

GLOBAL BLUEPRINTS FOR CHANGE

First Edition--Prepared in Conjunction with the International Workshop on
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The Global Blueprints for Change contain guidance for working together to improve the capability to identify indicators of physical, social, enterprise, and environmental vulnerabilities throughout the world and to select and implement realistic solutions to reduce them towards acceptable levels.

THEME A : LIVING WITH NATURAL AND TECHNOLOGICAL HAZARDS

Topic A.1: Improving Community Sustainability

"Improving Community Sustainability in the Sahelian Region of West Africa"

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IMPROVING COMMUNITY SUSTAINABILITY IN THE SAHELIAN REGION OF WEST AFRICA

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Abstract: This Blueprint for Change is written from the perspective and experience of the Sahelian Region of West Africa. It will provide technical and political guidance that will assist communities throughout the world in becoming sustainable over time to the threats posed by the disaster agents generated by natural and environmental hazards. A sustainable community is the result of a long-term process based on coordinated anticipatory planning and collaborative actions at the local level by community stakeholders and policy makers who are working together to preempt the unthinkable, control the controllable, and plan for the inevitable.

BACKGROUND

Community sustainability is a serious challenge in Sub-Sahara Africa. In general, the large majority of the populations (over 85% in Burkina Faso) live on agriculture and livestock production, using wood and hay as their sole sources of energy and construction materials. While this is contributing to rapid desertification and increased frequency of droughts in West Africa, global warming imparts a large part of extensive floods in Southern Africa, seriously impeding human livelihood and development. In either case in effect, crop production is jeopardized and the populations are forced to migrate to new sites where the addition of needs for natural resources adds to local population growth and malpractices to complicate the pressure on the lands, further extending desertification and causing social conflicts. Meanwhile, the residual populations at the emigration site strive to survive on scarce resources, as most of the valid laborers are gone and malnutrition and diseases become predominant.

In the dry Sahelian region in particular, despite the imminence of chaotic ecology, the land tenure system does not encourage tree planting. This results in unsuccessful reforestation efforts.

Climatic variations and malpractices also have greatly impacted human health condition. In general, the latter is characterized by high morbidity and mortality resulting from parasites and infectious diseases. By far, women and children are the most affected. In Burkina Faso for instance, about 43% infant mortality was recorded in 1991 due principally to endemics, epidemics and malnutrition. Overall, the living conditions have become disastrous, causing changes in social relations, family dislocation, conflicts and increased youth migration to urban areas where their ultimate impact is on insecurity. With the involvement of politics this rapidly evolved into widespread civil unrests and wars, further impeding long-term community sustainability.

Also, the long time rain insufficiency and slow silting of stream beds have finally educated the people to change the geography of their crop distribution along the hill slopes, with more

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preference for lowland areas, especially in the Sahel region of West Africa. Moreover, this has also led many generations to lose their house building skills, resulting in unreliable dwellings. Despite, large numbers of inhabitants in search of water sources move down to settle in watersheds or closer to streams. With the pressing climate change, this is causing disastrous floods during the short rainy season while water scarcity continues to worsen year after year during the dry season, further complicating sustainability.

We explain our vision of sustainability below and propose strategies for improving community sustainability in Sub-Sahara Africa.

CONCEPTS AND DEFINITIONS

The term “sustainability” has become a buzzword for policy makers, development and research organizations, as well as for financial institutions today. The literature flourishes in the concepts and definitions, often contradictory, of the terms “sustainability” and “sustainable development”, as both are often used interchangeably. This lack of consensus results from the multiplicity of concerned disciplines and groups of interest.

Sabine Müller (1994) provides a useful discussion on the different concepts of “sustainability” or “sustainable development”. He concludes that: 1) sustainable development aims for the satisfaction of needs of the present and of the future generations... and, 2) availability of natural resources is a limiting factor for sustainable development, pointing out that sustainability encompasses all ecological, economic and social aspects. Following Conway (1988), Gutiérrez et al (1993) defined four properties that describe a sustainable system: productivity, resilience, stability and equity.

In the context of a situation where natural or environmental disasters must be foreseen, the term “sustainability” needs an in-depth revision, regardless of the discipline or interest group. As stated Hays (Personal communication), “a disaster is the result of flaws in the policy environment, which cause situations where the physical and societal consequences of the impacts of natural or environmental hazard exceed the capacity of the stricken community or region to respond or recover”.

In such a situation, all aspects of life may be affected and natural resources, initially thought to be essential for development to continue, may become completely destroyed. The local economy also may be destroyed, which, in addition to resource scarcity, hampers development. Fortunately, these consequences of disasters often are temporary, unless human life is also completely destroyed or prohibited forever. When man life is permissible, resilience in Gutiérrez et al (1993) concept of a sustainable system comes strong as a determinant criterion of sustainability. However, its definition may also be amended to take into account the possibility on extended break in time of the development process. Therefore, we propose that resilience be redefine as “the ability to maintain or to renew with life system before the disaster and even to strengthen it against future disasters”. How fast the community will renew with its past will depend on this ability. Because of this temporal disruption, Gutiérrez et al’s (1993) third criterion: “stability”, does not appropriately fit the description of a sustainable system with disastrous eventualities.

Also, to renew with pre-disaster state, the three conflicting objectives; i.e., equity, economy and environment in Möbius triangle (Nijkamp, 1990) may be prioritized for rapid recovery, as little conflict would be admissible between them in the advent of disasters. In effect, economic growth may be last priority, as equity would be normally emphasized to rescue and care for survivors. Environmental concerns may come second because of the need to re-humanize the environment to limit or avoid further consequences such as disease epidemics. It is only when people feel safe and are in acceptable survival conditions that economic growth can now be sought to improve their livelihood, again. This scenario assumes that the victims have no other alternative than to rely on outside intervention to survive until new stability. In certain disaster situations, such as droughts or crop pest invasions in the Sahelian region of West Africa where all yields may be destroyed, economic growth may come before environmental issues after equity. In these special cases, alternative socio-economic activities can be sought against forthcoming famine. Also, disasters are often unavoidable events even if they are predictable and some of their effects avoidable or reducible. Therefore, Lélé's definition of sustainable development as "...a process of directed change..." (Lélé, 1991) may not be always verifiable.

We define "sustainable development" as a process where social, environmental and economic actions are integrated in a balanced way with flexible prioritization for rapid recovery, so as life be preserved and enhanced over time". This definition encompasses economic, environmental and social aspects, takes into account disastrous eventualities and implies that resilience is key factor of sustainability. Following this definition, we can now define a "sustainable community" as one that can maintain and strengthen harmony and peace among its members in all situations, and has the ability to organize for self-promotion and to assure individual well being over time. Overall, we hence agree with Hays (Personal communication) when he states that a sustainable community is the result of a long-term process based on coordinated anticipatory planning and collaborative actions at the local level by community stakeholders and policy makers who are working together to pre-empt the unthinkable, control the controllable and plan for the inevitable.

With these adjusted concepts and definitions, we propose the following strategies for assuring long-term community sustainability in Sub-Sahara Africa.

ISTRATEGIES FOR IMPROVING COMMUNITY SUSTAINABILITY IN SUB-SAHARA AFRICA

A "sustainable community" is one that can maintain and strengthen harmony and peace among its members in all situations, and has the ability to organize for self-promotion and to assure individual well-being over time. This ability of the community depends on two categories of factors:

1. Community dependent factors, such as cultural diversity, religious diversity, political and economic differences, intra- and inter-group relationships, educational status, etc., and
2. Community independent factors, such as resource availability, natural and environmental disasters, national or international economic changes, etc.

Of the two categories, community dependent factors are most important in regulating sustainability. Therefore, they must be monitored intelligently toward improvement and reinforcement.

1. Monitoring community dependent factors

Traditional Africa is acknowledgeable for its peace driven communal life system. Ethnic groups joke among themselves for entertainment, prohibiting disrespect and provocative behavior, which contribute to reduce tensions and to facilitate conflict settlement. If in the countryside this culture is still valued, it is not often the case in the cities where increased entertainment opportunities exist and the groups seldom meet to socialize as they do in the countryside. Over time, this may disappear, living room for enmity and conflicts. Therefore, this inter-ethnic relationship must be preserved and reinforced by any means. Distant communication systems, such as TV and radio stations can be used to promote this culture. In most African countries, such animations do exist, but so timidly that they are barely noticeable. Entertainment is not yet seen as a viable business opportunity in most part of the sub-continent. Yet, we anticipate that intelligent promotion of local traditions will prove to be a worthy economic venture for business people. A good benefit of urbanization is the increase in cultural diversity. Such projects will rapidly educate the youths and contribute to build more peaceful and harmonious multicultural communities. Many other opportunities exist in the local traditions, which can be investigated and used to foster community sustainability. In this regard, sociologists and anthropologists will be reluctant to contribute.

2. Applying preventive legislation against inter-group conflicts

Despite the cultural heritage against inter-group conflicts, the emergence of new religions with their respective dogmatic practices and intolerance has started to cause bloody conflicts, increased insecurity and frustration of minority sects. Religious conflicts are particularly dangerous to sustainability because every side pretends to hold the “divine truth” and fights to win for “God”, which complicates conflict settlements. To prevent such events:

- a) The separation of religion and state must be legislated for, as is the case in most western countries, and the government must avoid discriminatory measures against selected religious groups,
- b) Bad (vexing, humiliating) inter-cultural jokes should be prohibited by law.
- c) Indicators of religious intolerance must be defined and prohibited by law.

3. Improving and strengthening education and training systems to benefit larger numbers of people

The community must also have the ability to organize for self-promotion and to assure individual well-being over time. This ability will depend on the amount of knowledge capitalized and on

the way this knowledge is used to promote peaceful development. Therefore, it is highly education and training dependant. Unfortunately, in most part of Africa, the school systems have almost collapsed in recent years due to erroneous prioritization of objectives and mostly, to economic constraints, leaving a large number of populations without basic scientific understanding of the world they live in. In Burkina Faso for instance, adult illiteracy averages 78%, while children enrolment remains below 40%. Illiteracy among adult women in particular, rises over 90% and girl enrolment barely reaches 19%. In such a situation, it is difficult to improve resiliency against the effects of natural and environmental disasters in the community. Education is a master key to long-term sustainability. It enlightens the individual and equips him with tools to resolve problems, to create opportunities and also to take genuine advantages of opportunities for economic growth and quality social and cultural changes.

Therefore, the current trend of government disengagement must be corrected, so as more children are enrolled. Meanwhile, innovative mass education systems where basic scientific knowledge transfer coupled with civic education that emphasizes spirituality (not religion) must be sought and implemented to benefit the rest of the community. In this regard, we recommend Salibo Some's (personal communication) concept of environmental education and training, as well as its practical implementation strategy.

Salibo Some's Concept of Environmental Education and Training

“The world has become more humanized with the human remaining "primitive", resulting in continual failure to enjoy life in harmony and peace despite the numerous religious teachings and the rapid development of science and technology. This observation seems to rest in the lack of integration of spirituality into our learning processes. Environmental education appears to be an ultimate tool to overcome the problem. Current programs on environmental education tend to be solely instrumental, excluding the individual from the whole process. Our approach to environmental education is rooted into a strong believe that spirituality is the master key to long-term sustainability. Taking the individual into consideration, we divide the environment into three (3) levels:

1. The inner environment, which is unseen but composed of the mental, the moral and the spiritual dimensions which characterize the I-ness of the individual,
2. The immediate environment, refers to the medium we use to feel and react to the outer environment: our body, and
3. The outer or exterior environment composed of the world that surrounds us, including our “likes” and “dislikes” that we use to survive.

These three entities are concentric, with the quality and durability of the outer two highly dependent on the quality of the inner environment. No one can ever deny the fact that no sustainability can be sought without peace. Likewise, no communal peace can be possibly sought when peace is not in the individual. If we agree on these statements, then, the first environment to start cleaning is our inner environment. Its polluting factors are likewise unseen and include all human mediocrities (hypocrisy, meanness, jealousy, hatred, etc.).

Life enjoyment depends, not only on this environment, but also and strongly, on the immediate environment that we use to feel, manage and enjoy the outer environment. These latter two environments are intimately interconnected, not only because they share the same raw materials, but also because they are open to one another. Of the two entities, the immediate environment is far more sensitive to pollution. Therefore, its quality and longevity leans on the quality of the outer environment. However, it must be well acknowledged that the pollution of the immediate environment also depends on conscious excess intakes of such elements as alcohol, foods, drugs, etc. from the outer environment, and therefore, on the state (the (moral, mental and spiritual) of the inner environment. Also, the degree of wisdom with which we use or manage the outer environment leans on the our mental, moral and spiritual qualities, clearly showing that, the quality and durability of the latter rest on the state of the inner environment.

To live long to enjoy life and contribute to the making, man needs all three environments to be humanized at the same time. As explained, while the immediate and outer environments are interdependent, both need a clean inner environment to be managed and enjoyed sustainably. Our approach to environmental education is holistic and innovative, taking into account such things as spirituality, ecology, economy, health and esthetic.”

Practical implementation of Salibo Some’s concept of environmental education.

With support from Heifer Project International (HPI), Africa’s Sustainable Development Council (ASUDEC) has started to implement this conceptualized approach to benefit farmers jointly supported by the two organizations in Southwest Burkina Faso. Volunteer youths of both sexes have been regrouped into environmental clubs to be educated and trained in environmental issues and civism, and used to serve as models to others. A mobile interdisciplinary team has been formed and trained to go around the villages to develop all-relevant modules. Separate livestock production and beekeeping projects are used to strengthen the environmental education program while providing resource bases to the partners.

The program is geared at educating the villagers on the importance and roles of each of the 3 sub-divisions of the environment, the stakes related to their pollution or degradation, as well as on the options regarding their restoration and preservation. Therefore, club members are not only trained technically, but also taught respect, humility and wisdom.

In conjunction with other HPI projects in the area, such as livestock and beekeeping projects, we envision the organization of “environment days” to bring the environment clubs to compete for best booths on the complexity, diversity, kindness and beauty of nature, as well as for most impressive environmental accomplishments. Prior to this day, volunteer knowledgeable people, including men and women villagers will be selected to serve on a jury that will go around the villages to evaluate club environmental activities. Criteria for this evaluation will be determined in collaboration with the jury members and will include such things as sanitation, number of trees successfully planted, amount of compost produced, level of livestock/crop production integration, etc. Best clubs will be rewarded with tree plants or seeds.

The Blueprint gives a special attention to the spread of all gifts provided (knowledge, trees, etc.) and hence, promotes “pass-on the gift” as an important cornerstone. In this regard, many actions are foreseen as a way to comply with this principle. For instance, we think that organizing the ecology day will allow environment clubs to share their experience and knowledge with the large public on the diversity, complexity, beauty and kindness of nature. Also, no farmer can afford to pay for the full cost of the trees distributed without special support. Therefore, trees will be distributed only to best livestock project partners so that they use revenue drawn from livestock production to return 2/3 of the cost of the trees to benefit new partners. This will be done with consideration of the reality that successful tree planting in local conditions is sometimes difficult. Each partner, including the environment clubs is requested to share knowledge acquired through the project with his fellow villagers. Additionally, the teaching of spirituality will improve wisdom and strengthen the participants’ sharing mind to benefit others.

Also, not all gifts can be passed on within a short period of time. For instance, improving plant surface cover and biodiversity will profit future generations, as the local ecology and climate, as well as food security and wood availability will improve with time. Since current participants would transmit the education to younger generations, we think that this will add value and further ensure long-term sustainability.

Because this innovative approach promotes income generating activities (livestock production and beekeeping, etc.) as alternative solutions to desertification or drought. Induced food insecurity encourages tree plantation and enhances spirituality, but it must be extended to more villages and mostly, to schools to serve as a model for fostering long term community sustainability of in Sub-Sahara Africa, particularly in the Sahel region.

Monitoring the effects of community independent factors to strengthen community sustainability: The community independent factors also impart much of community sustainability. The following table describes the kinds of disasters experienced in the region, their potential causes, some recommended actions and methodologies aimed to reduce their consequences. We must indicate that most of the methodologies proposed here, except for “rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation” are being applied with differential successes by a multitude of organizations and projects across the region. They are not our findings.

Table I: Strategies for resolving natural and environmental disasters and problems in the Sahel.

Kinds of disasters	Potential causes	Recommended actions	Methodology
Natural disasters			
Drought	<ul style="list-style-type: none"> • Climate change • Malpractices 	<ul style="list-style-type: none"> • Increase production opportunities • Promote irrigation • Develop efficient early warning system that will permit farmers to use drought resistant varieties or emphasize on less drought sensitive activities, such as livestock production • Promote soil and water conservation practices 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Aggressive and genuine reforestation with adapted tree species as a resiliency against tree mortality, • Increase number of small dams/barrages • Promote zero grazing livestock production • Promote dry season crop production and any possible income generating activities • Create a good database for rainfall prediction.

Continued

KINDS OF DISASTERS	POTENTIAL CAUSES	RECOMMENDED ACTIONS	METHODOLOGY
Flood	<ul style="list-style-type: none"> • Global warming • Stream bed silting 	<ul style="list-style-type: none"> • Improve education and awareness of the stakes and options related to desertification and agricultural malpractices • Develop efficient early warning system that will permit farmers to grow adapted crops or to leave flood prone sites ahead of time. 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate legislation regarding land management. • Create a good database for rainfall prediction. • Promote and local radio stations • Improve literacy rate among the populations
Disease epidemics	<ul style="list-style-type: none"> • Rainfall variations, • Floods, • Climate change • Malpractices 	<ul style="list-style-type: none"> • Improve education and awareness with emphasis on prevention, • Increase accessibility of medication. Effective policies leading to actions that can reduce the impact of drought and even reverse the current trend of consequences are needed • Provide resources to do research on epidemics so that solutions can be identified ahead of time. 	<ul style="list-style-type: none"> • Include in school programs lessons on major epidemics, • Call on grassroots NGOs to address issues related to major disease epidemics • Improve rural people's access to information through radio or TV and • Organize live debates on disease epidemics

Continued

KINDS OF DISASTERS	POTENTIAL CAUSES	RECOMMENDED ACTIONS	METHODOLOGY
Crop pest invasion	<ul style="list-style-type: none"> • Droughts • Inundations, • Malpractices 	<ul style="list-style-type: none"> • Develop efficient early warning system with respect to past season climate conditions • Diversify crop production • Diversify production opportunities 	<ul style="list-style-type: none"> • Develop prediction models on crop pest and disease occurrence using climatic and entomological information • Educate farmers to use several crop species • Promote dry season crop production and any possible income generating activities
Desertification	<ul style="list-style-type: none"> • Droughts • Malpractices 	<ul style="list-style-type: none"> • Reduce wood cutting • Increase tree plantation 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices. • Increase natural gas accessibility to larger number of people • Develop and promote solar cooking systems

KINDS OF DISASTERS	POTENTIAL CAUSES	RECOMMENDED ACTIONS	METHODOLOGY
Global warming	<ul style="list-style-type: none"> • Malpractices • Desertification 	<ul style="list-style-type: none"> • Improve people's awareness • Reduce greenhouse gas emission at the individual and community level 	<ul style="list-style-type: none"> • Educate people and industries on the stakes related and options related to the depletion of the ozone layer • Ensure that all countries comply with regional and/or international environmental laws
ENVIRONMENTAL DISASTERS			
Bush fire	<ul style="list-style-type: none"> • Hunting practices • Reduce snake populations • Other malpractices 	<ul style="list-style-type: none"> • Improve people awareness about the stakes and options related to bush fires 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Call on NGOs sensitize, educate and/or train the people in conservative practices • Find and extend alternative solutions to snake problems in the country side • Apply coercive measures against bush fires

Land degradation	<ul style="list-style-type: none"> • Malpractices • Desertification • Climate change 	<ul style="list-style-type: none"> • Educate and train people on sustainable and natural resource management practices • Educate and train people on the stakes and options related to polluted water use. 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Use audio-visual techniques such as local radios, national TV • Promote environmental education, including health at school and village levels
Air pollution	<ul style="list-style-type: none"> • Wind soil erosion • Use of cars on unpaved roads • Use of low quality gas or of smoky engines • Tobacco smoking • Desertification 	<ul style="list-style-type: none"> • Legislate against air pollution • Educate and train people on the stakes and options related to air pollution. • Train farmers on sustainable agriculture and natural resource management practices 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Promote environmental education, including health at school and village levels • Apply coercive measures against air pollution

Water pollution	<ul style="list-style-type: none"> • Desertification • Rain soil erosion • Agricultural malpractices 	<ul style="list-style-type: none"> • Educate and train people on the stakes and options related to water pollution • Legislate against water pollution • Train farmers on sustainable agriculture and natural resource management practices 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Promote environmental education, including health at school and village levels • Apply coercive measures against water pollution
Deforestation	<ul style="list-style-type: none"> • Poverty • Human cupidity • Lack of survival alternatives 	<ul style="list-style-type: none"> • Educate and train people on the stakes and options related to deforestation • Encourage the use of alternative technologies such as solar cooking, natural gas to reduce firewood cutting 	<ul style="list-style-type: none"> • Rural land survey leading to improved land tenure with appropriate laws regarding soil and water conservation practices • Call on and support NGOs to address deforestation issues at the village level • Reduce the cost of alternative technologies • Train villagers to make biogas
			<ul style="list-style-type: none"> • Call on, and support NGOs to implement efficient civic education at the school and

Wars and civil strikes	<ul style="list-style-type: none"> • Reduced resource base • Power • Human cupidity 	<ul style="list-style-type: none"> • Develop a good early warning system for conflict prevention • Develop strategies that would permit efficient settlement of differences • Promote social harmony in the community • Promote democratic principles 	<p>community levels</p> <ul style="list-style-type: none"> • Identify indicators of spirituality and favor spiritual education at the school and community levels • Educate and train people on human right, leadership roles, democracy, etc. • Use existing cultural heritages and inter-ethnic relationships to reduce or solve inter-ethnic tensions.
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Sustainability is a complex and difficult concept, particularly when disaster eventualities must be foreseen. Community sustainability specifically, encompasses a wide range of factors among which, man himself is the key one. In effect, most part of life durability on earth is vested in man, as he is the most gifted and prime beneficiary of sustainability. Regardless of the endangering factor, man is gifted with enough intelligence and love to keep steering for earthen heaven for all. Unfortunately, he embeds the most severe duality of the good and bad, which, as if the “evil” were predominant, causes him to often spread only sorrow and despair against his “likes” and/or “dislikes”, making life on earth comparable to “hell” in “haven”. We think that the adoption and proper application of Salibo Somé’s concept of environment education can contribute to guarantee long-term community sustainability, not only in Africa, but also in any part of the world.

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