LAND DEGRADATION: STABILITY, SECURITY AND MIGRATIONS

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Introduction - Two Unexpected Nobel Peace Prizes.

Alfred Nobel clearly stated his intentions in his final will, when he founded the famous Peace Prize that bears his name: according to Nobel's testament, the Peace Prize is to go to 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".

In the light of Mr. Nobel's intentions, it might seem surprising that such a prize was awarded in 2007 to former U.S. Vice-President Al Gore together with a group of climate scientists – the members of the International Panel on Climate Change. One could wonder how climate trends relate to promoting the fraternity among nations or reducing standing armies. Even more unexpected could appear, in this perspective, 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.

Except that Wangari Maathai had an intuition: in 1976, while she was serving in the Kenyan National Council of Women, Professor Maathai introduced the initiative of community-based tree planting. 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 trees and their role in the lands where they grow on one hand, and "democracy and peace" on the other hand.

Wangari Maathai passed away in 2011, but it can be rightfully said that the fruits of what she has seeded are outliving her: more than 50 million trees planted in Africa, and 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 a fair and sustainable development. Trees, and the lands we protect and enrich with them, can give us a better, more peaceful and safe future.

It is actually the state of the environment as a whole and the way that we manage our relationship with the bio-sphere that make a difference for peace, security and stability

of human societies, through multiple, complex and interconnected dynamics. But in most of them, in most cases, land acts as the catalyzing element.

1. Lessons Learnt from History and a New Understanding of Peace and Security.

During centuries the dilemma between peace or war has been faced by the political and academic world in terms of a "choice" based on national, economic, or power ambitions. A deeper and parallel perspective was cultivated with calculations about a "balance of power" pursued as a condition of mutual dissuasion. These interpretations provided a comprehension - and sometimes a solution - to the problem of non-belligerence: merely 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, and that ambitions and power calculations may well be triggering factors for conflicts, but generally operate in an enabling environment, characterized by social, political, economic or even cultural pressures or unbalances affecting peoples' livelihoods. In other words, in the last century we fully realized that conflict is generally the result of stress on societies.

This understanding shaped – after the embryonic attempt represented by the Society of Nations, that failed to prevent the 2nd World War – the modern international machinery launched to prevent conflicts: the United Nations. It was after taking full awareness of the role played by the 1929 financial crisis - for instance - in bringing nations to arms, that the international community modelled the institution after a more advanced idea: a body that indeed was given emergency instruments of peace keeping, governed by the Security Council, but mainly devoted to creating those conditions of human dignity and development that help prevent societies from being trapped in conflicts. It was therefore and coherently for the sake of peace that the United Nations and its family of related institutions, over the years, have spent much more energies in improving health, nutrition, human rights, education, poverty eradication, cultural rights, fair and open relations among nations - and even international postal networks and other services that States need to share - than in solving or managing punctual situations of open warfare.

But when the United Nations were designed, in 1944, it was too soon to realize that it was not only a question restricted to human relations and balances. Later on, with the growing worldwide involvement of peoples in industrial economy, it became visible that we, humans, were eroding the stock of natural capital on which we based our livelihoods and our plans for the future. At the beginning, it was a mere sense of loss

of beauty and variety that motivated environmental movements in their conservationist effort to protect natural vitality. But a new awareness soon came to complement the understanding of peace that had guided the United Nations and the world community: the health of the environment also impacts productivity and human livelihoods, thus influencing security, human rights and dignity. It therefore matters for peace; and land plays a pivotal part.

Based on this new awareness, we started to identify 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 created social stress: mankind until now could do nothing to prevent the socio-economic impacts of El Nino Southern Oscillation (ENSO) on the southern Pacific and beyond.

ENSO is a recurring five years cycle - due to a coupled and resonant interaction between oceanic and atmospheric temperatures - that causes alternate phases of drought or heavier rainfall: during the El Nino phase, when the ocean warms up, a drier climate affects soils fertility, while during La Nina part of the cycle, a more humid climate restores soil's productivity. And it did not come as a surprise the statistical proof that in affected areas El Nino phase has historically brought with it a roughly double probability of conflict compared with La Nina periods. Nor could our ancestors understand and manage the consequences of periods of colder weather in Asia, when – according to a London University College research that examined almost a millennium since the year 1000 - the probability of conflict increased 2,24 times due to diminishing agricultural yields.

In these and similar situations, causes were multiple but they generally coalesced in degrading soils and their fertility, paving the way to food insecurity and poverty and, ultimately, social unrest, conflicts and migrations.

In other cases, human communities themselves mismanaged their lands to the point of creating insecurity, strife, and even the demise of entire civilizations. Easter Island, the most remote land of all, provides a paradigm. 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. In time, Easter Island woods were irrationally managed and destroyed due to demographic expansion – more agricultural lands were needed - but even more due to growing rivalries among clans. These led also to a competition in building ever bigger and more numerous Moais, the island's famous stone statues. 887 giant Moai statues were erected, requiring disproportional forest cuts because tree logs

were used to roll the giant artifacts from the stone mines uphill to the coasts where they still marvel us. But at a given point Easter Island natural system chain-collapsed due to deforestation, and archaeological proofs indicate that a rather flourishing and peaceful society entered an era of poverty and conflict: Easter Island's ecosystem has never recovered, while in 1877, when the island was reached by Western explorers, only 111 indigenous inhabitants remained out of a population that had peaked to 30.000 in more prosperous periods.

This story teaches us a lot, because nowadays roughly 1.5 billion people in 168 countries are affected by land degradation and it does not look like it is only a natural fatality, but rather the result of human misunderstanding and mismanagement of the ecosystem.

3. Land in the Context of the 21st Century Environmental Crisis.

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 ever swifter changes in social balances due to fast technology improvements, pervasive dependence on communication etc.; but quickly – in the following years – there came the intuition that the risk society we were bound to face could have an environmental dimension.

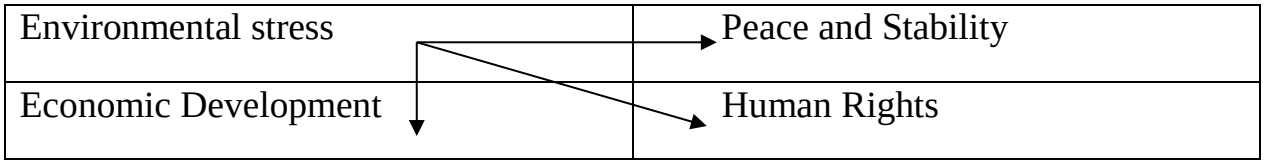
There it is, it stands before our eyes: climate change, biodiversity loss, ocean acidification, an impairment of both the nitrogen and phosphorus cycles, ozone depletion, fresh water growing scarcity and more - as global and accelerating trends - are modifying the whole set of biophysical references 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. For mankind's interests, the main effect of environmental impoverishment 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. This, in turn, puts in motion vast cycles of consequences that impact society, introducing a pervasive fluidity and unpredictability, leading to a true "risk society".

With some historical exceptions – that at times brought to the collapse of entire civilizations, as we have seen – mankind was able to build a growingly complex society taking for granted a stable and unchanging ecosystem. Since we kick-started a trend of environmental modifications, this reflects on all aspects of human life, inducing

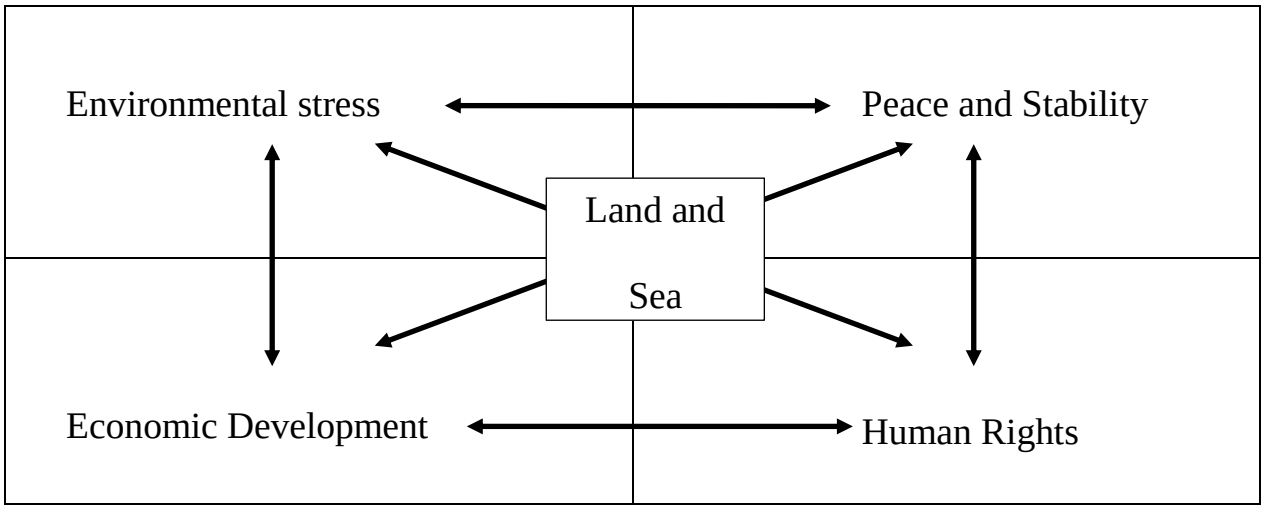
changes that cumulate, interact, and have to be monitored and managed, understood in their complexity.

Repercussions and interferences among various dynamics and different sectors can be described in terms of a matrix, reflecting two aspects of global balance: geographical worldwide interconnectedness and global systemic interconnectedness. Indeed, tackling environmental impoverishment and its consequences is not a task that can be conceived in a national perspective so that, on a global scale, it is necessary to establish a relationship among different orders of factors occurring all over the Earth. The problem is how complex should be the interactions to be considered, and which factors should it take into account. A comparison of approaches undertaken so far suggests that a good balance between simplicity and the need to cover relevant sectors is assured by investigating cyclical repercussions among environment, peace and stability, development, and human rights.

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 mankind's organization. Yet it is not enough: we are not only victims of a change that we have caused ourselves, we are also actors of its future developments and this fact emerges, while its implications become predictable, if the matrix becomes dynamic and specifies where, in which context, heterogeneous dynamics connect, and trap mankind in knots and spins that nourish dangerous feedback loops: the knotting central appears to be the productivity of lands and – quantitatively to a lesser extent, from human interests point of view - of marine ecosystems.



This is not an easy prism to handle. Still, it gives the perspective of the interconnectedness of the planet and prevents illusions frequently created by analysis and forecasts run sector by sector. Meanwhile it highlights where the systemic human involvement central is: in the health and fertility of lands and seas, where we find the resources of social peaceful organisation and our hopes of growth and progress; and where a diminution of productivity or other broader services provided by the environment leads to socio-economic pressure, human instability, and conflicts.

4. Land, our core business.

Various forms of environmental degradation impact human welfare without the mediation of their effects on the health of soils or seas: heath waves, particulate pollution due to dirty fossil fuels burning, or the depletion of the ozone layer, directly affect human health before influencing the vitality of lands, although in the long run they generally reverberate also on the global balance of the ecosystem. Acid rains, UV rays consequences on vegetation and livestock are just examples of their broader effects.

Nonetheless, environmental modifications mostly affect our chances of fair and orderly development – basic conditions of peace and stability - when they reduce or shift the location of ecosystem services essential to extract a livelihood of oceans and lands.

Oceanic and terrestrial ecosystems are closely interconnected, so that we cannot rank them in importance, nor it would make sense, in the long run, to prioritize one. A significant portion of global gross product relies on marine productivity and the annual economic output of oceans is calculated around 2.5 trillion U$. On average, nearly 17 percent 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 percent of the world's population depend on fisheries and aquaculture, mainly in the developing world. Their challenge runs parallel and connected to the challenge of those relying on terrestrial ecosystem services: the remaining 88 percent of world population.

In this light, it emerges clearly that for the majority of our planet's human population the conditions of soils catalyze the impact of environmental degradation as a whole on peace, security and stability, through their influences on economy, empowerment and human rights. Which puts the state of soils at the core of the most fundamental positive feedback loop of our times: one that mankind could use as a multiplier of quality of life, or neglect with uncertain and potentially devastating results.

5. Soils and the mankind-nature positive feedback loop.

The notion that human induced modifications in the environment could trigger amplifying feedback loops in the eco-sphere is becoming familiar to the public, mainly thanks to potential loops and tipping points that have been clearly identified by science in the dynamics of climate change: permafrost, snow and ice albedo, forest fires-carbon release cycles, and so on.

Chain collapses in biodiversity are also taken into consideration, like the one feared as a consequence of the sudden disappearance of phytoplankton – the base of marine food chain – due to ocean acidification, caused in turn by the absorption in the seas of increased levels of CO2 in the atmosphere.

These concerns are construed conceiving mankind as the initiating actor of a pattern of change in nature, but in some cases are analyzed and projected in future scenarios as if they only developed within the "natural world", with humanity as a passive spectator. This approach overshadows the fact that the greatest unknown variable for the future refers to human behavior in the context of a growingly dysfunctional ecosystem.

While the ecosystem keeps challenging human organization with its ever swifter modifications, the fundamental question is whether humanity will be able to stay united in order to restore the balance of the ecosystem itself in a rational way, or rather turn to irrationally competitive behaviors that could continue feeding its disruption.

The commonly feared and condemned scenario is a "business as usual" protracted neglect of natural balance; but the truth is that a worse turn is looming and could take the shape of a catastrophic feed-back loop far worse than business as usual: if the

impairment of ecosystem services is pushed beyond a given threshold, it triggers a certain degree of systemic insecurity, societal and institutional fragility, instability and conflict which, in turn, will paralyze the international community's capacity to unite and manage rationally the ecosystem itself; or, worse, lead to those blind behaviors and deep scars to nature typical of exacerbated competition, warfare, or instability situations. This, in turn, could worsen environmental degradation creating even greater instability and conflict in a dangerous globally growing cycle.

Defusing this loop is imperative; and it necessarily passes through granting a sufficient and fairly distributed access to those ecosystem services essential for an orderly economy and social cohesion, which are rooted - for the majority of mankind, as we have seen - in healthy soils. No matter what the originating patterns of environmental modification are – if they primarily concern climate, water, glaciers, biodiversity or else – the way they reflect on the capacity of soils to provide services represents the fundamental mechanism of involvement of mankind in a potential cycle of instability, societal collapse, and conflict, that will in turn lead to even greater ecosystem failures.

The good side of this central and fundamental link between humanity and land is that it could work also in the opposite direction: chances are that protecting soils could trigger a broad peace, stability and ecosystem recovery cycle, extending far beyond soils themselves.

6: Soils: R2P.

Soils and lands proper management thus emerges as a crucial challenge for an orderly progress of mankind as a whole. In its obvious and first implication, this means that direct organization of soil use has to be improved. But the stakes are now so high for human stability, that it furthermore implies that soils need to be protected also from the impacts of spontaneous ecosystem fluctuations, and other forms of man-induced environmental modifications different from direct land mismanagement. And, 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 lost it.

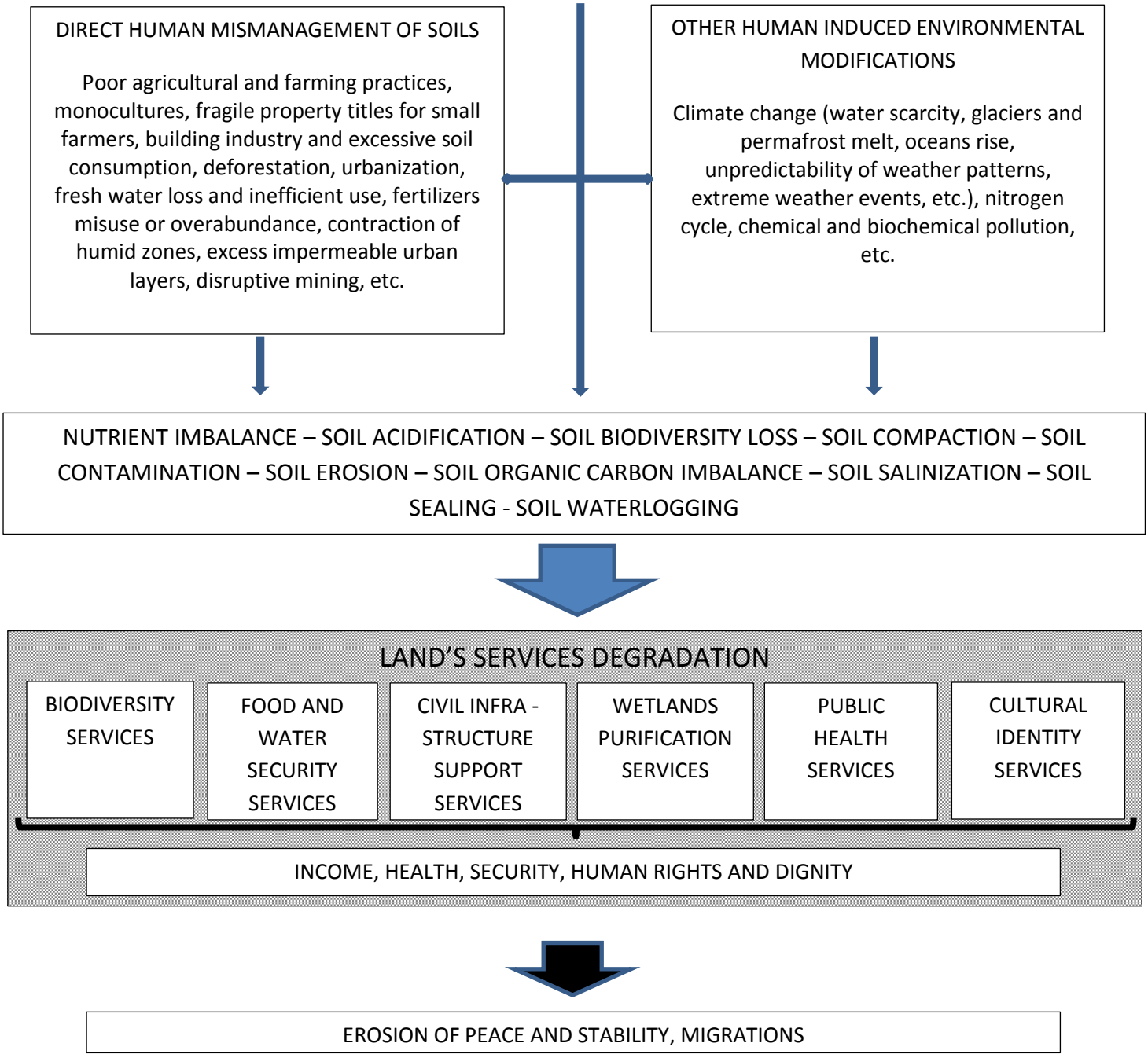
These are difficult tasks in a difficult context, characterized by intense competition for land, which is in itself a foreteller of conflict and does not encourage a globally rational management. Indeed, the present situation is that of a constantly expanding human population and production that alone - 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 tensions that has always accompanied the

course of human history. The beginning of the 21st century is already showing the symptoms of a hidden pre-conflict in the form of the recent waves of massive investments in agricultural land, often referred to as "land-grabbing"; a term that not only emphasizes the asymmetric appropriation of resources by dominant investors, but also implies a criticism of their potential impacts on livelihoods and ecosystems in the target countries.

In this context and perspective, a responsibility to protect the health of soils substantially emerges as a priority strategy and as a practical identification of the most prominent mankind-nature interference knot, on which action can be concentrated to prevent further impacts on human stability and the impairment of our collective aptitude to respond to the environmental crisis in all its complex interrelated dimensions:

NATURAL CYCLES AND DYNAMICS

Climate oscillations, wind and water erosion, volcanic eruptions, natural forest fires, natural desertification, etc.



While we have to take primary action on the causes of all forms of human pressure on the environment – foster renewable energy, prevent and repress poaching, monitor timber markets and so on – we need to be aware that we have already reached a point in which heavy consequences on the ecosystem are unavoidable and their impact on human livelihoods will more directly depend on how they affect the vitality of soils, because soils harbor most of the services we are bound to fight for in a scenario of scarcity and change.

Mankind will have to resist and adapt, and land emerges as the main resilience and adaptation central: the first and foremost value to shelter and restore for a great portion of humanity, as a way to avoid being paralyzed by a local, regional or even global instability. The good surprise could be that, while concentrating on soils in order to adapt and build resilience, we may well 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, and in addressing the consequences of all the different environmental imbalances on lands, we are also likely to effectively contribute to the solution of their causes.

7. More than a Future Scenario.

More than 100 ongoing conflicts, both civil and international, have been identified as having an environmental degradation component in their causes. As clarified already in the 1999 UNEP Report *Environmental Conditions, Resources, and conflicts: An Introductory Overview and Data Collection*, "a review of the scientific literature indicates three major trends:

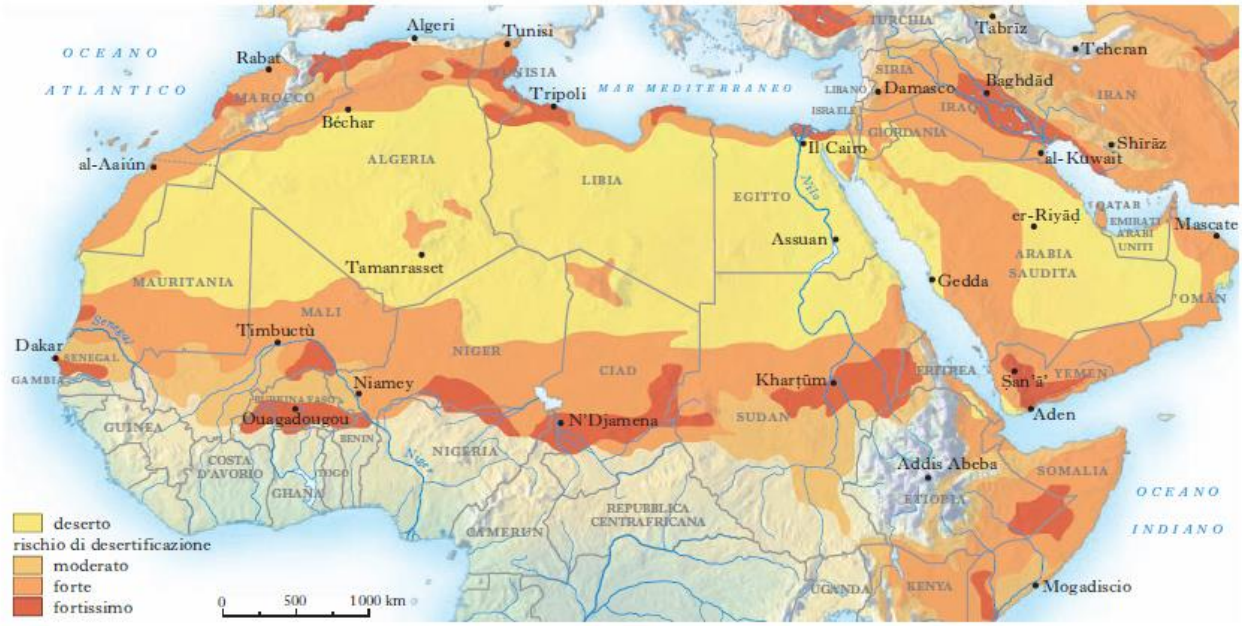
1. Conflicts over water resources appear to be a major source of direct international conflict. The most common environmental elements around which conflicts can erupt are water flow, diversion, salinization, floods and pollution.
2. Indirect international or indirect intra-national conflicts are commonly 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"[1].

An updated examination of occurring or potential tension and instability situations related to environment, still reflects the 1999 assessment, and – with a notable exception with respect to Arctic ice melt, creating conditions for competition over the access to hydrocarbons and new maritime routes – 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 soils vitality.
Very few regions in the world are currently spared by this mechanism, but – as the UNEP Report pointed out – "it appears that the vast majority of environmentally related conflicts occur in developing regions". The Sahel region provides a clue: it is

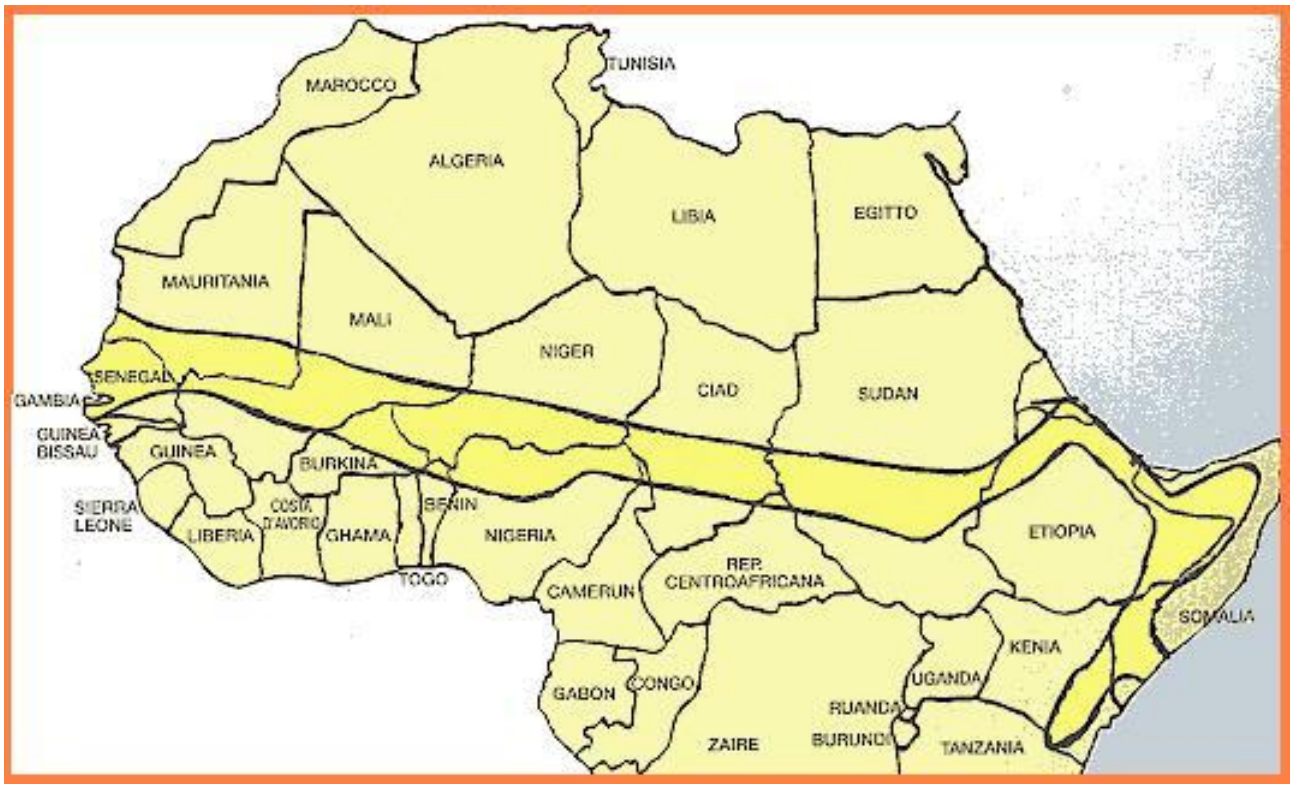
[1] UNEP Information Note 99-16

enough to compare the maps of where desertification is an ongoing process to the maps of various human dynamics that contribute to instability.

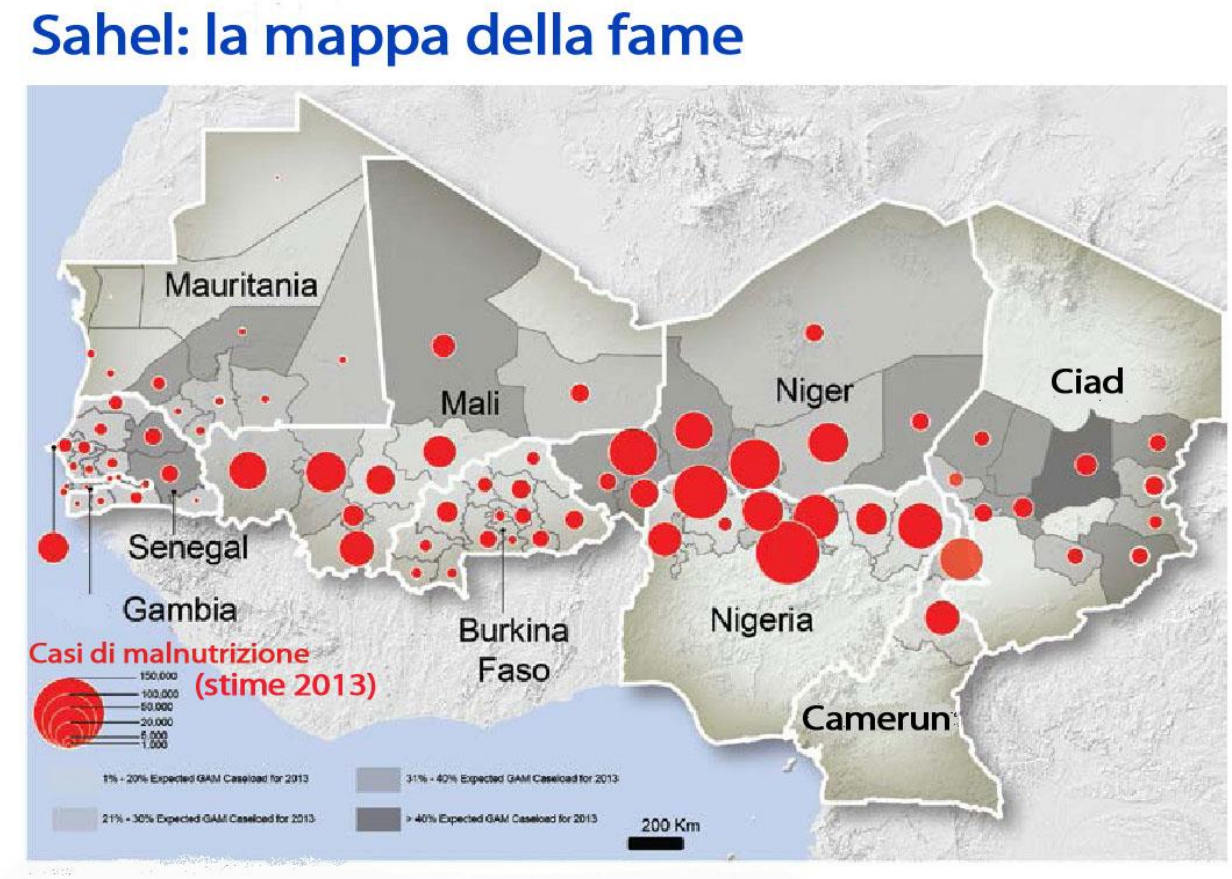
DESERTS

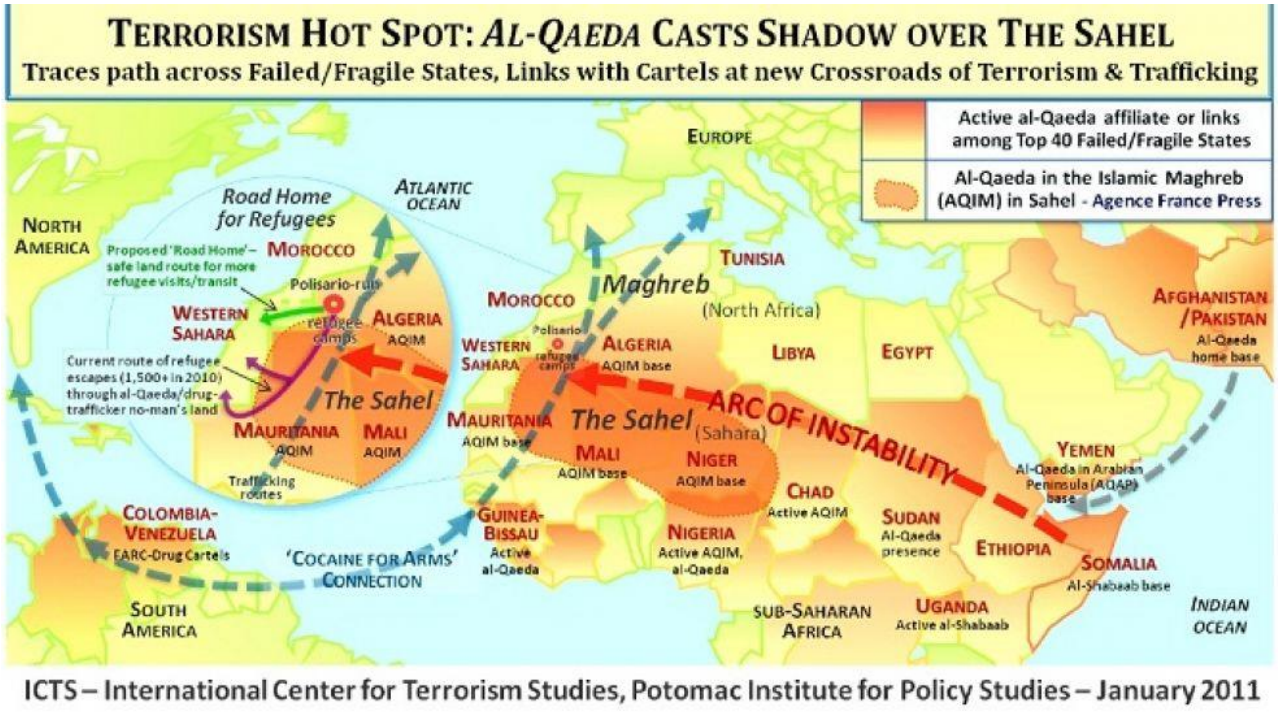


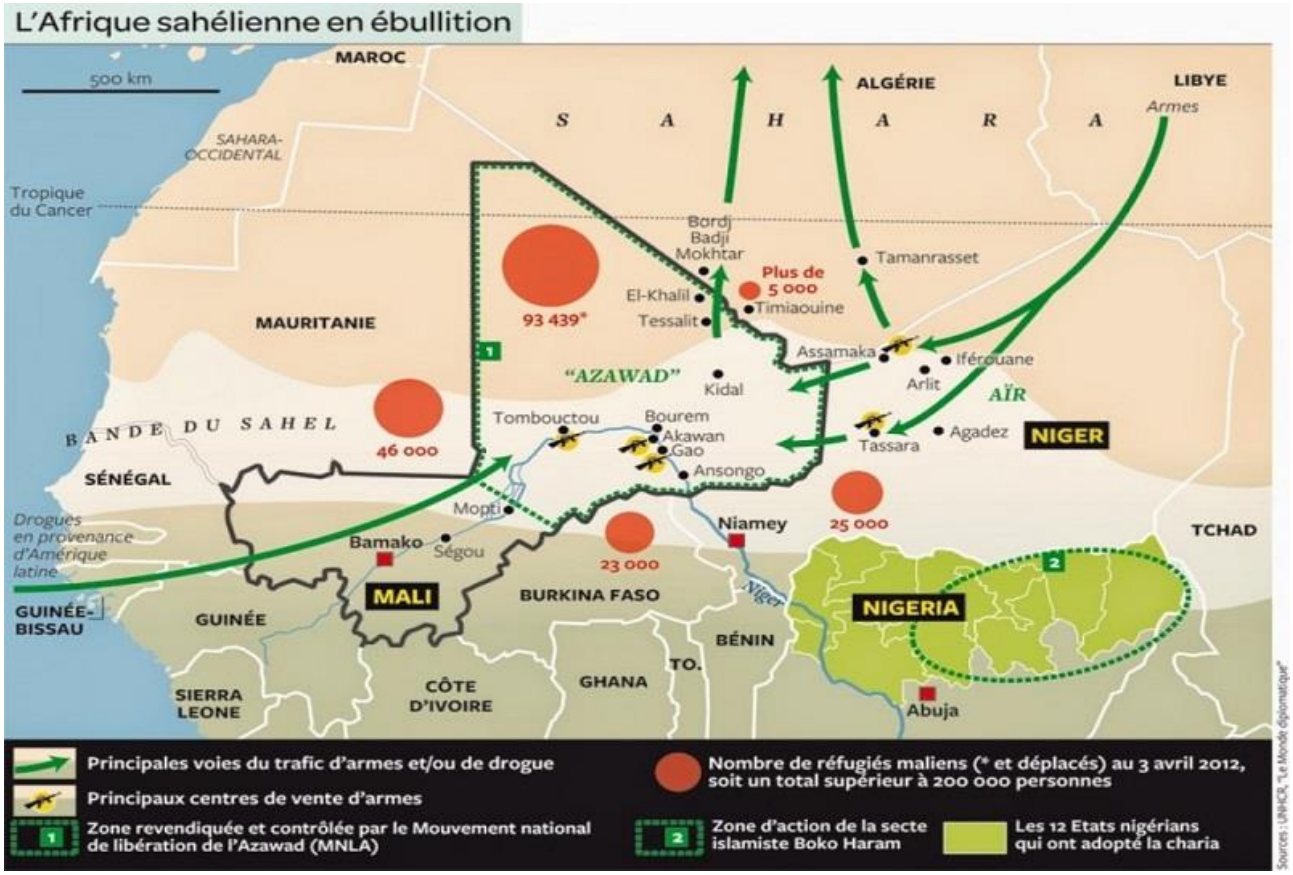
THE ACTIVE DESERTIFICATION BAND

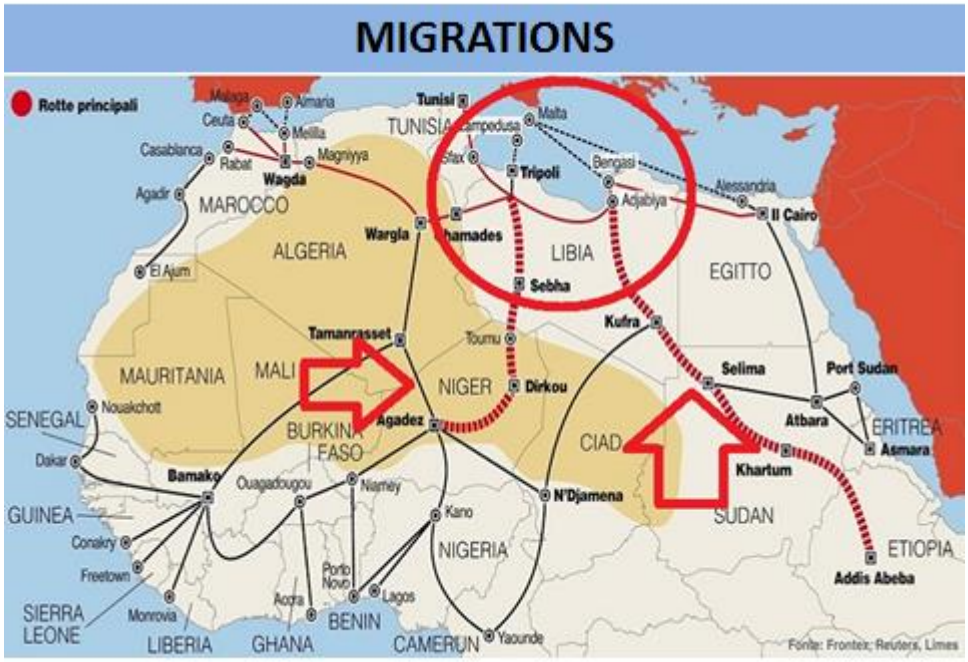


MALNUTRITION






L'Afrique sahélienne en ébullition
500 km
MAROC
ALGÉRIE
LIBYE
Armes
S A H A R A
SAHARA-OCCIDENTAL
Tropique du Cancer
Bordj Badji Mokhtar
Tamanrasset
Plus de 5 000
El-Khalil
Timiaouine
Tessalit
93 439*
MAURITANIE
Assamaka
Iférouane
Arlit
"AZAWAD"
Kidal
AÏR
BANDE DU SAHEL
Tombouctou
Bourem
Akawan
Gao
Tassara
Agadez
NIGER
46 000
SÉNÉGAL
Ansongo
Mopti
Niamey
25 000
TCHAD
Drogues en provenance d'Amérique latine
Bamako
Ségou
23 000
MALI
BURKINA FASO
Niger
NIGERIA
GUINÉE-BISSAU
GUINÉE
BÉNIN
TO.
SIERRA LEONE
CÔTE D'IVOIRE
GHANA
Abuja
Principales voies du trafic d'armes et/ou de drogue
Principaux centres de vente d'armes
Zone revendiquée et contrôlée par le Mouvement national de libération de l'Azawad (MNLA)
Nombre de réfugiés maliens (* et déplacés) au 3 avril 2012, soit un total supérieur à 200 000 personnes
Zone d'action de la secte islamiste Boko Haram
Les 12 Etats nigérians qui ont adopté la charia
Sources : UNHCR, "Le Monde diplomatique"


MIGRATIONS
Rotte principali
Melilla
Almaria
Ceuta
Tunisi
TUNISIA
Lampedusa
Malta
Casablanca
Rabat
Magniyya
Wagda
Sfax
Tripoli
Bengasi
Alessandria
Agadir
MAROCCO
Adjabiya
Il Cairo
Wargla
Ghamades
ALGERIA
LIBIA
El Ajum
Sebha
EGITTO
Tamanrasset
Toumu
Kufra
MAURITANIA
MALI
NIGER
Dirkou
Selima
Port Sudan
SENEGAL
Nouakchott
Agadez
Atbara
ERITREA
BURKINA FASO
CIAD
Asmara
Dakar
Khartum
Bamako
Ouagadougou
Niamey
N'Djamena
GUINEA
Kano
SUDAN
Conakry
NIGERIA
ETIOPIA
Freetown
Porto Novo
Addis Abeba
Lagos
Accra
SIERRA LEONE
Monrovia
BENIN
LIBERIA
GHANA
CAMERUN
Yaounde
Fonte: Frontex; Reuters; Limes

All forms of environmental degradation, generally affecting the state of soils, act according to a definition that the U.S. Department of Defense and NATO have focused referring to climate change: "conflict accelerators".
The idea that environmental stress will prove first an "accelerator" rather than a stand-alone cause of conflicts reflects a reality: that ecosystem services depletion can be absorbed and countered in richer societies, especially if they provide emergency safety nets or social and productive assistance to concerned families, and if they have means to access the global market to compensate local depletion. On the contrary, stress on ecosystem services overburdens the cohesion and security structure of fragile or poorer communities: there it initiates or amplifies latent tensions and conflicts, that have nonetheless the potential to spread globally, so that it is clearly a common interest of mankind to give priority to the protection and recovery of poorer and fragile communities lands. 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 conflict acceleration function also implies that the areas where soils suffer, and those where tensions consequently arise, do not necessarily coincide, in a scenario that emerges as intrinsically global; one where fragile societies are set to be the first to pay the price of land degradation, no matter where the latter occurs, but will pass the bill further on.
An overlook of 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 Maghreb and Mashrek that remained after 2011 is also a continuing consequence of one factor that had injected socio-economic pressure in the preceding years and had created a widespread social unrest: hyper-inflation of food prices.
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, and in triggering the Syrian crisis, with its developments that led to the expansion of ISIL: before street demonstration began, Syria had experienced four years of unusual drought that affected agricultural productivity and induced an internal migration from the countryside to urban areas involving 1.5 million people. But for the rest 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.
In 2010, though, it proved not enough: droughts in Russia, Ukraine, China and Argentina and torrential storms in Canada, Australia and Brazil - all major wheat and grain producers - considerably diminished global crops, driving commodity prices up, also due to speculation. The Southern shore of the Mediterranean was already dealing with internal sociopolitical and economic tensions, and the 2010 global food crisis helped drive it over the edge.
It proved how, with globalized markets acting as transmission devices, regional fertility contractions – both harsh short term episodes and progressive long term trends - can have a global repercussion on stability.

- Little reliable data is 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: and the fate of Africa, considering its development trends, still heavily depends on her ability to conserve and manage her land resources. More visibly than anywhere else, in Africa soil degradation results in droughts, ecological imbalance and consequent degradation of the quality of life, a first step and the most conspicuous symptoms being the negative impact of land degradation on food production, with stagnating and declining yields and increasing levels of poverty.
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 to evident problems of desertification and deforestation, and to the consequences on soils of shrinking water resources with their socio-economic price, which in turn play a significant part in growing migratory trends, in fostering illegal economic activities, in weakening public governance, encouraging corruption, and in nourishing both regional and international fanaticism and terrorism. One example is in the Lake Chad region. In just 5 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 for centuries a critical wetland area 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 50million in 2020. Of these, two out of three individuals are Nigerian: yet, under pressure, the lake has receded into Chad. It shrank 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 just as demand for food rose. The population became poorer and more marginalized, and conditions were born for extremism, violence and problematic population movements.

- Latin America has a chronical problem in managing its fertile lands. South and Central America have the richest reserve of genetic resources of 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. While about 24% of the Americas are biologically rich arid or semiarid lands - threatened by desertification and very often by droughts - about one third of the forest of the world dwells in their important tropical and temperate biomes. Originally, this continent had 6.93 millions square kilometres of forests but, at present it has been reduced to little more than 3.65 million. Present rate of forest loss is 15.000 square Kilometres per year that is to say, almost 3 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 are about 15 million hectares, the most part of them showing symptoms of soil degradation. Nearly 20% of the Americas' physical surface is already degraded. Overall, the major cause of land degradation has been the use of unsound cultivation practices that harmed in the first place cultivated lands themselves. In South America, about 45% of croplands are affected by land degradation and in central America these figures are more dramatic, rising up to 74% of cropland.
Both deforestation and desertification have increasingly high social costs, pushing millions of people to move 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, creating one of the sources of crime increase and political instability in many countries.

- But it is in Asia that the most consistent systemic threat for stability, peace and security is emerging. Asia, accounting for 29.4% of emerged lands, heavily suffers

from land degradation both in its Southern and central parts, due to different sub-regional dynamics, although in all its regions "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 which resides within arid, semi-arid and dry subhumid areas"[2].

These patterns of overlapping intense exploitation and natural vulnerability of soils have played a significant role in growing urbanization trends and consequent tensions. But a major problem of water availability, interlaced with climate change impacts that are more severe than average in various Asian landscapes, is gradually building up and threatening a continental scale crisis, also through its effects on soils.

The Sea of Aral, the Amu Darya and Syr Darya rivers are drying up[3], already announcing one of the gravest global environmental disasters of modern times,

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[3]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 68 m. 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 dessication 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.

affecting the countries of Central Asia and their population of some 60 million. Its socio-economic and humanitarian consequences make it a direct threat to sustainable development in the region, and to the health, livelihoods and future of the people living there, as much as the dramatic shrinking of lake Chad is jeopardizing security in Africa. Moreover, the forecasted melting of Himalayan glaciers could disrupt the entire water cycle on which agriculture and infrastructure rely in both central and South Asia. If the financial crisis of 1929 was enough to divide nations and ultimately bring them to World War II, what about a rapid melting of the Himalaya glaciers? A scenario in which the extensive areas regularly irrigated by rivers born in the Asian chain swiftly become lands in which extreme droughts follow disastrous floods – glaciers act as reservoirs of water that regulate constant output - means that soils capability to sustain agriculture and social organisation will be seriously hampered and hundreds of millions of people could be deprived of their livelihoods in a time so short that adaptation could prove almost impossible: if the same socio-economic dynamics that led to the last world war are triggered, in a region where four States – China, India, Pakistan and Russia – have nuclear bombs, the security threat could become palpable and it needs to be addressed before, while cooperation and common action are still a viable option. While we still can, we must.

9. The land-mankind cycle: a threshold between peace or conflict.

In many societies land is a delicate political issue. Property rights, fair distribution, competition between urban and rural uses, between grazing and planting, between wild nature conservation and agricultural expansion, between tourism and industrial occupation, are just a few of the dilemmas that many communities, especially the less organized ones, still need to solve in a balanced way.

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

The deep reason lies in the basic and essential nature of the link between human communities and their territories: the first and very concrete nursing grounds of their livelihoods, values and identity. Given such an essential identification, sound management of land creates cumulative and synergic cycles of environmental and societal sustainability in which both actors, mankind and nature, reciprocally protect

each other; conversely, mistreated lands tend to degrade themselves in the first place, while disrupting societal balance and peaceful progress. In this sense, any choice about land has the potential to be a choice between stability or disorder.
Land is so directly relevant to mankind that it only normal for it to be frequently a delicate political and economic issue; it represents the basic interface between nature and production, as it serves as the most immediate and concrete value extracting context. At the same time and for the same reason, human relationship with soils is so primary, deeply rooted and spontaneous that:

- practical protection and recovery interventions are generally within the reach of less organized, technologically endowed, or rich communities;
- results are generally short term and visible, readily understandable by socially and educationally less sophisticated groups, making it easier for them to subscribe to individual, family scale, and larger collective initiatives;
- as a result, in many contexts effective interventions do not need to be large scale and supported by top-down, complex and costly organization;
- almost every community has a portion of degraded lands that have become marginal on the market, and thus accessible for socially and environmentally oriented interventions without a political or economic competition too unrealistic for non-dominant subjects; but, globally summing up these surfaces, the protection or restoration of their vitality could make a crucial difference for planetary balances.

In other words, land presents itself as an accessible mean of synergic empowerment for both nature and human communities, both concurring in 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 dimensions, land care appears particularly promising – and land neglect extremely threatening for stability and peace – because generally it is not perceived as that kind of investment “for the sake of the environment” that implies a “sacrifice” of human interests: a suffered trade-off that emerges in other sectors and that feeds the rather common impression that we have to “give up something” in the name of nature. Proper land care ordinarily initiates simple, concrete, understandable and short impact cycles of human and environmental co-recovery and co-growth. It achieves it on a multidimensional scope that seems to spontaneously match those human deep 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 do not only provide a production opportunity. They tend to provide fairer income distribution, solicit community cohesion and cooperation, foster gender equality, encourage education, support cultural identification and generation to generation solidarity and transmission of knowledge, and favor projects for the future rooted in local communities. In this perspective land, as the first and foremost renewable asset, once well managed could provide the true booster of a balanced and not conflictive development: empowerment and trust in the future. And, in the same perspective, it embodies in a simple and practical way all the complexity of the interconnected goals of the 2030 sustainable development agenda.

10. A question of empowerment: non-conflictive income stabilization and rebalancing.

There is a deep connection between the current environmental crisis and the deep imbalances in income distribution al a global level. Besides deeper links, at least it is observable that environmental modifications affect first and foremost the income opportunities of the poor and that, conversely, their fragility is a global obstacle in protecting the environment. In this perspective, economic empowerment of the poor emerges not only as a question of development but also as a priority pathway to make a global coordinated action for the environment viable. In other words, it is unlikely that a global society where the richest 1 percent have seen their share of global wealth increase from 44 percent in 2009 to 48 percent in 2014 will be able, in the long run, to preserve environmental balance: this implication clearly emerged in climate change negotiations within provisions about consistent funds and technology transfers towards poorer regions.

Among many approaches to empower poorer communities in path of economic development, the recovery of degrading lands looks promising and, above all, the most fundamental structural correction: indeed, economic empowerment implies a certain degree of independence from assistance and international commerce and it is an historical fact that self-sustained manufacture and services – that grow into locally sustainable urbanization – tend to spur gradually out of agricultural surplus and its commerce and transformation.

Given that degraded lands are abundant and that by definition there is moderate market competition over them; given the growing awareness of governments 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 – not only in developing regions – recovering the vitality and productivity of lands is a practical

way to break the environment – injustice loop and to enable the poor to freely strike a choice for their environment.

12. A question of empowerment: women and land.

In the justice – environment equation one fundamental factor is gender equality. Just as it is unlikely that an overly unjust society could solve the environmental crisis, it is hard to imagine that nature balance could be protected without engaging women dignity and equality which, in turn, enables them to express their contribution.
While gender equality is an issue to be tackled at all levels of economic and societal organization, once again when it comes to lands women role emerges as structural and fundamental, as Wangaari Mathai's endeavors clearly demonstrated.
In contexts of land degradation, as soil fertility declines and harvests become uncertain, family income is jeopardized forcing men to migrate towards cities or abroad. Women therefore are driven to take up roles that often traditionally belong to men, as family and land managers. This becomes necessary, but it often happens in cultural and societal conditions that could deprive them of effective means to attend to such new responsibilities.
Frequently in more fragile areas, compared with men, women do not have equal decision making power, access to services, credit and other resources; above all, they do not often benefit of an equal empowerment on land use and possession rights, factors that can jeopardize not only their possibility but also their motivation to involve in planning and management of land recovery and development.
As such factors represent a problem, they can and must be turned into an opportunity. The fact that a stronger and equal women role becomes visibly necessary; that, in the evolving and unstable conditions produced by land degradation, communities cannot afford to neglect women's unique capabilities as providers of food security for their families; that their knowledge of land strengths and weaknesses is often superior due to direct familiarity with their territory, can prove strong drivers of socially shared and non-conflictual gender empowerment. In this perspective too, acting on lands becomes an effective way to coopt all necessary forces and potentials in the broader objective of securing the global health of the environment.

13. A question of empowerment: dignity, identity, security and the choice to stay home.

Sadly enough, public awareness of security implications of the current environmental crisis is rising due to the massive waves of forced displacements that attain Europe and other developed regions. And they represent only the mediatically visible tip of the iceberg, while much greater forced movements are ongoing in poorer areas within states, from rural communities to cities, or at regional level.

Migrations are indeed an effective adaptation and rebalancing mechanism and as such should be understood and managed. Yet, they come at a high cost for those forced to leave their homes, while beyond a certain volume they trigger adaptation shocks in recipient regions. 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, and environmental factors that have direct consequences on livelihoods or coalesce to worsen the former three causes. Ecosystem changes, be they physical, chemical and/or biological changes in nature, can impair or render the ecosystem unsuitable to support a bearable and human life, forcing inhabitants to leave the land. Millions are affected and most of them – as we have seen - face environmental stress as land degradation. Various studies point to the conclusion that global environmental change could drive anywhere from 50 to almost 700 million people to migrate by 2050. These studies underscore the complexity of the multicausal relationship between coupled social-ecological systems and human mobility, yet they have fueled the debate about "environmentally induced migration". The environmental signal in migration patterns may grow as the impacts of climatic and societal change become more apparent, and this is especially true for people living in land degradation contexts, but the cause-and-effect relationship between land degradation and forced migrations has only recently been recognized by different stakeholders: empirical evidence is becoming available from UN, intergovernmental, research and policy institutes. For example, land degradation has been indicated as an important contributing factor to rural-urban migration in Mexico and to Mexico-U.S. migration

streams where 700,000 to 900,000 migrate from Mexico's drylands annually, or from Africa, including Egypt, Morocco, Niger, Mali. International policy and decision makers now recognize that the link between environmental change and migration has grave consequences for human security.

No one can deny the terrible similarities between those running from the threat of guns or poverty and those fleeing creeping desertification, water shortages, floods and hurricanes and, in the end, from lands that are progressively losing their productivity.

Knowledge of interaction between land degradation and migration requires the design and the promotion of a policy on migration encompassing social, environmental, political and cultural interactions of populations affected by land degradation - generally among the poorest in the developing world. The community and institutional

development in these regions is a priority for adaptation to living conditions and to reduce the negative trends of migration of youth due to a lack of economic opportunities and environmental disadvantages.

Promotion of partnerships and investment from developed countries thus become necessary. Developed countries that are generally recipients of environmentally induced migration could cost effectively increase efforts to implement policies and measures that promote partnerships and investments in drylands of affected countries as well as environmental sustainability of vulnerable ecosystems. By doing so, the living conditions of affected populations would be improved.

A new perspective in risk management also becomes necessary, to place proper attention to the effects of land degradation at the 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. When it happens 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.

It all becomes clear if we reason in terms of human rights and dignity. Links between lands slow death and human rights are certain; 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.

With the combined, coordinated efforts of the international community and civil society organizations, the fight to stop land degradation can succeed so that the statement "The right of freedom of movement is the right to choose to stay" has true meaning. We all have high stakes in this necessary common action.

Conclusion: a question of justice and peace.

Land has never been a neutral issue for human societies: its uses and distribution mirror the degree efficiency but also of justice that each nation has attained. Territories have always been the cradle of development and a clever relationship with land still holds promises of balanced, nature friendly, sustainable and progressive growth. Yet a clever management of land is not only, nor primarily, a technical issue. It is not only a question

of sounder irrigation or fertilization practices. It is not only about enhancing productivity.

A fair access to land rights creates the "affection" of individuals, families and local communities to the ground they walk on. A fair chance for them to profit of its fruits – without being marginalized by unrestricted market forces – creates their sense of responsibility to protect a common.

Land, therefore, to play fully its rebalancing role for nature, has to be played in turn in a balanced way by societies. Not every enterprise that, exploiting soils, keeps them productive has the same potential to protect nature and kick-start a cycle of sustainability: acre per acre, extensive monocultures are generally less effective than family farming, both for nature conservation and for social sustainability and involvement. Large scale speculative agriculture may well give bigger yields and has its place in communities where it represents the solution freely chosen by a historical majority, like in the American Mid-West.

In other contexts, where industrial scale occupation came as a disruptive new development, it fails to involve concrete communities into the mission of nourishing, protecting and preserving land for future generations. In the wrong context, such practices display an internal self-drive towards irrational expansion, often towards occupying and degrading the few precious untouched ecosystems. Meanwhile, they push those who have been ousted from their ancestral lands to also aggress individually forests and other biomes, or to join overcrowded and unsustainable urban communities, migrate or embrace criminality and violence.

A fair access to land and its generosity – as it is only natural with reference to our primary root in the natural world – on the contrary, drafts entire communities into the fundamental mechanism of sustainability: a responsible look on the future.

The objective need to protect and revitalize soils therefore brings a deeper message. It is the same message 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 not 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.

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