FESS Foundation for Environmental Security & Sustainability

Environmental Security as an Emerging Topic for Food Security

A Background Discussion Note
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INTRODUCTION

The Evolution of Food Security and the Emergence of Environmental Security

The food sector is perhaps the first one that brought the notion of security into the development realm. The global food crisis of the 1970s, driven by a combination of bad weather in 1972 and oil price increases in 1973, resulted in the 1974 World Food Conference in Rome, which gave birth to the food security concept. The notion of food security was understood to embrace both the availability of and access to food, and the conference produced the Universal Declaration on the Eradication of Hunger and Malnutrition, which asserted that "Every man, woman, and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties."

While global food production recovered in 1973 and 1974, half a million people were estimated to have died, with even greater numbers exposed to malnutrition. Although international attention to food security has subsequently waxed and waned in response to periods of crisis or periods of relative progress, food security has had a place on the global agenda since that time.

In some less developed countries, food crises have been made worse by weak governance. Ethiopia and Liberia are two examples where food insecurity fundamentally changed the political landscape. In Ethiopia in 1973-74, the severe droughts and famine that coincided with oil-driven high food prices eroded the legitimacy of Emperor Haile Selassie's government, creating a political leadership vacuum and precipitating his eventual overthrow. In Liberia in 1979, price increases for rice, the staple food, provoked street protests and riots. The government of President William Tolbert called out the military and police to quell the riots, resulting in police violence and eventually leading to Tolbert's overthrow. Subsequently, Liberia went through a period of political turmoil and civil war characterized by atrocities, extensive human suffering, and economic destruction.

In 2007 and 2008, sometimes violent demonstrations related to soaring food prices took place in more than 30 countries in Africa, Asia, and Latin America, reminding the world again of the importance of food security for political stability and peace. Improved governance and food crisis response mechanisms may have helped avoid a repeat of the coups of the 1970s, but the political, economic, and social risks of food insecurity remain high. Less developed and weak or fragile states are both less capable of responding to food price shocks and highly vulnerable to instability and conflict.

In the 1980s, studies done by World Bank began to make an effective distinction between chronic food insecurity, which stems from structural issues such as poverty and environmental degradation, and transitory food insecurity, brought on by natural disasters or other shocks to the food system. In the 1990s, there was a new understanding that chronic hunger and famines have differential effects on households and individuals, even in areas of widespread food insecurity. In response to the need for a more precise and disaggregated analysis, support grew for the idea of shifting the level of analysis from the global or national level to that of the household or individual. The "household livelihood security model" began to reflect complex interactions among poverty, employment, assets, social status, hunger, and malnutrition, and there was a

growing understanding that households may employ numerous and changing strategies to ensure survival.

The livelihoods approach to food security and the shift of focus to household food security coincided with the Rio Earth Summit of 1992 and the United Nations Development Programme's (UNDP) 1994 Human Development Report, which brought the issue of "human security" to the global scene and with it a focus on the security of communities and individuals. The UNDP Report identified seven interrelated areas of human security: political, economic, personal, security, health, food, and environmental security. Thus, human security is the overarching concept that brings food security and environmental security together.

At about the same time, the traditional security sectors saw a gradual shift in the concept of security away from a narrow focus on military competition among states to the idea of security as freedom from hunger, disease, violence, and threats posed by environmental change. In this spirit, in February 2004, the African Union's (AU) Solemn Declaration on a Common African Defense and Security Policy stated that the "newer, multi-dimensional notion of security embraces such issues as … protection against natural disasters as well as ecological and environmental degradation."

The New Partnership for Africa's Development (NEPAD) has estimated that one out of five Africans live under conditions of armed conflict. Although most of these conflicts are taking place within rather than between states, even internal conflicts tend to spread to other countries, producing large numbers of refugees and internally displaced persons (IDPs). The experience of many African countries demonstrates that armed conflicts, in the majority of cases, are related in one form or another to competition over the access, use, and transfer of scarce (or abundant) natural resources. A short list of examples would include:

- Farm land (as in Burundi, Zimbabwe, and Sudan);
- Grazing areas (as in northern and southern Ethiopia and Karamoja in Uganda's cattle region);
- Water (as in Southern Africa, and notably including transboundary water resources);
- Forests/timber (as in the Upper Guinean forest belt);
- Minerals, including diamonds, gold, and oil (as in Nigeria, Angola, and DRC); and
- Natural disasters, which have displaced people and generated conflict.

Although efforts have been made to promote the sustainable management of natural resources (land, water, forests, and minerals) upon which a majority of the population in the Eastern Africa sub-region depends, the quality and quantity of these natural resources have continued to decline. High population pressure, natural hazards, flawed governance, and inadequate policy and institutional failures stand out as drivers of environmental degradation. When natural resources are degraded or misused, conditions of scarcity, misdistribution, and insecurity intensify, which, in turn, threatens livelihoods and food security. In combination, these manifestations weaken economies and erode state legitimacy, creating the conditions for political, social, and economic instability.

Clearly, then, environmental security threats have implications for food security, but the underlying relationships take many forms. Understanding and acting upon these relationships is one route toward addressing some of the fundamental causes of food insecurity and preventing and alleviating the human suffering and conflict that it brings.

ENVIRONMENTAL SECURITY: CONCEPT AND ISSUES

By one definition, "environmental security is a condition in which a nation or region, through sound governance, capable management, and sustainable utilization of its natural resources and environment, takes effective steps toward creating social, economic, and political stability and ensuring the welfare of its population."

Environmental security postulates the following relationships between natural resources and security:

- Resource scarcity or the misuse of natural resources such as land, water, forests, and minerals increases the potential for instability and conflict.
- Even at low levels, environmental insecurity can impede development and threaten food security.
- If left unrecognized or unresolved, and in combination with other factors, environmental instability is often a catalyst for greater economic hardship, social unrest, and conflict.

Environmental impacts are best understood as intervening variables that, in concert with other factors, act as triggers or amplifiers of instability and conflict. While competition and conflict over scarce resources such as land, water, pasture, fuelwood, and fishing grounds is easy to grasp and the connections with food security are fairly evident, this may not be the case with respect to resource abundance. Yet, if one keeps in mind that perceptions of injustice and inequity are often the drivers of natural resource-based conflict, it is clear that the control of high-value resources by dominant groups without regard for the needs of poor or marginalized fellow citizens is a recipe for instability, persistent poverty, and food insecurity. In short, individuals and social groups engage in environmentally driven conflict when they perceive that their way of life is imperiled or that they have been dealt with unjustly. Environmentally driven conflict can also be part of a larger constellation of grievances about the political and socioeconomic conditions within which people live. Therefore, environmental security is a multidimensional paradigm that incorporates social, economic, historical, political, cultural, and institutional factors to understand the origins and full context of the human problems it addresses.

Some Critical Linkages: Environmental Security Threats and Food Security

Among the key linkages between environmental insecurity as resource scarcity and food security are:

a) *Soil fertility decline, water storage reduction, and yield reductions*. The loss of natural land cover, such as vegetation and forests, and thereby the ecological functions of natural vegetation (protection of water catchment areas, prevention of soil erosion, maintenance of water balance in

soil, and sustenance of biodiversity), are constraining income generation and threatening the maintenance of subsistence.

b) *Farm size decline, land fragmentation, and increased cultivation intensity*. These contribute to growing scarcity of pasture and to landlessness. Scarcity manifests itself both in declining farm size and failure to produce enough food for subsistence.

c) *Land and property rights*. Land is the principal resource that provides for cultivation, grazing, and household energy. It is also a determinant of social organization and economic well-being of households and communities. Conflict is likely where property rights are not responsive to scarcity of resources in a way that allows equitable access, efficient use, and security of tenure. Inequitable distribution of resources where powerful groups marginalize the weak can be a source of grievance and conflict. In some countries, there has been a shift to a mode of land access based on informal land transactions and leases.

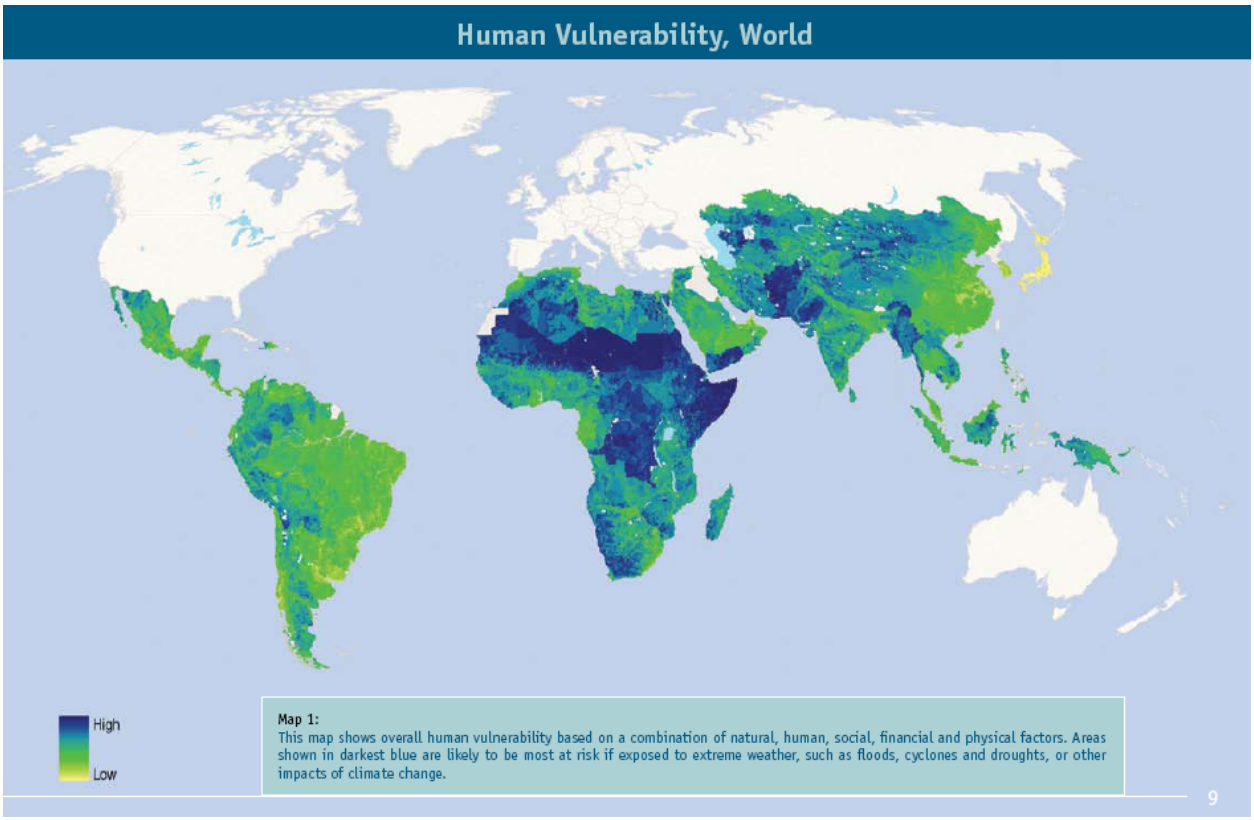
d) *Water resource scarcity*. The increased frequency of drought and the growing demand for water due to population increases and development have made water scarcity a key factor in the environment and security relationship. The majority of agricultural production is rainfed. Access to water sources is more limited in rural than urban areas. Scarcity of water poses a potential threat of conflict among riparian countries where there is a lack of established, enforceable institutional arrangements to govern allocation and use. The distribution of rainfall also is skewed. For example, in the Greater Horn of Africa, actual renewable per capita water resources vary from as little as 367 m^3 per capita per year in Djibouti to as much as 2,207 m^3 per capita per year in Uganda.

e) *Energy and livelihoods*. Traditional biomass, such as solid wood, twigs, and cow dung, accounts for the vast majority of the total energy used by the countries of the Eastern Africa sub-region. Heavy reliance on charcoal and fuelwood destroys forests, which in turn contributes to deforestation, soil degradation, and habitat loss—all factors contributing to food insecurity.
Heavy reliance on traditional biomass has exacerbated deforestation and land degradation. In terms of social effects, the reliance on biomass places a greater burden on women, who traditionally collect fuelwood. The high prices of other energy sources cause them to resort to less efficient sources and increase their time collecting fodder, dung, fuelwood, or other materials. The time and effort spent meeting biomass needs reduces the hours of labor available for food production.

f) *Pastoralism, resource degradation, and population growth*. In Eastern Africa, the lowlands, rangelands, or arid and semi-arid lands (ASAL) are the cradle of pastoralism, an important livelihood and way of life for more than 25 million people. A key characteristic of the pastoral way of life is seasonal mobility in search of pasture and water and in response to severe events such as droughts. From an ecological standpoint, this seasonal mobility is an efficient and sustainable management of scarce natural resources. However, the pastoralist way of life and food availability are seriously threatened by recurrent drought, water and pasture shortages, land degradation, invasive vegetal species, population growth, policies of agricultural expansion, and national and transboundary conflicts. Some of the causes of conflict include cattle-rustling,

encroachment on lands, the availability of arms, the weakening of traditional governance systems, and inadequate land tenure policies. The pastoralist conflicts in Karamoja, northern Kenya, and southern Ethiopia illustrate how water scarcity and resource competition leads to food and livelihood insecurity and eventually to conflict.

g) *Climate change*. Attempts by climate scientists to predict the geographical distribution of climate change impacts are still in their early stages. However, the IPCC predicts a few basic global trends with relative certainty, notably including the "virtual certainty" (i.e., greater than a 99 percent probability) of "warmer and more frequent hot days and nights over most land areas" and the "very likely" (i.e., greater than 90 percent) probability of "heavy precipitation events… over most areas." Africa is one of the most vulnerable regions because it is exposed to both high risks of climate variability and low coping capacity.



Source: CARE and Maplecroft 2008.

Climate change is projected to result in increased frequency of severe drought, flooding, changes in rainfall patterns, increasing temperatures, growing water scarcity, lowering of the water table, drying of rivers and boreholes, disappearance of lakes, wetland losses, and increased prevalence of diseases, in particular malaria and waterborne diseases. In countries with coastal areas, sea-level rise threatens to cause the disappearance of landmasses, drive population displacement, and decrease freshwater availability through salinization of groundwater and estuaries.

Farmers may address declining agricultural yields by re-evaluating longstanding choices about which crops to plant and at what time. In places where water scarcity is a problem, farmers may need to invest in drought resistant versions of traditional crops or shift cultivation to different plants altogether. In areas that may receive intense rainfall or be subject to frequent flooding, farmers may have to shift to crops that can withstand periods of water logging. Dependence on livestock may no longer be a viable strategy in places where dry conditions and a lack of water and pasture are likely to worsen.

There also is the possibility that households will be unable to adapt their livelihood strategies sufficiently to stave off threats to their food security. Many families may simply be forced to reduce consumption. This may be manifested in reduced caloric intake or elimination of non-essential spending. However, if climate change significantly alters either the duration or frequency of the lean season, households may be caught in downward spirals of deepening poverty and food insecurity.

Perhaps less evident than the linkages of resource scarcity to environmental security and implications for food security are the linkages of resource abundance

h) *Competition among users of forest and timber products*. Much forest conflict is associated with timber extraction. Timber is a unique resource that is easily extracted to generate revenue. Illegal logging is widely practiced in many African countries as a source of rent-seeking by powerful groups and as a source of revenue for rebel groups and insurgents (so-called conflict entrepreneurs). According to varying estimates, some 60 percent to 85 percent of Africa's original forest cover is gone. In eastern DRC, the charcoal industry is contributing to rapid environmental change and exacerbating vulnerability. Much of the timber is felled illegally in Virunga National Park. In Somalia, the absence of central authority has resulted in a near-total lack of control over natural resources. Traditional resource management and dispute resolution mechanisms also have broken down, creating an opening for new groups to cut large swaths of the region's remaining acacia forests in order to make charcoal for export to Saudi Arabia and other Gulf countries. The impact on the environment has been severe. Pastureland reportedly has become more arid and water resources have become scarcer, with predictable results on livelihoods and food security.

i) *High-value mineral resources for livelihoods and national development*. Mineral extraction in Africa for high-value items such as gold, diamonds, and oil takes two very different forms—industrial mining and artisanal mining—that raise very different issues for livelihoods, national development, and instability and conflict. African countries have had great difficulty in translating capital-intensive mineral wealth extracted through large-scale industrial processes into broad-based economic development that diversifies and strengthens human capital and enhances the well-being of large sectors of their populations. Rather, in many places, problems such as corruption, rent-seeking, lack of governmental accountability, environmental damage, and glaring income disparities have contributed to conflict. Insurgent groups have sometimes seized control of mineral resources to finance their rebellions and for personal gain. Typically, socioeconomic inequalities are extreme and human development levels are low. For the dominant groups in government controlling the mineral sector, the potential for large revenues

streams mining seemingly obviates the need to invest in agriculture. The result is a highly polarized and food-insecure society.

Artisanal mining is radically different. Millions of poor artisanal miners labor in extremely difficult conditions in a wide variety of locations throughout the Eastern Africa sub-region, from the DRC to Tanzania to Madagascar to southern and western Ethiopia. Artisanal miners are food insecure because they engage in little or no agricultural production themselves and their meager wages give them extremely limited purchasing power. Moreover, artisanal mining often destroys wide swaths of what otherwise would be good agricultural land, through repeated and unremediated surface excavation and, in some cases, the use of chemicals such as mercury which render the land unusable. Poor nutrition, in combination with the rise of mining boom towns, increases health risks and compounds the devastation caused by HIV/AIDs. Artisanal miners constitute a large but dispersed and often overlooked food-insecure population in the sub-region.

ENVIRONMENTAL SECURITY ASSESSMENT

The foregoing list of environmental security issues—and the discussion of how these issues intersect with the challenge of food security—is hardly exhaustive, but it illustrates the kind of problems of scarcity and resource mismanagement that the concept of environmental security takes into consideration. The challenge remains to identify and better understand these problems and to generate practical and effective steps to address them. This is the task of environmental security assessment (ESA). While several organizations have undertaken environmental security assessments in recent years (e.g., the ENVSEC initiative of UNEP-UNDP-OSCE-NATO and the studies of the Institute for Environmental Security), not much has been written on ESA methodology. The following comments reflect the approach and basic principles that FESS has used in its work since 2004.

As a point of departure, it is worth re-emphasizing the point that environmental security is about tangible threats to the livelihoods and food security of people, not simply protecting the natural environment, though the protection of the latter is often a precondition for the former. ESA is a "people-centric" field of inquiry and analysis.

To get at the root causes of environmental security problems, ESA is particularly attentive to context. Environmental issues such as land degradation, deforestation, overgrazing, or the environmental damage produced by mining are not taken as problems that are "found" or "given" and amenable to correction by a simple change of policy. Rather, ESA delves into the origins and contributing factors of such problems and poses the question, "How did it get to be this way?" This requires an interdisciplinary understanding that looks toward the influence of politics (how authority is exercised) economics (ownership and distribution), and social and cultural relations (identity groups).

The goal of early intervention reflects the fact that, from an analytical standpoint, threats to security fall along a spectrum of intensity that runs from grievances to protests to localized instability to broader unrest to more widespread conflict. Or, put another way, threats may begin as environmental problems that erode and undermine human security but, if not satisfactorily

addressed, pass through later stages of mobilization and eventually, violence. Of course, in real life, events do not necessarily unfold along such a linear, cumulative pathway. Often, given the fact that environmental security problems are enmeshed in a larger political, economic, and social context, discontent flares up and then subsides, or it takes a latent form only to explode in response to a triggering event.

Governance almost always plays a key role in determining whether environmental security threats are dealt with ways that contribute to stability or increase the potential for conflict. If responsible government authorities, whether national or local, respond to threats resulting from environmental scarcity or environmental mismanagement in ways that address the concerns of populations, conflict can often be mitigated or avoided.

This relates to two other basic considerations of environmental security assessments. First, while the accumulation of environmental stresses may appear to be pushing vulnerable populations toward crisis and conflict, this cannot necessarily be assumed. Throughout Africa, individuals and communities adopt complex strategies to cope with environmental stress, which include lowering consumption, depleting assets, and finally migrating to find better economic opportunities. Conflict erupts after all available coping strategies are exhausted and when public policy and institutions fail to make timely interventions. In other words, ESA recognizes the centrality of resilience in envisioning scenarios and likely outcomes. Indeed, to strengthen sources of resilience and adaptive capacities (e.g., emergency food storage, early warning and response, temporary relocation) is often the best strategy when facing recurrent threats such as droughts and floods.

Second, people engage in conflictive behavior (or not) based on their perceptions and horizon of expectations, which may or may not be accurate. Subjective assessments drive behavior just as much as "objective" facts. For this reason, no ESA can be complete without firsthand input from all of the affected stakeholders. To be successful, an ESA must be a participatory endeavor that involves stakeholders from government, civil society organizations, local communities, and the private sector. As a part of this, the active participation of local partners is essential.

It also may be helpful to clarify differences between ESA and both Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs). Although these three methodologies have a few areas of overlap, they have fundamental differences. Generally speaking, EIAs are done during the planning stages of major projects to evaluate their potential impact on the environment. SEAs focus on ways of identifying and mainstreaming environmental considerations into the entire range of government policies. The Environmental Security Assessment (ESA), process is very different from both of these. ESA has neither a narrow focus on specific projects like EIAs nor a broad focus on the entire array of environmental factors relevant for government-wide policies like SEAs. Instead, with the goal of averting instability and conflict, ESA examines how the use or misuse of natural resources and environmental change may threaten human security and social peace in specific nations and communities.

From Analysis to Action

The aim of Environmental Security Assessments, however, is not merely to achieve improved analysis, but also to identify and facilitate the implementation of actions that prevent or alleviate environmental insecurity, food insecurity, and conflict. In FESS's experience, the direct engagement with a wide array of stakeholders opens a variety of opportunities for tangible and positive change. For example, in the Dominican Republic, FESS's ESA brought about a National Environmental Security Summit that resulted in an agreement outlining specific commitments signed by the Ministers of the Environment, Tourism, and Health, as well as the President of the Chamber of Deputies. In the Philippines, the Head of the Mines and Geosciences Bureau agreed to issue an executive order increasing the share of mineral resource revenues allotted to host communities. In Sierra Leone, preliminary ESA findings facilitated the development in three sites of a successful land reclamation project that demonstrated the viability and value of turning mined-out and devastated lands back into productive use for agriculture.

In sum, environmental security analyses and assessments provide a systematic way of thinking critically and of generating viable points of entry for program and projects so as to more effectively address difficult challenges related to environmental scarcity and environmental mismanagement. ESAs provide a toolkit for developing actions that contribute toward enhancing environmental and food security.

Appendix: The Environmental Security Assessment Framework (ESAF) in Brief

The Environmental Security Assessment Framework (ESAF) developed by FESS is one example of environmental security assessment methodologies. The ESAF is a toolkit, not a rigid methodological recipe, and it has the flexibility to assess a wide array of environmental security problems, whether at the national, local, or ecosystem level.

The ESAF examines key environmental variables such as land use, water quality, deforestation, and natural hazards, but places them in the broader context of reciprocal linkages with political, economic, social, historical, and cultural factors. The ESAF process attempts to develop a detailed understanding of how specific environmental problems in specific situations are contributing to vulnerability, instability, insecurity, or conflict, with a view to generating actionable recommendations.

ESAF findings are designed to inform policymakers and stakeholders, facilitate the establishment of clear priorities, and contribute to the development of effective and sustainable policies, programs, and actions. In addition to interviews with government officials and nongovernmental experts, the ESAF process engages with communities and seeks to get their input as a means of determining the root causes of environmental security problems.

The ESAF proceeds in nine phases:

Phase I, the initial profile of the study area, examines key issues that are part of the overarching framework for understanding problems of environmental security, beginning with the role of governance. How do people express their concerns? How are decisions enforced? In terms of the

economy, who owns and controls resources? How do groups relate to one another in terms of class, race, religion, or other factors? These interactions are central to understanding conflict situations, because those who feel marginalized are more prone to grievance and mobilization.

Phase I also looks at the international context. Border disputes and other conflicts with neighbors, especially over natural resources, can increase environmental security concerns. Foreign aid and existing national government programs are taken into consideration because many of these programs address aspects of environmental security.

Phase II involves the collection and analysis of data that link the environment to economic and social conditions. These data help to identify which resources are critical to stability, and which societal coping mechanisms are under stress. Qualitative questions also help to uncover the perceptions that people have about their environmental problems. Phase II's economic analysis evaluates the links between the country's or region's economy and its dependence on natural resources, as well as potential links to instability and conflict. Socioeconomic analysis is an important part of the analysis because livelihoods are at the base of environmental security. The ESAF also considers demographics, gender relationships, and education levels. These issues are then evaluated to determine how they may be related to social stability.

Phase III, the analysis of Critical Concerns, involves identifying problematic issues, sectors, or resources that may be directly or indirectly integral to stability based on their value and significance to economic, political, and social well-being. After gathering as much information as possible about selected critical concerns, a process of analytic prioritization begins. In this phase, the ESAF looks at environmental governance, defined as the traditions and institutions by which power, responsibility, and authority over natural resources are exercised.

Phase IV of the ESAF develops a list of Environmental Security Factors— issues and problems related to the environment with significant implications for economic and social stability and welfare, potentially posing a threat to security. The ESAF breaks down environmental security factors into contributing factors, effects, affected stakeholders, and security implications in order to assess a full range of possibilities along the security spectrum.

Phase V tests hypotheses by re-engaging with experts and stakeholders who have been consulted during the study and revising initial assumptions, if necessary. This phase seeks to understand who the different constituencies are that are affected by the threats to environmental security and to assess the likely responses of those affected and the scenarios that these responses may generate.

Phase VI completes the stakeholder profile and analysis and determines areas where interests and uses of natural resources by stakeholders may engender conflict among groups. Phase VII generates scenarios that establish the level of urgency and significance of the final environmental security factors by identifying and bounding possible outcomes in three scenarios. The first extends current trends, the second anticipates the effects of possible shocks that could accelerate negative trends, and the third envisions the possible results of positive policy interventions by government and constructive steps taken by other relevant stakeholders.

Phase VIII is a final review of local, national, and international programs that already address aspects of the critical threats to environmental security. This ensures that the recommendations made do not overlap with existing projects. In Phase IX, the final environmental security report is disseminated to provide a comprehensive assessment to all the relevant parties and stakeholders. The recommendations are addressed to government authorities at different levels, nongovernmental experts, traditional leaders, and other stakeholders in civil society.

Environmental security assessments must make recommendations that can actually be implemented, and the ESAF helps to identify tangible and viable follow-up activities and options.