIENT IMBALANCE – SOIL ACIDIFICATION – SOIL BIODIVERSITY LOSS – SOIL COMPACTION – SOIL CONTAMINATION – SOIL EROSION – SOIL ORGANIC CARBON IMBALANCE – SOIL SALINIZATION – SOIL SEALING - SOIL WATERLOGGING
LAND'S SERVICES DEGRADATION
BIODIVERSITY SERVICES
FOOD AND WATER SECURITY SERVICES
CIVIL INFRA-STRUCTURE SUPPORT SERVICES
WETLANDS PURIFICATION SERVICES
PUBLIC HEALTH SERVICES
CULTURAL IDENTITY SERVICES
EROSION OF INCOME, HEALTH, SECURITY, HUMAN RIGHTS AND DIGNITY
CONFLICTS AND MIGRATIONS

While we have to take immediate action to assuage and resolve the causes and effects of human pressure on the environment – i.e., foster renewable energy, prevent and repress biodiversity loss, monitor timber markets, and so forth – we also need to be aware that we have already reached a point of unavoidable consequences on the ecosystem. The impact of these on human livelihoods will directly depend on how they affect the vitality of lands, because lands harbor most of the services we are bound to fight for in a scenario of scarcity and change (Homer, 1999).

Mankind will have to resist and adapt. Land emerges as the main target for resilience planning and adaptation. It is the first and foremost value that ought to be revitalized and protected since, for a great portion of humanity, it is the means to avoid being paralyzed by a local, regional or even global instability. On the positive side, we might be pleasantly surprised that, while concentrating on lands in order to adapt and build resilience, we may well, simultaneously, be engaging in one of the best possible actions to mitigate climate change and defuse many other ticking environmental bombs. Land is a pivotal element in the relationship between mankind and nature. By addressing the consequences of the different environmental imbalances land suffers, we are, thus, also likely to effectively contribute to the resolution of their causes.

7. MORE THAN A FUTURE SCENARIO

Numerous ongoing conflicts, both civil and international, have been identified as having an environmental degradation component in their causes. As noted in the 1999 United Nations Environment Programme (UNEP) Report *Environmental Conditions, Resources, and Conflicts: An Introductory Overview and Data Collection*, "a review of the scientific literature indicates three major trends:

1. Conflicts over water resources appear to be a major source of direct international conflict. The most common environmental elements around which conflicts can erupt are water flow, diversion, salinization, floods and pollution.

2. Indirect international or indirect intra-national conflicts are commonly caused by resource depletion issues - deforestation, soil erosion, desertification, flooding and pollution.

3. From the empirical evidence across all categories, it appears that the vast majority of environmentally related conflicts occur in developing regions".[3]

An updated examination of environment-related occurring or potential tension and instability situations still reflects the 1999 assessment. A notable exception regards Arctic ice thaw, creating conditions for competition over the access to hydrocarbons and new maritime routes. Excepting this anomaly, however, a study of the literature confirms that in the great majority of cases the triggering factor - the causal link - between the original environmental degradation dynamic and human instability, is the former's impact on the vitality of soils.

Very few regions in the world are currently spared by this paradigm, but – as the UNEP Report pointed out – "it appears that the vast majority of environmentally related conflicts occur in developing regions" (UNEP, 1999). The Sahel region provides a clue as to this correlation: it is enough to compare the maps of where desertification is an ongoing process to the maps of various human dynamics that contribute to instability.

An overview of the more fragile regions of the planet suggests that, in many cases, they are already, directly or indirectly, concerned by these dynamics:

The 2011 "**Arab Springs**" doubtless reflected an aspiration to enhanced freedom and self-determination by various peoples of the region. But the instability of a significant portion of the Maghreb and Mashrek, which perdured after 2011, is also a continuing consequence of one factor – a factor which injected socio-economic pressure in the preceding years and created widespread social unrest – hyper-inflation of food prices (Nulls, 2013).

Before 2011, localized environmental stress had exerted pressure on some North African societies. Growing water scarcity played a direct role in Egypt's decreasing social cohesion, as well as in triggering the Syrian crisis, with its developments that led to the expansion of ISIL. Before street demonstrations began, Syria had experienced four years of unusual drought that affected agricultural productivity and induced the domestic rural-to-urban migration of 1.5 million people.

3 UNEP Information Note 99-16.

This said, for the remainder of the region, the problem mainly started elsewhere. Structurally, food insecurity is an enormous concern among the medium-income, heavily import-dependent states of North Africa and the Middle East – regions that were once the breadbasket of ancient empires. Since the middle of the 20th century, the combined population of the Arab-majority states has grown by more than five times – from about 70 million in 1950, to more than 360 million today – a trend that is not expected to stop anytime soon. As per-capita freshwater and cropland resources have dwindled, even the most agrarian among these economies have become grain-import dependent, making food-price controls an actively pursued policy (Hendrix, 2012).

In 2010, however, these policies proved insufficient: environmental strains affecting major grain producers – such as droughts in Russia, Ukraine, China and Argentina, and torrential storms in Canada, Australia and Brazil - considerably diminished global crops, driving commodity prices up. This was also increased due to speculation. The Southern shore of the Mediterranean was already dealing with internal sociopolitical and economic tensions, which the 2010 global food crisis helped drive over the edge. This proved how a regional contraction in soil fertility can have repercussions on global stability. Globalized markets act as transmission devices, and in this way such contractions can engender both harsh short term episodes and progressive long term trends.

Little reliable data are available on the extent of land degradation in the rest of **Africa**. However, land degradation is widespread and serious: the presence of gullies and sand dunes, of degraded forests and grazing lands are obvious, while the effects of sheet erosion and declining soil fertility have been mounting. Africa, considering its development trends, still heavily depends on its ability to conserve and manage its land resources. More visibly than anywhere else, in Africa, soil degradation results in droughts, ecological imbalance and a consequent retrogression in quality of life. The first direct effect of land degradation - as well as its most conspicuous symptom - being the negative impact on food production, with stagnating and declining yields, leading, in turn, to increased levels of poverty (University College of London et al, 2005).

Throughout the continent, regardless of the climatic zone, meteorological records show that unpredictability of rains is a common feature that deprives land of reliability as a source of nutrition and income, thus hampering security. Sub-Saharan Africa, in particular, is struggling to adapt. The problems they are facing include: desertification, deforestation and shrinking water resources, with linked consequences for soils; resultant socio-economic effects, such as growing migratory trends, a rising rates of illegal economic activities, weakened public governance, intensified corruption, and improved conditions for both regional and international fanaticism and terror. One example is that of the Lake Chad region. In just five years, the Lake Chad region has become a hot-bed of Boko Haram terrorist activities, and the roots of this extremism can, in part, be traced back to the combined effects of land degradation and drought. Lake Chad has been a critical wetland area for centuries, and, in times of drought, it serves as a seasonal migration area for people from Cameroon, Chad, Niger and Nigeria. But the population has grown rapidly – from 22 million in 1991 to 38 million by 2012 - and it is forecast to reach 50 million in 2020. Of this population, two out of three individuals are Nigerian; yet, under pressure, the lake has receded into Chad. It shrank cataclysmically, from about 25,000 square km in 1963 to less than 1,400 square km by 2001. Doomed by this context change, agriculture - the lifeline of the local economy - declined precisely at the moment when demand for food rose. The population became poorer and more marginalized, and conditions for extremism, violence and problematic population movements were born (Fjelde et al, 2012).

Latin America has chronic difficulties in managing its fertile lands. South and Central America have the richest reserve of genetic resources in the world. This region provides habitat for about 40% of the known living species, and it possesses an important reserve of agriculturally productive land and fresh water. About 24% of the Americas are composed of arid or semiarid lands; they are biologically rich, but threatened by desertification and very often by droughts. Meanwhile, about one third of the world's forests occur in their important tropical and temperate biomes. Originally, this continent boasted 6.93 million square kilometers of forests; today, it has been reduced to little more than 3.65 million. The present rate of forest loss is 15.000 square kilometers per year, that is to say, almost three hectares per minute. The main source of deforestation in the Amazon is the expansion of croplands into previously forested areas, where - after some years - the soil degrades and crops are abandoned to give way to permanent pastures. Irrigated lands count for about 15 million hectares, most of which show symptoms of soil degradation. Nearly 20% of the Americas' physical surface is already degraded.

Unsound cultivation practices are the primary cause of land degradation in the Americas, negatively affecting croplands even before the impact of deforestation is taken into account. In South America, almost half of cropland is affected by land degradation; in Central America, these figures are even more dramatic, rising well beyond half available cropland.

Both deforestation and desertification have increasingly high social costs, for instance, pushing millions to migrate to cities, creating social pressure in urban areas. For example, as a result of increasing drought and falling productivity, more than 60 million people in the Sertão region of northeast Brazil migrated from rural to urban areas between 1970 and 2005. Rural-urban migration is recognized to be one of the sources of crime increase and political instability in many countries (NIC, 2009).

- It may be considered, however, that the most critical environmentally triggered and system-wide threat for stability, peace and security today is emerging in **Asia**. The Asian continent accounts for 29.4% of land worldwide;, it suffers heavily from land degradation, both in its southern and central parts, due to different sub-regional dynamics, although in all its regions "In Asia, the desertification mainly occurs in arid and half arid area, Failures of resource management policies are aggravated by overgrazing, overexploitation of water and land resources, overcultivation of marginal lands, and the rapid increase in population. 90% of it lies within arid, semi-arid and dry subhumid areas"[4].

This pattern of intense land exploitation within a prior context of natural soil vulnerability has played a significant role in growing urbanization trends and consequent tensions. In addition to this, Asia suffers an acute issue of water availability, accompanied by severe climate change impacts, both of which also have corresponding negative effects on land. This combination of factors is gradually building up and threatening a continental scale crisis.

The Sea of Aral, and the Amu Darya and Syr Darya rivers are drying up[5], affecting the countries of Central Asia and their populations of some 60 million people, thereby heralding one of the gravest global environmental disasters of modern times (Dokken, 2001). The socio-economic and humanitarian consequences of such an incident make it a direct threat to sustainable development in the region, as well as to the health, livelihoods and future of the people living there - just as the dramatic shrinking of Lake Chad is jeopardizing security in Africa.

4 http://www.wamis.org/agm/meetings/wocald06/S2-Hong.pdf

5 The Aral Sea region crisis directly concerns Turkmenistan, Kazakhstan and Uzbekistan, and affects Tajikistan and Kyrgyzstan indirectly. As stated in a letter dated 12 September 2013 from the Permanent Representative of Uzbekistan to the United Nations, addressed to the Secretary-General, "The Aral Sea catastrophe stands as convincing evidence of the interplay between the environment and strategic security. For this reason, the countries in the region affected by the catastrophe are increasingly drawing the attention of the international community to the fact that the destruction of the Aral Sea will have damaging effects not just on the immediate area, but on the entire world […]. Until 1960, the Aral Sea was one of the largest closed bodies of water in the world. It was 426 kilometres long and 284 kilometres wide, with an area of 68,900 square kilometres, a volume of water of 1,083 cubic kilometres, and a maximum depth of 68m. The Aral Sea region had a large variety of flora and fauna; its waters contained 38 species of fish and a range of rare animals; it was the habitat of 1 million saiga antelopes; and its flora included 638 species of higher plants. The Aral Sea played a vital role in the development of the regional economy, its industries, sources of employment and sustainable social infrastructure. In the past, the Aral Sea was among the richest fisheries in the world: 30,000 to 35,000 tonnes of fish were caught annually in the waters of the Aral Sea region. More than 80 per cent of those living along the Aral Sea shore were employed in catching, processing and transporting fish and fish products. The fertile lands of the Amu Darya and Syr Darya deltas and the rich grazing lands provided employment for more than 100,000 people in livestock rearing, poultry breeding and raising agricultural crops.

The Aral Sea also served to regulate the climate and mitigated the sharp fluctuations in the weather throughout the region, exerting a positive influence on living conditions, agriculture and the environment. In winter, arriving air masses heated up over the waters of the Aral Sea. In summer, they cooled down over the same waters. The problems of the Aral Sea arose and expanded into a threat in the 1960s, as a result of the feckless regulation of the major cross-border rivers in the region — the Syr Darya and Amu Darya, which had previously provided some 56 cubic kilometres of water to the Aral Sea each year. A jump in the population in the area, urbanization, intensive land development and the construction of major hydrotechnical and irrigation facilities on the water courses of the Aral Sea basin carried out in previous years without regard for environmental consequences led to the desiccation of one of the most beautiful bodies of water on the planet. Within a single generation, an entire sea was virtually destroyed. The process of environmental degradation continues, and the Aral Sea region is becoming a lifeless wasteland. Over the past 50 years, the total outflow from rivers into the Aral Sea has fallen almost 4.5 times, to an average of 12.7 cubic kilometres. The area of the sea's surface is eight times smaller than it was, and the water volume has decreased by more than a factor of 13. The water level, which until 1960 had reached a maximum of 53.4 metres, has fallen by 29 metres. Salinity has increased by more than 13 to 25 times and is now 7 to 11 times higher than the average mineralization of the world's oceans.

The sand-salt Aralkum desert, with a surface area of more than 5.5 million hectares, is inexorably taking over the Aral region and now covers the dried-up portion of the sea that was once home to a wealth of flora and fauna and served as the natural climatic regulator of the adjacent areas. Constant environmental risk, with its negative impact on the quality of life, health and, most importantly, the population's gene pool, now affects not only the areas around the Aral Sea, but the whole region of Central Asia.

Moreover, the forecasted melting of Himalayan glaciers could disrupt the entire water cycle on which agriculture and infrastructure both rely in Central and South Asia (Najam, 2003). If the financial crisis of 1929 was enough to divide nations and - it may, to some extent, be argued - ultimately bring them to World War II, the question arises: what would a rapid melting of the Himalaya glaciers trigger? Glaciers act as reservoirs of water that regulate constant output, their melting would thus have dire effects on land. The extensive areas regularly irrigated by rivers born in the Asian plains would be punished by both extreme droughts and disastrous floods. Soil capacity to sustain agriculture and social organization would both be seriously hampered, and hundreds of millions of people would be deprived of their livelihoods in a time so short that adaptation would likely prove impossible. In addition to this dire picture, the same socio-economic dynamics that led to the last world war would be triggered in a region where four States – China, India, Pakistan and Russia – have nuclear bombs. The security threat is palpable. It must therefore be addressed while cooperation and common action remain viable options. While we still can, we must.

8. THE LAND-MANKIND CYCLE: A THRESHOLD BETWEEN PEACE AND CONFLICT

In many societies land is a delicate political issue. Issues such as property rights and fair distribution are difficult challenges, as is the competition for different uses of land: between urban and rural; between grazing and planting; between wild nature conservation and agricultural expansion; between tourism and industrial occupation. These are just a few of the dilemmas that many communities, especially the less organized ones, still need to solve in a balanced manner.

Therefore, ascribing lands a social and environmental function that goes beyond its traditional uses, that are themselves already rife with competition, could prove complicated in numerous contexts. Nonetheless, in many other ways, social and environmental investments on land are bound to prove less conflictive, more cost effective, more accessible to fragile societies, and swifter to produce profit, than the majority of innovations called upon to face the global environmental crisis.

The deep reason for this lies in the essential link between human communities and their territories: the latter constitute the very bedrock of the livelihoods, values and identities of the former. Given this intrinsic identification between the two, sound management of land creates cumulative and synergic cycles of environmental and societal sustainability, in which both actors - mankind and nature - reciprocally protect one another. The opposite is of course also true: mistreated lands tend to become degraded, disrupting societal balance and peaceful human and economic progress. In this sense, any choice about land has the potential to be a choice between stability or disorder (Brown et al, 2007).

Land is so constitutionally relevant to mankind that it is only natural for it to frequently be a delicate political and economic issue. It represents the basic interface between nature and production: being the most immediately accessible and concrete value-extracting medium. Otherwise put, humanity's relationship with land is wholly quintessential. Fortunately, this also means that:

- interventions targeting practical protection and recovery are generally within the reach of less organized, less technologically endowed, and/or poorer communities;
- results are generally felt within the short term, and are both visible and readily understandable by socially and educationally less sophisticated groups, making them more likely to subscribe to individual, family scale, and larger collective initiatives;
- as a result, in many contexts, effective interventions need not be large scale and supported by top-down, complex and costly organization;
- almost every community has a portion of degraded lands whose market value has decreased, becoming thus accessible for socially and environmentally oriented interventions. Without low market value, political or economic competition is often too strong for these non-dominant subjects to have any sway. If, however, one sums up all these degraded lands worldwide q, the protection or restoration of their vitality could make a crucial difference for planetary balances.

In other words, land presents itself as an accessible means of synergic empowerment for both human communities and nature itself, both collaborating towards long term sustainability. Other parts of this Outlook detail how a clever revitalization of soils can "empower" nature, fostering biodiversity, rebalancing hydric cycles, containing erosion and, in a more global perspective, providing a potentially huge and renewable carbon sink.

Beyond these broader dimensions, proper land care appears particularly promising – and, correspondingly, land neglect, particularly threatening - in terms of safeguarding stability and peace. This is mainly because land care is not generally perceived as an investment "for the sake of the environment alone", implying a "sacrifice" of human interests; a perceived trade-off between sectors, feeding the rather common misconception that we have to "give up something" in the name of nature.

Proper land care ordinarily engenders simple, concrete, understandable and short-term impact cycles of human and environmental co-recovery and co-growth. In other words, the revitalization of soils and other proper forms of land care effectuate change across multidimensional strata, being consonant to deep human needs that, once satisfied, build the foundations of a peacefully productive society but, once denied, directly create conditions of abuse, tension, poverty and conflict.

Vital soils not only provide a production opportunity, but also tend to result in a plethora of positive societal repercussions, such as: fairer income distribution; community cohesion and cooperation; improved gender equality; better education; cultural identification and generation; intergenerational solidarity and transmission of knowledge; and local-community based projects for the future. In view of this, land - as the first and foremost renewable asset -, once well managed could provide the true booster of balanced, non-conflictual development: namely, empowerment and trust in the future. Following this line of thought, the health of land also embodies, in a simple and practical way, all the complexity of the interconnected goals of the 2030 Sustainable Development Agenda.

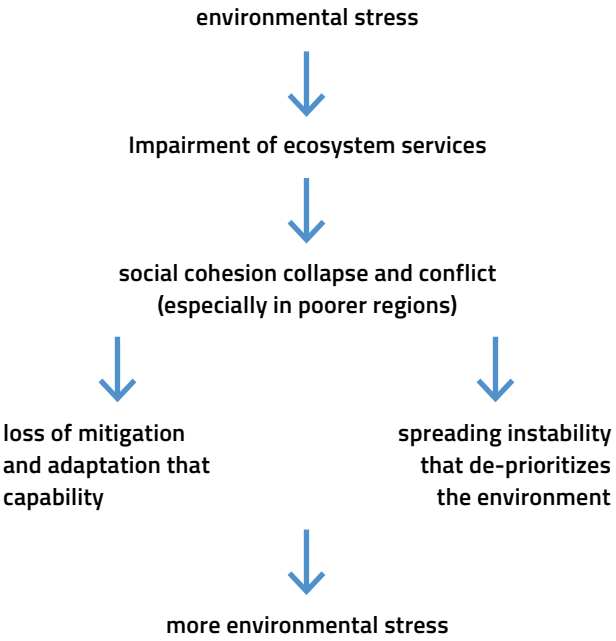
Last but not least, land has to emerge in policy choices not only as a way to protect the ecosystem services it provides – but also because land provides an easily understood, tangible and localized object of intervention. We cannot resolve a climate-induced crisis by mitigating temperatures locally and selectively in the concerned spot. But we can locally address its impacts on the lands, and graduate efforts according to geographic priorities, first addressing contexts of human fragility that could grow into global hotspots of conflict and migration. In terms of policy, if not science, it makes a huge difference.

9. A QUESTION OF EMPOWERMENT: NON-CONFLICTIVE INCOME STABILIZATION AND REBALANCING

There is a deep connection between the current environmental crisis and the imbalances in income distribution at a global level. Deeper linkages aside, it is immediately observable that environmental modifications affect the income opportunities of the poor first, which, in turn, makes revitalization all the more tricky. Turning the situation on its head, their fragility is, thus, a global obstacle in protecting the environment. In this perspective, economic empowerment of the poor emerges not only as a development goal, but also as a priority pathway to render globally coordinated action for the environment viable. In other words, the current situation is unsustainable. The share of global wealth belonging to the richest one percent has increased from 44%, in 2009, to 48%, in 2014. It is unlikely that such a society will, in the long run, succeed in preserving environmental balance. This conclusion clearly emerged during the international climate change negotiations, articulated within provisions about consistent funds and technology transfers towards poorer regions (Durning, 1989).

Box 1

At local and regional, but also global level, it is unlikely to secure an orderly and peaceful development if we leave environmental degradation unchecked – a disruptive feed-back loop is at work



Effective general mitigation of all forms of environmental degradation is the strategic end-goal – overall environmental balance must be recovered. To reach this strategic goal globally, every community must contribute, because it is quantitatively impossible to win the challenge otherwise - the richer world has greater control of the economy, but developing communities have growing populations and control over vast extents of lands and oceans that represent an essential part of the solutions. Poorer communities are likely to fall victims of the loop first, forced to drop out of the global challenge while turning into contagious hotspots of instability - overall chances to reach the strategic goal of recovering the global environment would be jeopardized. Therefore, adaptation and resilience of poorer communities is a global stake - their ecosystem services must be protected (environmental assistance) and their aptitude to re-organize upon modified, randomized or scarcer services enhanced (resilience, also as socio-economic assistance)

Among the many approaches used to empower poorer communities towards economic development, the recovery of degraded lands appears particularly beneficial, providing as it does a fundamental structural correction. Economic empowerment implies independence from assistance, and, in certain circumstances, also from the vagaries of international commerce. It is an historical fact that self-sustaining loops of manufacture and services, which often grow into locally sustainable urbanization – tend to gradually emerge out of situations of agricultural surplus and its subsequent commerce and transformation.

Given that degraded lands are abundant; given that by definition there is moderate-to-little market competition over them; given governments' growing awareness of the benefits brought by the revitalization of rural communities; and given that restarting rural productivity means restarting the very engine of healthy national economies worldwide – recovering the vitality and productivity of lands is a sensible and pragmatic way to break the environment–injustice loop, building both a fairer and environmentally sounder society.

10. A QUESTION OF EMPOWERMENT: WOMEN AND LAND

In the equation between justice and environment, one fundamental factor is gender equality. It is unlikely that an overly unjust society would be able to solve the environmental crisis. It therefore follows that the balance of nature cannot be protected without also engaging women, ensuring their dignity and equality, and, in turn, enabling them to express their contributions (IFAD, 2014).

In contexts of land degradation, as soil fertility declines and harvests become uncertain, family income is jeopardized, often forcing men to migrate towards cities or abroad. Women are therefore often driven to take up roles that have traditionally belonged to men, as family and land managers. Such new roles are taken up by necessity, however - in consideration of the original cause, land degradation - this usually occurs within cultural and societal conditions that deprive them of effective means to attend to these new responsibilities.

It is frequently the case that in more fragile areas, as compared to men, women do not have equal decision-making power, access to services, credit or other resources. Above all, they rarely benefit from an equal level of empowerment regarding land use and possession rights, factors that can jeopardize not only their possibility, but also their motivation, to become involved in planning and management of land recovery and development (UNFPA, 2009).

A strong and equal role for women is visibly necessary. "In the evolving and unstable conditions produced by land degradation, communities cannot afford to neglect women's unique capabilities and knowledge. Revitalizing lands therefore also means working towards socially shared and non-conflictual gender empowerment" (OCSE, 2009). Also following this line of thought, acting on lands becomes an effective way to bring all available forces and potentials together in the broader objective of securing the global health of the environment.

11. A QUESTION OF EMPOWERMENT: DIGNITY, IDENTITY, SECURITY AND THE CHOICE TO STAY HOME

Public awareness of the security implications of the current environmental crisis is rising due to the massive waves of forced displacements currently reaching Europe and other developed regions. They only represent the visible tip of the iceberg, however (IOM 2016), while much greater forced movements are ongoing inside poorer areas, within states, from rural communities to cities, or at regional level.

Migration inside and between lands represents but a portion of a broader issue: the impacts of environmental modifications on development, social cohesion, human rights, security and peace. Within this umbrella of topics, is the link between environmental degradation and migration - and, as a part of it, lands. Land degradation affects livelihoods starting the chain effects that can induce population movements.

In certain cases, migration can provide an effective adaptation and rebalancing mechanism, and as such should be understood and managed. Nevertheless, some come at a particularly high cost for those forced to leave their homes, also further destabilizing communities of origin; meanwhile, beyond a certain volume, they equally trigger adaptation shocks in recipient regions (Wood, 2001). Once again a feedback loop can be noted: forced migrations – i.e., those in which fleeing is the only way out - are both cause and consequence of tension and instability, - a situation which, in turn, can further create push factors.

Rarely is the decision to migrate made due to a single reason. Among the root causes of migration are economic factors, social factors, degraded security conditions, as well as environmental factors that either have direct consequences on livelihoods, or coalesce to worsen the former three. Ecosystem changes, be they physical, chemical and/or biological in nature, can impair the ecosystem, rendering it incapable of ensuring bearable living conditions, or simply unsuitable to support human life, forcing inhabitants to leave the land. Millions are affected and most of them – as we have seen – face various forms of environmental stress, cause and consequence of land degradation. Various studies warn that global environmental change could drive anywhere from 50 to almost 700 million people to migrate by 2050.

Although these studies heavily underscore the complexity of the multi-causal relationship between combined social-ecological systems and human mobility, they have fueled the debate surrounding "environmentally induced migration". The environmental component in migration patterns may become increasingly visible as the impacts of climatic and societal change become more apparent. This is especially true regarding people living in land degradation contexts. Indeed, more and more information is coming to light surrounding the cause-and-effect relationship between land degradation and forced migrations. Although it is but a recently recognized relationship, various stakeholders now provide empirical evidence of this causal link, such as the UN, intergovernmental organizations, and research and policy institutes (IOM, 1996 and 2016). For example, land degradation has been indicated as an important contributing factor to rural-urban migration within Mexico, as well as from Mexico to the US; these migration streams are significant: 700,000 to 900,000 migrate from Mexico's drylands annually. The case is similar regarding Africa's drylands, such as those of Egypt, Morocco, Niger, and Mali. Beyond the link between environmental degradation and forced migration, international policy and decision makers now recognize that this combination of causal factors also leads to grave consequences for human security (Schefferan et al, 2012).

Few would contest that people compelled to flee from threats find themselves in adverse situations, regardless of the specific peril from which they run, be it violence, poverty, desertification, water shortages, floods, hurricanes or progressive loss of land productivity.

Knowledge of this causal linkage between land degradation and migration must necessarily lead to the design and promotion of a policy on migration encompassing the social, environmental, political and cultural interactions of affected populations, –which are generally among the poorest in the developing world. Community and institutional development in these regions must, therefore, become a priority, to aid in the adaptation to living conditions and to reduce the negative trends of youth migration due to a lack of economic opportunities and environmental disadvantages (Libecap et al, 2011).

Partnerships between, and investment from, developed countries is thus necessary. Developed countries are generally the recipients of environmentally induced migration; increasing efforts to introduce policies, partnerships and investments in drylands of affected countries and helping to ensure environmental sustainability of vulnerable ecosystems is, thus, a win-win situation. By doing so, the living conditions of affected populations would be improved, all the while being a cost-effective activity for developed nations (Mabey, 2008).

A new aspect of risk management also becomes clear: namely, that proper attention needs to be given to the effects of land degradation at regional and global levels. The current impacts of climate change, water and wind erosion, soil fertility loss, and water scarcity affect all parts of the world. However, when such events occur in degraded lands of developing countries, the pressure for inhabitants to flee rises, with a high percentage migrating to cities, or to other countries, primarily in richer and more developed regions.

The call to action becomes clear if we reason in terms of human rights and dignity. Links between land degradation and human rights are manifest; a joint publication of the UNCCD and of the special UN Rapporteur for the Right to Food, released in 2008, established how an entitlement-based approach to combating land degradation is an essential contribution to ensuring the human rights of lower income groups living in ecosystems threatened by the combined effect of overexploitation and climate change (U.S. State Department, 2011).

With the combined, coordinated efforts of the international community and of civil society organizations, the fight to stop land degradation can substantially help turn the right of freedom of movement into a right to choose to stay has true meaning. The stakes are high for us all in this necessary common action.

12. CONCLUSION: LANDS, A GLOBAL STAKE FOR JUSTICE AND PEACE

Land has never been a neutral issue for human societies: its usage and distribution mirror the degree of efficiency, and of justice, that each nation has attained. Territories have always been the cradle of development and an intelligent, healthy relationship with land still holds the promise of balanced, nature-friendly, sustainable and sustained growth. Yet an intelligent management of land is neither singly, nor primarily, a technical issue; it is not only a question of sounder irrigation or fertilization practices; it is not only about enhancing productivity.

Ensuring fair access to land – and safeguarding the corresponding rights – foments the "affection" of individuals, families and local communities for the lands they enjoy. Guaranteeing them a fair chance to profit from the fruits of land – without being marginalized by unrestricted market forces – spurs their sense of responsibility to protect their commons.

Thus, in order for land to fully play its rebalancing role within nature, it must be treated in a similarly balanced manner within society. It is worth noting, however, that not every manner of exploiting soil productivity leads to the protection of nature and kick-starts a cycle of sustainability.

Considered on an acre by acre basis, extensive monocultures are generally less effective than family farming, both for nature conservation and for social sustainability and involvement. Large scale speculative agriculture produces bigger yields and arguably has its place in communities where it represents the solution freely chosen by a historical majority, such as in the American Mid-West.

In other contexts, where industrial scale agriculture was introduced as a disruptive new development, it alienates communities from the mission of nourishing, protecting and preserving land for future generations. In the wrong context, such practices display a self-propelling drive towards irrational expansion, often leading to the occupation and degradation of the few remaining untouched ecosystems. Simultaneously, they push those who have been ousted from their ancestral lands towards behaviors of exploitation and aggression of forests and other biomes, or to migrate to overcrowded and unsustainable urban communities, often falling prey to the snares of criminality and violence.

Fair access to land and to its bountiful generosity ought to be the most natural of states, given that land is our primary root in the natural world. Far beyond this, however, ensuring fair access drafts entire communities into the fundamental mechanism of long-term sustainability: namely, looking at the future responsibly. The objective need to protect and revitalize lands is therefore the harbinger of a deeper message. The same message is carried by the need to protect climate, biodiversity or the nitrogen cycle, but with reference to land it is clearer and more direct: what is unsustainable is neither growth, nor progress, nor comfortable livelihoods; injustice is unsustainable. And injustice, as the generation that conceived the United Nations understood at such a high price, is the shortest path to war.

13. REFERENCES

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United Nations
Convention to Combat
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