Rendiconti
Accademia Nazionale delle Scienze detta dei XL
Memorie di Scienze Fisiche e Naturali
126° (2008), Vol. XXXII, P. II, pp. 113-125

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Climate Changes in West Africa **

Elements for a Regional Strategy on Management ad Adaptation

As a member of the Italian Academy of Sciences, I am deeply privileged to present this lecture on behalf of the Academy's President Prof. G.T. Scarascia Mugnozza, who unfortunately is unable to be with us here today.

I am grateful for the opportunity to pay my homage to the President of the Republic of Ivory Cost, Mr. Laurent Koudou Gbagbo, who has made this conference possible and to salute the Ambassador Paolo Sannella, who was the driving force behind the establishment of CREA and is guiding its activities with dedication and imagination.

I cannot but express my gratitude to all you for having convened here today to take part in the discussion and contribute to the shaping of the programme of future activities. You have great knowledge of this area and are familiar with its conditions and events. It is only natural that you are the actors of change and that my job is just that of a facilitator. I will try and summarise the main issues on the table and call your attention on some options. However it is you who must have a frank and open debate on your ideas so to elaborate an action program aimed at mitigating the effects of natural factor-driven climate change as well as at preventing the perpetuation of actions which heavily contribute to trigger climate changes. The promotion of the sustainable development of the residents of the Region is our ultimate goal.

Needless to say serious harm may come to both the people of West Africa and all the species that share the same area, unless great care is taken to protect the Region's heritage of natural resources. Many are the examples throughout our history of the chaos and destruction that could ensue from a short-sighted indiffer-

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** Position paper presented at the CREA meeting, Abidjan, February 9-12th, 2009.

ence to the progressive erosion and decline of natural resources. Changes in climate have historically determined periods of peace as well as conflict. Studies highlight the interactions between temperature fluctuations, reduced agricultural production and frequency of warfare. They have contributed to raise to alarming levels the threat of population migration, to fuel conflicts and wars over water above all, but also over other resources as well. Moreover they have changed the balance of power among nations.

In fact this is not the first time the Earth experiences a climate change. The planet has gone through several phases of warming and cooling. The last glacial period reached its climax some 18,000 years ago, and for over 10,000 years the planet has lived through an interglacial period. A very long cycle characterised by some variations such as those which occurred back in the Xth and XIth centuries when very warm and less humid periods were recorded. Following it the Northern Hemisphere cooled dawn, reaching the lowest temperatures ever during the XVII th century and continuing until the beginning of the XIX th century. During the last century ground temperatures rose by 0. 74 °C. A warming period that has grown stronger over the past 50 years with a 0.13°C increase in temperature per decade.

The UN Framework Convention on Climate Change (UNFCC) believes this change to be due "directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". The Intergovernmental Panel on Climate Change (IPCC) correlates this increase with an increase in greenhouse gas concentration in the atmosphere, such as carbon dioxide, methane and nitrous oxide. They also maintain that the expected future increase in those gases will boost the global warming effect and impact the world's climate system in several ways.

According to the above scenarios, the Earth's average temperature would rise by 1.8 to 4.0 °C and sea level would rise by 18-38 cm to 26-59 cm by the end of the century, with widespread heat waves and long periods of rainfall.

In light of such a situation the United Nations Framework Convention on Climate Change (UNFCC) is seeking to stabilise atmospheric green house gas concentration at a level that would prevent the risk of any dangerous anthropogenic perturbation to the climate system. The 3rd session of the parties to the UNFCC, which met in Kyoto in 1997, adopted a protocol setting at 5% the greenhouse gas emission reduction target for the 2008-2012 period and identifying specific targets for each country. The session also adopted a series of the so called "flexibility" mechanisms to facilitate the undertaking of the required actions.

On the occasion of the Bali conference in 2007, the countries decided to undertake a series of negotiations to draw up a new agreement that would replace the Kyoto protocol as for 2013.

Africa, as we know, contributes the least to greenhouse gas emissions but is the most vulnerable to the effects of climate change. Africa or the African regions must have their own place at the negotiating table.

Africa, like other parts of the Earth, has gone through several climate changes. The rainy period following the last glaciation favoured the development of plant cultivation and animal rearing. 2000 years ago approx. the planet's climate was very similar to what it is today, with some more arid and some more humid areas. There was an increase in rainfall from the Xth to the XVth cen. with conditions that were more favourable than the present ones. In the early XVIIIth century we see the start of short fluctuations of more arid and more humid periods, which lasted for about two centuries.

A substantial reduction in rainfall occurred in West Africa during the last 50 years with a clear break between 1968-72. The reduction was dramatic in the Sahel where high deficit were recorded at the beginning of the '70s and the '80s therefore triggering a marked process of aridification. However since the mid 90s the area has recorded slightly better rainfall conditions although linked to an increase in inter-annual variations. This trend is particularly evident in the eastern part of West Africa - Niger, North Nigeria and Chad. It is a condition which can be ascribed mostly to complex maritime and terrestrial interactions that produce a variety of climates across a range of areas, from humid tropics to the hyper-arid Sahara.

An important point to make is that changes in West Africa have occurred at a faster pace than global warming, with increases ranging between 0.2 to 0.8°C since 1970, and the trend is stronger for minimum than maximum temperatures.

In spite of these values, Africa is the lowest greenhouse gas-producing Region, thanks to low energy consumption: a person living in Africa produces 13 times less gas than his/her North American counterpart. As a whole Africa is responsible for less than 4% of world's gas emissions.

However the substantial use of biomass (about 60%) as a household energy source is causing intense deforestation which implies serious depletion of plant and soil CO_2 sinking capacity and weather stabilising ability. Increasing amounts of oil and gas are used to generate electricity and the trend is expected to continue growing. Because of the limited ability which present day models have to forecast West Africa climate, it is hard to assess the real consequences of deforestation and oil consumption increases. Let me give you one example: rainfall is predicted to start well in advance than actually observed; it is expected to occur almost throughout the year with an increase in annual aggregate values, which do not match the observed data.

As to the forecast of extreme climate events, major limitations exist and this is something to be reckoned with since climate changes are likely to enhance the frequency and seriousness of events such as floods and drought in regions with a high rainfall variability. West Africa needs to reach a better understanding of its climate and to have regional climate models, developed by reliable statistical series generated by an extensive network of meteorological stations. This is a field that I believe is lacking adequate regional studies. Conclusions based on climate projections and their consequences are too uncertain to provide us with a correct forecast of the risks and opportunities linked to climate change.

It is clear that a more reliable information systems, adapted to fit local and regional contexts, should be at the heart of any future strategy.

Greater awareness and participation by local actors will be necessary in formulating and implementing mitigation and adaptation strategies to face up to changes due to natural events. The same applies to actions to be taken in order to avoid that the exploitation of natural resources, aimed at improving the living conditions of an ever-growing population in the Region, may add to the global change.

The demographic situation is the logical starting point since its effects may exacerbate the impact of Climate change. We are all familiar with the adjectives used to describe demographic growth and the population's youth in West Africa. West Africa is the most populated region in the continent and population growth is still over 3% in some of its countries, with a regional average of 2.5%, and whereas most of the countries in the world are moving to replacement rate of 2.1 children per woman, or dropping below that rate, in West Africa the children per woman remain at level of 6-8 and in some countries the decline has not yet begun.

Age structure in West Africa has a narrow peak and a very wide base. The number of elderly people (over 60) is lower than 5%, whereas the percentage of young people is around 44%. The increase in the number of young people can be seen as a demographic bonus that should be put to use in terms of promoting development. However the opposite side to this same coin is that it will increase pressure on the environment because of the social services required and in particular the health and education demands. Plus it will intensify migration movements within the region and towards those countries that have growing labour requirements.

West Africa is also the least urbanised Region. Only about 40% of its population live in urban areas, but this figure is growing rapidly: from a 15% increase recorded in the '60s, it is expected to reach nearly 60% in 2030. The effects will go in opposite directions. Fertility declines as cities are not the best place for large families to live due to the high cost of living. City dwellers have more opportunities for higher living standards but we know that a higher stress will be punt on natural resources since urbanisation will increase the demand on goods and services, including transportation, commercial energy, more diversified food, better education and health.

A farmer will have to feed 2.25 people, compared to 1.75 today. Moreover there will be less potential for expanding cropping areas and agricultural intensification, which is already under way in peri-urban areas, will inevitably continue.

Examples of possible impact

Impact on the ecosystems

Natural ecosystems are critical in Africa because they contribute in a significant fashion to biodiversity and human well-being. Climate variability and change and other stressors seriously threaten Africa's rich biodiversity, which occurs mainly

outside formally conserved areas. A trend that would undermine the integrity of the Continent's rich but fragile ecosystems.

In West Africa, the sustained decline in rainfall which occurred from the '70s to the '90s caused a 25-35 km southward shift of the Sahelian and Guinean ecological zones, with the consequent loss of grassland, acacia, flora/fauna, and species associated with these ecosystems, including migratory birds.

Between 1990 and 2005 West Africa forest cover diminished at rate of 1.2 million hectares per year, which is far higher than the average for the continent.

However the observed changes in the ecosystems are not solely attributable to climate. Additional factors, such as habitat loss, over-harvesting of selected species and activities such as hunting and deforestation, fire, invasive species, conversion of forests to agriculture and other land-use changes, interact and heavily impact several African areas.

Further threats to Africa's forests come from the marked dependency on fuel wood and charcoal, which are major sources of energy in rural areas. It is estimated that they contribute to about 80/ 90% of the residential energy needs of low-income households in the majority of sub-Saharan countries.

The coastal ecosystems deserve special mention. Being highly productive, these ecosystems – mangroves, estuaries, deltas, etc. – are at the basis of important economic activities such as fisheries and aquaculture. It is in the coast areas that about 40% of the West Africans live. About 500 km of coastline between Accra and the Niger delta are expected to become a continuous urban megalopolis of more than 50 million inhabitants in 10 years' time. The projected rise in sea level will have significant impact on these coastal megacities. It is likely that the poorest brackets of the population will be concentrated in potentially hazardous areas which may be especially vulnerable to such changes.

The results of very recent assessments regarding the potential flood risks that may arise by 2080 following a range of scenarios and climate change projections, indicate that three West Africa coastal and deltaic areas would be at risk of flooding. In the Gulf of Guinea, sea level rise could cause overtopping and even bring about the destruction of the low barrier beaches that limit the coastal lagoons. Changes in precipitation could affect the discharges of the rivers feeding them.

These changes could also affect fisheries and aquaculture activities in the lagoons.

Coastal agriculture, such as plantations of palm oil and coconuts in Benin and Côte d'Ivoire, shallots in Ghana, could be at risk of inundation and soil salinization. In Guinea, between 130 and 235 km^2 of rice fields (17% and 30% of the existing rice field area) could be lost as a result of permanent flooding, depending on the inundation level considered (between 5 and 6 m) by 2050.

There is a great need for a well-established research program and technology development in the field of climate prediction so to assess the risks and impact of climate change on the ecosystems. Assessment of the impact of climate variability

and change on important, sensitive and unique ecosystems in Africa (hotspots), on areas of biodiversity, as well as on marine fish stocks, still requires further research.

Impact on Water Resources

The countries of West Africa share their surface water resources, which are concentrated in a few watershed areas, the main ones being in Niger, Lake Chad, Senegal, the Gambia and the Volta. Climate change and variability can potentially increase the pressure on water availability and accessibility as well as water demand. Following the decrease in rainfall since the '70s, the continent's main rivers have recorded a drop in their stream flows and namely the Niger (Onitsha) has had a 30% decrease in its stream flow, in the 1971-1989 period; this very figure rose to almost 60% in the case of Senegal and Gambia. The reduction was relatively greater than the drop in rainfall levels.

They are macro-assessment which may also imply a range of complex hydrological interactions and local-scale differences.

Along with climate factors, the increase in water demand due to urbanisation, industrialisation, crop irrigation, hydroelectric plants, etc, is a major cause of water depletion.

Climate variability and the construction of dams in response to increasing population consumption or the growing number of irrigation and hydroelectric projects have led to ever-growing frictions and potential conflicts between countries over shared river basins. About 15 dams have been built in the Niger River basin and many more are projected in the different countries of the Region. It is imperative that the right balance be established between different water uses and the climate risks involved.

In the future, climate change could have a lasting effect on the quantity of water in circulation in basins or even in ground water levels that are recharged during the rainy season. But on the whole, West Africa does not face a mid-term renewable water shortage threat, although some challenges may emerge locally. Better use and integrated regional management of available renewable water supplies are essential.

Assessments of impact on water resources, as already indicated, currently do not fully capture multiple future water uses and water stress and must be approached with caution.

It should also be noticed that the relative abundance of the resource does not take into account other equally important factors such as access to clean drinking water and sanitation, which effectively reduces the quantity of freshwater available for human use. Despite the considerable improvements in access to freshwater in the 1990s, only about 62% of the African population had access to better water supplies in 2000. When facing the issue of vulnerability to water stress in Africa, it is important to consider other issues that affect access to water, including water governance.

Detailed, regional-scale research on the impact of, and vulnerability to, climate change and variability with reference to water is needed as in the case of African watersheds and river basins. Special attention is to be paid to complex interactions of water governance in these areas. Water quality and its relation to water-usage patterns are also important issues that need to be incorporated into future projections. Further research on the impacts of climate variability and change on groundwater is also needed.

Impact on Agricultural and Food sector

The agricultural sector is a critical mainstay of local livelihoods and it is key for the national GDP in some African countries. The contribution of agriculture to GDP varies across countries, but assessments suggest that 21% (ranging from 10 to 70%) of GDP could be an average figure.

The agricultural sector is particularly sensitive to climate and to climate variability periods. In many parts of Africa, farmers and pastoralists also have to face up to other extreme natural resource challenges and constraints such as poor soil fertility, pests, crop diseases, and a lack of access to inputs and improved seeds. Usually climate changes contribute to rendering the situation even more difficult. It has been assessed that the impact of climate change may be detrimental to certain agricultural areas. It is estimated that, by 2100, Western and central Africa farm sector losses will range between 2 and 4% of GDP.

Pastoral and agro-pastoral areas will undoubtedly be the most affected by climatic variations. The situation is particularly serious in the Sahelian countries, where 50 to 80% of the total population still works in the agricultural sector. The agro-pastoral sector contributes to 25-30% of GDP, while consumption of cereals contributes to 80-85% of the calories needed.

Cereal farming in the Sahel is essentially rainfed, it uses low-doses of input and - along with other climatic and environmental factors - its production depends on the rainy season's characteristics: variability and beginning and length of the cropping season have as direct an impact on the yield of cereals as the amount of rain. The Sahelian areas could experience a 20% shorter cropping season than at present. They are among the most vulnerable areas in West Africa.

To face up to the risks of climate variability, such as drought and hot winds, farmers have developed several adaptation strategies, among which soil fertility management, water management, crop diversification play a key-role. Animal rearing, cooperation, diversification of activities, seasonal migration, etc. are at the basis of a number of additional strategies. Extensive agriculture is considered a good strategy for offsetting limited yields when no technical improvement is at hand. But it will create competition with pastoral and forest areas and ill-affect the conservation of the biodiversity they contain.

Along with cereal production, livestock farming plays an important role in all

of the Sahelian countries. It contributes up to 10-15% of the GDP in Burkina Faso, Mali, Niger, Senegal and Chad.

Migratory pastoralism (70-90% of cattle breeding is migratory) remains a production mode adapted to some of the Sahel-Saharan ecosystems. It has undergone significant transformations due to several factors, i.e. population growth, political systems or environmental changes such as climatic variations.

One of the significant innovations which the Sahel has experienced over the last decades has been the birth and popularisation of agro-pastoralism, i.e. the combination of farming and livestock breeding within the same farm. This new resource development system stems from a strategy adopted by farmers and shepherds to limit the risks associated with the uncertain climate. Farming helps shepherds limit the purchase of cereals during the lean period; farmers, on their part, seek to diversify their activities and capitalise on their income sources by investing in cattle.

Traditional practices are changing with the spatial transformation of activities, following the changes in the Sahel's climate conditions. Looking for better pastures, nomadic shepherds travel longer and longer distances during the wet season, generally towards the North. Once the season ends, they gradually return to their villages where pastures and water supplies remain to be found. The 1973/74 and 1984/85 droughts especially changed the spatial dynamics of migratory herding and pasture lands in the Sahel. The case of Fula breeders in the Dallol Bosso area (Niger) is particularly striking in this regard. Many of these breeders found refuge farther south in Benin and Nigeria where they sometimes settled. These changes proved to be long-lasting and today, the 1973 and 1984 "pastoral runs" have turned into migratory pastures during the dry season.

The environment is an integral part of the life of nomadic cattle breeders in the Sahel. Migratory herding characterises their need to adapt to the changes in the natural environment. Climate changes – favourable or not – will alter the quantity and quality of natural pastures and will undoubtedly lead to new forms of transhumance corridors in the region. But the breeders will have to deal with growing agricultural pressures, greater environmental constraints in the years to come and occasional political risks. Some of them may even turn increasingly towards agro-pastoralism or a sedentary or semi-migratory livestock breeding system. For others, mobility will remain at the heart of their strategy, provided that it finds support both at national and regional levels.

Fisheries are another important source of revenue, employment and proteins. They contribute over 6% of Senegal's GDP. The way climate changes impact this sector must be viewed in the context of other human activities, such as the governance of fresh and marine waters. Different biophysical effects of climate change could affect fisheries, depending on the resources on which they are based. Coastal regions where major lagoons or lake systems exist, would suffer from changes in freshwater flows and a greater intrusion of salt water. It will impact the species that are at the basis of inland fisheries or aquaculture.

Assessing future trends in agricultural production in Africa, even without any climate change, remains exceedingly difficult. In fact while agriculture is a key source of livelihood in Africa, off-farm incomes are also increasing in some areas - up to 60 to 80% of total incomes in some cases. Urbanisation and off-farm income increases also seem to be contributing to reduced farm sizes. Future scenarios and projections may thus need to include such changes, as well as relevant population estimates.

More regional and local research is still required on a range of issues, such as the study of the relationship between CO_2-enrichment and future production of agricultural crops in Africa, salt-tolerant plants, and other trees and plants in coastal zones. Very little research has been done on the impacts of climate change on livestock, plant pests and diseases. The livestock sector is very important in Africa and is considered very vulnerable to climate variability and change. Research on the links between agriculture, land use, and carbon sequestration and agricultural biomass use in biofuels also needs to be expanded.

Impact on energy

Access to energy is severely constrained in most sub-Saharan Africa, with an estimated 51% of urban populations and only about 8% of rural populations having access to electricity. This is compared with about 99% of urban populations and about 80% of rural populations who have access in northern Africa and Ghana.

Extreme poverty and the lack of access to other fuels mean that 80% of the overall African population relies primarily on biomass to meet its residential needs, with this fuel source supplying more than 80% of the energy consumed in sub-Saharan Africa. Nearly all rural households use wood for cooking and over 90% of urban households use charcoal. Dependence on biomass can promote the removal of vegetation, thus altering existing microclimate and hydrology. The absence of efficient and affordable energy services can also impact upon society in a number of ways including health related hazards, associated with the carrying of fuelwood, indoor pollution and other hazards. Challenges from urbanisation, rising energy demands and volatile oil prices further exacerbate energy issues, even in the absence of climate change in Africa.

The rapid urbanisation growth will boost the aggregate commercial energy demand and increase emission levels. Possibilities offered by solar and wind energy and the production of tree biomass should be carefully explored.

Impact on health

Several vector-borne diseases prevail in West Africa, including malaria, trypanosomiasis, onchocerciasis and yellow fever. Rainfall, temperature and hygrometry play an important role in the occurrence of these vectors. Mosquitoes, the tsetse

fly and the large majority of insects need wet and "green" areas to spread. Thus decreasing rainfall and desertification can limit the development of these species.

But a drier climate does not automatically lead to a decrease in these insects' growth areas. For instance, mosquitoes can compensate for the areas lost through the drying up of marshland by moving to other 'habitats', such as the swamps that form in river beds that are drying up or temporary rainwater ponds. Moreover, the increase in the number of extreme climatic events (irregular rains in particular) could increase these insects' growth opportunities.

Climate changes can lead to human and cattle migration towards areas where fodder is available. The risk of contact with other disease-carrying insects rises and new diseases may develop.

The most striking effect of climate change on the transmission of vector-borne diseases will probably be witnessed at the extremes of the temperature range favourable to transmission. Impacts will not be uniform: some regions will experience a rise in transmission risks, while certain diseases will disappear in others. Thus, it is likely that in a large part of Western Sahel and Central Africa, the climate becomes unfavourable to the transmission of malaria by 2050 to 2080 – the primary cause of mortality in tropical Africa.

Strategies

Although Africa is the lowest gas producing continent, other factors linked to human activity contributes to highten the effects of climate change. Assumptions and models, although imperfect, describe the situation as extremely vulnerable. Because of it and in the general interest of mankind, we must ask ourselves what we can do to mitigate the causes of change and its impact.

Like any other region in the world, West Africa must face to the challenge of vulnerability and uncertainty and devise strategies for mitigation.

It is in this perspective that two considerations stand out.

First, the analyses conducted in the region are still inadequate and climate projections and their consequences are too uncertain to effectively foresee the risks and opportunities associated with climate change. Consequently more reliable strategies should rest on information system adapted to local and regional contexts.

Second, local actors should acquire greater awareness about the situation and become more involved in formulating and implementing adaptation strategies. A common stand on the issue of climate change would give greater weight to African countries in negotiations.

A wide range of adaptation practices can be mentioned: diversification of livelihood activities, institutional architecture, including rules and norms of governance, adjustments in farming operations, income generating projects, etc…

Many of those practices are linked to technology.

The role of seasonal forecasts, and their production, dissemination, uptake

and integration in model-based decision-making support systems, has been fairly extensively examined in several African contexts. Significant constraints, however, include the limited support for climate risk management specifically in agriculture and therefore a limited demand for such seasonal forecast products. It is quite evident that there is a limited or absent participation of farmers and shepherds in testing the models and integrating them with local knowledge.

Enhanced resilience to future periods of drought stress may also be supported by improvements in existing rain-fed farming systems, such as water-harvesting systems to supplement irrigation practices in semi-arid farming systems. As adaptation strategy to climate change, farmers are changing their crops; they choose sorghum and millet-groundnut when conditions are dry, cowpea, cowpea-sorghum, maize-millet and maize when medium-wet, and maize-beans and maize groundnut when very wet. As the weather becomes warmer, farmers tend to shift towards more heat-tolerant crops. Depending upon whether precipitation increases or decreases, farmers shift towards water-loving or drought-tolerant crops, respectively. Early warning will allow them to prepare for one crop or another.

Improved early warning systems and their application may also reduce vulnerability to future risks associated with climate variability and change. Research on malaria, for example, has shown that, while epidemics in the highlands have been associated with positive anomalies in temperature and rainfall, those in the semi-arid areas are mainly associated with excessive rainfall. Using such climate information may make it possible to warn farmers 2 to 6 months prior to the onset of an event. Such lead times allow for actions to be undertaken and for the launching of measures to prevent excessive morbidity and mortality during malaria epidemics.

In Africa, biotechnology research could be of great avail in developing drought- and pest-resistant rice, drought-tolerant maize and insect-resistant millet, sorghum and manioc. Moreover it could enhance specific qualities in crop plants such as oil content and quality in biomass trees for renewable energy.

However biotechnology means also a number of other advantages:

a) identifying in, isolating from and transferring genes from Ndama cattle to other more productive races,

b) identifying genes and markers to select more heat-tolerant cattle.

c) using the wealth of biodiversity contained in natural ecosystem,

d) identifying natural chemical compounds in plants, insects, microorganisms, used in traditional medicine.

All of this would make natural ecosystems become an income source for the local people, in addition to being useful in terms of climate and hydrology stability.

The design and use of proactive rather than reactive strategies can also enhance adaptation. Proactive, *ex ante*, interventions can raise household welfare and heighten resilience during non-drought years. In many cases these interventions can also be coupled with disaster risk-reduction strategies. Factors that could be investigated to enhance resilience to shocks such as droughts include national grain reserves, grain future markets, weather insurance, etc…

Every community has developed indigenous knowledge, which is not at odds with scientific knowledge, but rather complements it. Indigenous knowledge is at the basis of the decision-making process in many rural communities. Its value is recognised not only by the culture in which it grows, but also by scientists and planners striving to improve conditions in rural areas. Incorporating indigenous knowledge into climate change policies will lead to the development of effective adaptation strategies that are cost-effective, participatory and sustainable.

Local communities have developed intricate systems of gathering, predicting, interpreting and decision-making in relation to weather and how to adapt to it. This is their heritage. And enhancement of this capacity is a key to the empowerment of local communities and their effective participation in the development process. People are better able to adopt new ideas when these can be seen in the context of existing practices. A number of studies have observed that farmers' willingness to use seasonal climate forecasts increased when the forecasts were presented in conjunction with and compared with the local indigenous climate forecasts. They know facts and events and are ready to accept the underlying reasons accounting for pieces of their knowledge.

Development means empowerment of this communities over their heritage.

Decentralisation approach means the ability to recognise the empowerment and responsibility of communities and individuals alike.

Two guiding principles can be considered while debating and devising strategy options: regional concertation and decentralized approach.

Regional concertation

Climate change does not develop according to country borders and its impact occurs at regional level. Human activities directly or indirectly contributing to greenhouse gas emissions, are expected to increase in West Africa with population growth and the evolution of demand of goods and services. Effects will resonate on a regional scale. Overcoming these challenges demands a concerted international effort.

It is both necessary and urgent to establish a concertation forum where country representatives have the opportunity to discuss options, examine implications and devise strategies

Specific objectives of the forum could be:

– To foster a better understanding and assessment of the relevant issues,
– To develop informed decisions on climate change and adoption strategies,
– To devise appropriate tactics to promote adoption strategies in the region,
– To develop appropriate sharing mechanisms for continuous information on climate change impact and adoption amongst the West Africa countries.

A common position shared by 10-15 countries would also be received with greater respect in the international debates.

Decentralised approach

A decentralised approach means recognizing that responsibility lies in the hands of the communities and the individuals that share a common land and a common vision of the future and the risks that are associated with it. Obviously this implies a change in scale, moving from global policies to direct action.

For local communities, land has a larger and more pregnant meaning than geographical area. Land presupposes a space, but it is the environment where individuals want to develop their projects, where they can plan to grow together. Land is the place where they integrate their forces and intents. Land is a platform to participate in the governance process.

Land development is a vision that takes into account climate change and its effects. However it is nourished by human advancement which can be obtained through collective and individual actions. It is an approach that needs to be thought out well. The goal is to favour the carrying out of actions which allow for informed decisions to be made and actions to promote this vision while preparing people to cooperate.

While discussions and negotiations are in the making at the governmental level and in the international arena, policy leaders should be aware that no decision whatsoever will yield the expected results, unless it rests on this approach.

Political will is a priority, but it is the individual and his will that are of the essence.