

LOW-CARBON AND CLIMATE-RESILIENT DEVELOPMENT SHIFTING FROM GOOD PRACTICES TO PUBLIC POLICIES

Recommendations by the Climate & Development Network,
October 2013



RÉSEAU CLIMAT
DÉVELOPPEMENT

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Coordination: Joseph Yaovi Kogbe (Climate & Development Network), Emmanuel Seck (ENDA Energy) et Alix Mazounie (CAN-France).

Authors (in alphabetical order): Mohammed Bouziane, Christophe Brossé, J-B Cheneval, Ndiaga Diop, Abdoulaye Issa, Christine K, Joseph Yaovi Kogbe, Alix Mazounie, Abdou Ndour, Emmanuel Seck, Jean-Philippe Thomas.

Peer review (in alphabetical order): Emmanuel Bernard, Aissatou Diouf, Mawuse Hountondji, Ibrahim Mbamoko, Mohammed Saddik, Maman Zakara.

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The document is available from:

Réseau Action Climat - 2B rue Jules Ferry

93100 Montreuil - France

Infos@rac-f.org

The document is also available online on the following websites :

www.climatdeveloppement.org

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WHAT IS THE CLIMATE & DEVELOPMENT NETWORK?

Since 2007, the Climate & Development Network has supported work by French-speaking NGOs to reconnect poverty eradication and the fight against climate change. Poor and vulnerable communities across Africa are suffering more and more from the slow-onset and extreme events that are creating new poverty traps and hindering development. But poor and vulnerable communities can also benefit from actively tackling climate change.

The C&DN's work builds on a key idea: it is crucial to tackle the causes and consequences of climate change to successfully eradicate poverty and achieve sustainable development. In fact, rethinking livelihoods in a climate and energy-constrained world can also create unforeseen opportunities for sustainable and resilient development pathways. This is why in 2010, the C&DN published a paper "Local strategies and international governance" with recommendations on how to strengthen the mainstreaming of climate and energy objectives in local development planning.

From 2013 to 2015, our 73 members are committed to feed into the discussions on the post-2015 agenda, the Sustainable Development Goals and the post-2015 global climate agreement – by building and sharing their



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vision and solutions for sustainable development in a climate and energy-constrained world. Too often, existing development policies choose to ignore these growing climate and energy constraints. Too often, development policies actively contribute to climate change and lock in non-sustainable and carbon-intensive investments. The C&DN's vision aims to identify the required foundations and conditions to achieve low-carbon and climate-resilient development.

In this context, the 2013 recommendations look at the innovative and successful practices to better connect and articulate climate and development priorities – integrated planning, adaptation methods in agriculture or fishing, and the role of NGOs in designing and implementing these practices.

Dear decision-makers, the recommendations are for you to take home to ensure your countries design and implement the low-carbon and climate-resilient policies our sustainable future needs. ●

SUMMARY FOR DECISION-MAKERS

TURN DOWN THE HEAT!

According to reports published by the World Bank and the IPCC in 2013, the planet is facing unprecedented and increasing climate change. Some parts of the world - Africa particularly - are and will be most vulnerable to the impacts. The international community's inaction in the face of climate change means we are headed for close to 4°C global warming by 2100 – which would jeopardize the very survival of the African continent and its people faced with desertification, weak agricultural yields, massive food insecurity, famines and water stress resulting in regional conflicts, migrations, and epidemics. According to the World Bank report, a (more than likely) 1.5°C increase in global temperature would degrade the fertility of 40% of the maize-producing land in Sub-Saharan Africa by 2030 and hinder the production of staple food (eg. sorghum) in the West Sahel and Southern Africa. To face the impacts of unavoidable climate change, developing countries need to plan their fight against the causes and impacts of climate change to avoid implementing policies that are vulnerable to climate

change or create new vulnerabilities (dependency on fossil fuels, non-resilient constructions on the coastal line, water-hungry agricultural practices). As soon as now, development planners must take into account existing and future climate and energy constraints to ensure countries are on the path to sustainable development and address the needs and concerns of their most vulnerable communities.

FROM SUCCESSFUL PROJECTS...

The C&DN is working hard to promote successful and innovative initiatives as the keys to local and national policies effectively articulating climate and development. We also assume that these initiatives cannot be automatically copy-pasted or scaled up – they will require work to draw lessons and study the ideal conditions for replication and the adjustments to be made in the process. The C&DN has collected six good practices designed or promoted by members and partners of our network to demonstrate,

with evidence from the ground, the opportunity and feasibility of climate-constrained solutions and draw lessons for policymakers.

From a project to a policy for the sustainable management of fishing resources

The fishermen in the Nianing and Pointe Sarène regions of Senegal, supported by the REPAO, were able to establish a biological recovery period for octopus, a major income-generating fishery product. This helped the fishermen deal with the increasing scarcity of fishery resources, due to trawling in coastal zones and to the impacts of climate change (rise in sea level, coastal erosion, appearance of new species, and drop in intensity of upwelling). This successful project inspired the Senegalese government to adopt a mandatory and national biological recovery period for octopus.

From a project to a policy supporting climate-resilient crop seeds

In Niger, the National Institute for Agronomic research (INRAN) and government worked jointly to test and disseminate varieties of mill, sorghum and cowpeas resilient to dry weather spells among small-holder farmers in 7 municipalities across the country. The project was launched in response to concerns expressed by the farmers on erratic and reduced rainfall patterns and shorter crop seasons. Through this project, 5000 farmers using these resilient varieties have doubled their crop yield and increased their income.

From a project to policy promoting energy efficient fish smoking activities

The fish smoking activities on the coasts of Senegal rely on traditional, fragile, energy-consuming, inefficient and toxic ovens. To help the sector deal with increasing energy costs and wood scarcity and protect the nearby mangrove areas, ENDA Energie implemented a programme for improved smoking ovens. The project significantly reduced consumption of firewood, improved the income of the women smoking the fish and sustainable management of local resources.

From a project to a policy for sustainable wetland conservation!

The wetlands in the Saloum Delta of Senegal have always been a source of income for the local communities of Joal Fadiouth but also protected by the RAMSAR Convention and UNESCO. In this context, ENDA Energie implemented a project to protect 500 000 acres of wetland and create sustainable revenue streams for the local communities.

From a project to a policy for climate-resilient and sustainable oases!

In Algeria, the dry areas are very vulnerable to climate change according to the IPCC. The NGO Amis de la Saoura implemented a project for the rural development and conservation of the Beni Abbes Oasis – including building watersheds and renovating hundreds of meters of water pipes. Through the project, the oasis reduced water wastage and stored enough water to face dry weather spells and also created new sources of income.

From a project to a regional policy to regreen the Sahel!

The Heinrich Boell Foundation supports and promotes the use of greening techniques in the Sahel region to slow the accelerating process of desertification. The growing Sahara desert is degrading farmland, drying up water resources, and threatening food security throughout the Sahel. The technique is to stop cutting trees, roots and shrubs that naturally grow on the land and protects it. This simple and cost-free process has helped Niger resist the dry weather spells in 2011 and produce tons of surplus crops.

...TO CLIMATE-RESILIENT AND LOW-CARBON PUBLIC POLICIES

Our recommendations to successfully shift from innovative projects to innovative public policies

Too often, national and local public policies ignore or understate the importance of climate and energy constraints. Too often, good and innovative practices remain on the sidelines of public policies. In April 2013 in Conakry, the C&D launched an urgent appeal asking local and national decision makers in Africa to design or adapt policies in the light of climate and energy vulnerabilities and building on existing good practices within the country or the region. To i) ensure adaptation is a cross-cutting priority for any development project or policy, ii) improve the management and conservation of natural resources in a changing climate, iii) increase energy efficiency and promote renewable energies, and iv) plan adaptation and sustainable energy choices well ahead. We strongly believe that planning will play a key role in successfully and effectively tackling both climate change and poverty. ●

GOOD ADAPTATION AND LOW-CARBON PRACTICES: NEW IDEAS FOR SUSTAINABLE DEVELOPMENT IN AFRICA

A DANGEROUSLY CHANGING CLIMATE

1. IPCC, 5th assessment report on the evolutions of climate change «The Physical Science Basis», September 2013.

In September 2013, the IPCC¹ alerted the international community on the gravity of climate change and the urgency to plan the fight against it. The current state of inaction in the international negotiations and national climate policies means we are headed for a +4°C world. Across the world, civil society is calling on governments to cut emissions enough to keep global warming below the 2°C threshold and to help the poorest and most vulnerable people, particularly in Africa, face the impacts of climate change.

The African continent is increasingly affected by changes in climate – more and more extreme events and erratic rain patterns; water stress and accelerating desertification are affecting crop yields and food security; rising sea levels and rapid coastal erosion are affecting the livelihoods of fishing communities; acidification and warming oceans with depleting marine biodiversity and fishing resources. In a recent report published in June 2013, the World Bank² indicated that a temperature rise of 2°C or 4°C would drastically affect Africa: the crop yield for the Subsaharan region (800 million people) would decrease by 11% and even 20% in a 4°C world. The increasing number of heat waves

would affect the livestock. In a 4°C world, the Horn of Africa would suffer from severe 2011-like drought episodes, rainfall in Southern Africa could decrease by 30%, seriously increasing the likelihood and gravity of droughts and water stress.

The African continent must also deal with the global depletion and rising costs of the fossil fuel energy that the global (and African) economy relies on and that is responsible for climate change.

CLIMATE CHANGE AND POVERTY

Poverty is at the crossroad of these multiple crises and increases the continent's vulnerability to price volatility, food insecurity, climate stress, fossil fuel energy depletion and contributes to aggravate environmental degradation. In fact, the Millennium Development Goals (MDGs) have not yet managed to contain extreme poverty. In West Africa, 44% of the population is living on less than a dollar a day. In Subsaharan Africa, close to 20% of the population suffers from malnutrition. Most of the urban populations live in the slums around the cities; access to clean water and electricity is a major concern in many rural areas.

More and more, Africa will need to preserve its crop yields and its water resources, adopt energy efficient and low-carbon transport systems, tap into its energy efficiency potential, protect the coastal zones and infrastructures from flooding and rising sea levels. Fortunately, these protective measures against climate and energy risks also generate new economic opportunities and development co-benefits – be it by creating a market for the deployment of renewable energy, reducing health risks from air pollution and natural disasters, achieving food security, reducing the energy bill of households and ensuring access to energy for all. As countries work to reform the MDGs and seal a global deal on climate change by 2015, the African continent must seize the opportunity to rethink its development path and the best drivers to eradicate poverty in a climate and energy-constrained world.

INCONSISTENCIES AND UNSUSTAINABILITY IN EXISTING POLICIES

Unfortunately, existing pro-development and pro-poor policies are often inconsistent and seldom take into account existing and future impacts of climate change and depletion of

2. Phenomenon by which nutrient-rich water rises to the ocean's surface during the cold season, between December and March each year.

natural resources. In fact, some policies are putting Africa on the path to an unsustainable and polluting future - reliant on coal and oil consumption, abusive exploitation of forestry resources by foreign multinationals, pesticide and water-intensive farming detrimental to small-scale farmers and food security. When public policies do mainstream climate change into planning efforts, they seldom translate these principles into investment plans.

THE NEED TO REFORM PUBLIC POLICIES

Members of the Climate & Development Network are advocating against these contradictions and inconsistencies and in support of local, national and regional public policies that promote low-carbon, climate-resilient and pro-poor development. This vision is not about reinventing the wheel but building on the good ideas sprouting from climate & development projects on the ground. A few of these projects are illustrated in this report and could inspire public policies. But what are these promising ideas? Under which conditions could these ideas shape and inspire public policies? ●

Unless significant adaptation policies are in place, a 4°C temperature rise will mean 18 million people are victims of flash floods every year in Sub-Saharan Africa.

From the World Bank Report, Turn Down the Heat: regional extreme climate events, 2013.



WORKING TOWARDS SUSTAINABLE MANAGEMENT OF OCTOPUS RESOURCES IN SENEGAL

Ndiaga Diop, economist and environmentalist specialised in fishing and climate change, and programme officer at REPAO.

The Fishing Policies in West Africa Network (REPAO) is an association based in Senegal, which works to reform public policies in fishing and conservation of marine resources.



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SUMMARY

In Senegal, fishery products are of great economic and social importance. They contribute to food security, the fight against unemployment and the inflow of foreign currency. In the Nianing and Pointe Sarène regions of Senegal, we can observe an increasing scarcity of fishery resources, due to trawling in coastal zones and to the impacts of climate change (rise in sea level, coastal erosion, appearance of new species, and drop in intensity of upwelling³).

Faced with this situation, the fishermen of the two regions have used a co-management approach to establish a biological recovery period for octopus, which is a major income-generating fishery product. Respect of the biological recovery period has been possible because the idea came from the local fishermen and because of their knowledge in fishery management. During the biological recovery period, creation of income-generating activities helps lower the pressure on the fishery resources as well as maintain family income.

BACKGROUND AND ISSUES

In Senegal, fishery products have great economic and social importance. They are one of the staple foods as well as a significant source of jobs and foreign currency for the population and for the State (fishing provides 1.4% of GDP, 600,000 direct and indirect jobs, and 75% of animal proteins).

But such factors as the fishing policy in Senegal, which has involved modernising small-scale fishing (by granting fishermen tax exemptions to increase produc-

tion), led to overexploitation of coastal resources by the small-scale fishermen. Also Climate changes (decrease in periods of strong upwelling and in rainfall, increase in water temperature, rise in sea level, increase in salinity, etc.) have started to affect fishing along the Senegalese coast.

Today, the fishing sector is faced with an environmental and socio-economic crisis that threatens the well-being of fishing communities and that may both compromise the population's fish supply and lower the sector's contribution to

economic growth, food security and the fight against poverty.

The Senegalese government has set up several corrective measures, including the creation of fishing licences, protected marine areas, and resource-conservation measures such as the establishment of biological recovery periods and the sinking of artificial reefs. These measures have not yet succeeded in bringing the sector to a full recovery, but they have worked locally and given hope to fishing communities by helping to regenerate and protect local resources.

3. Phenomenon by which nutrient-rich water rises to the ocean's surface during the cold season, between December and March each year.



© COGEPAS

Day of launch of the biological recovery period (reminder and awareness-raising session for fishermen) in Joal-Fadiouth.



A female octopus with its eggs, in the form of white spots at the bottom of the octopus pot. The pot was 12 m deep off the coast of Nianing and was drawn up on 11 October 2005.

THE PROJECT

The principle of participative management

The initiative for sustainable management of octopus is being implemented by the fishing communities in Nianing, Pointe Sarène and Mbaling. They have organised fishery resources management committees with support from the Japanese International Cooperation Agency and the Senegalese government (Maritime Fishing Department and the Dakar-Thiaroye oceanographic research centre). Sustainable management of octopus resources is based on a new approach called 'co-management'. This consists firstly in organising the stakeholders (with no parties left out) into a management committee with statutes and internal rules. Next, research is done to determine the spawning period of the octopus, by taking into account local knowledge. Finally, it involves awareness-raising, diffusion of information and capacity building for the fishermen in sustainable management.

JOINT MONITORING EFFORTS

The monitoring methods can take the form of low-cost joint monitoring by fishermen, verification when unloading, or beach patrols. At the end of the biological recovery period, an evaluation session must be held to examine the actions carried out and to draw lessons for the following year's activities.

EARTHENWARE POTS – AN ECOLOGICAL CHOICE THAT CREATES LOCAL INCOME



© REPAO

It was decided to use earthenware pots as spawning habitats. This choice was made for several reasons: i) this natural material is biodegradable over the long term; ii) the pots can be made locally and therefore are not very expensive; and iii) they are a source of income for the women who make them. Cost is in fact a decisive factor for the sustainability of the fisheries' management activities at the local level. The pots are made from clay as well as from shell litter. Shells strewn on the beach are gathered then crushed or ground, leading to a cleaner environment.

Biological recovery period for octopus and the sinking of reefs

The co-management stakeholders jointly identified the conservation and sustainable-management strategies to implement: biological recovery and the sinking of reefs. These are two of the measures that can be set up in the sphere of fishing. Biological recovery is a period of time during which fishing activities are suspended; its renewal is determined through sustainable community management of the fishery resources. Sinking of reefs is done to introduce a new habitat for the target species. They are established in the zones facing the greatest threat and that are characterised by overfishing, which leads to destruction of the ecosystem (habitat and biocoenosis). Biological recovery seeks to preserve the parental stock of species and to guarantee reconstitution of stock in normal natural conditions, free from fishing.

Following the success of biological recovery for octopus between September and October, some fishermen expressed the wish to carry out the additional activity of sinking spawning pots. In Senegal, overexploitation of coastal resources by industrial fishing

trawlers has damaged the seabed, causing gradual degradation of octopus habitat. In this context, the installation of spawning habitats by the fishermen on these seabeds has been deemed essential, as it contributes to the development of local fishing as well as to that of fishing in other regions that share the same stock.

Official measures to officialise and support the initiative

The fishermen have set up a code of conduct for fishing and for sustainable management of fishery resources. This code of conduct has been approved by the prefect of the Mbour department and is enforceable. The departmental fishing service, researchers and development partners have also worked with the fishermen on this initiative.

Because of the quantity of eggs they produce, spawners must be protected as part of resource management. In 2009, sales of octopuses weighing less than 500 g were banned in the areas concerned, compared to the 350-g minimum weight imposed by the Senegalese Fishing Code.

THE IMPACTS

Octopus habitat is restored and its stock regenerated

As the fishermen had expected, a great number of octopuses used the pots to deposit their eggs. A study carried out in 2006, in which one-tenth of the 1700 sunken pots were brought to the surface, indicated that octopus eggs were laid inside 50% of the pots and that an octopus was growing in 75% of the pots. Octopus and cymbium are becoming more numerous in Nianing and Pointe Sarène, and those caught are of a good size. As a result, the octopus fishing has become more sustainable: the fishermen don't need to fish as many, and their catch sells better.

The project has diversified the sources of income of the fishing communities

During the biological recovery period, a majority of fishermen practice rainfed agriculture and/or poultry farming, whereas the rest continue fishing – but outside their usual zones. The creation of income-generating activities during the biological recovery period in particular helps lessen the pressure on fishery resources and contributes to maintaining family income. Through this initiative, the stakeholders have shown their ability to adapt and organise thanks to their local know-how.

Thanks to the project, biological recovery has continued and become sustainable

Along with the success of the initiative, the management commit-

tee has been able to diversify its partners and continue the actions (biological recovery and sinking of pots) since the end of the project. Thanks to the efforts of several partners, the initiative of co-management of fishery resources is spreading. Respecting the biological recovery has become possible because the idea comes from the local fishermen, and because of the importance placed on the use of their experience and knowledge in the management of fisheries.

Good practice becomes public policy

Capitalisation of the initiative has been carried out by the stakeholders; it has spread to other fishing villages and other species, and leaders of the fishing sector have been given training sessions. Between 2010 and 2012, the project worked on building and sinking artificial reefs and on biological recovery for octopuses. The positive and beneficial results⁴ of the project helped convince the government of Senegal to establish biological recovery for octopus nationally in 2012.

THE FACTORS FOR SUCCESS

The importance of the participative approach

The participative approach made it possible to bring together all the categories of stakeholders: administration, development partners, NGOs, fishing professionals, local communities, and the private sector (fishing enterprises so that

octopus fishermen and buyers participate together in fisheries management). This is the recommended framework for local sustainable management of ecosystems that can empower the local knowledge of communities that follow a bottom-up communication approach.

Biological recovery must be adapted to the target resource and to the local context

The initiative succeeded because it was based on the experience and specific know-how of the local fishermen. To set up biological recovery, it is essential for the managers and the stakeholders to determine the following beforehand: 1) the biological parameters; 2) the zones susceptible for reproduction, nursery and fishing for the species concerned; and 3) the critical period for fishing. An estimation of the economic cost and a proposal for support measures for the stakeholders are then made at this stage. These are prerequisites for drawing up a regulatory framework and establishing a monitoring system during the biological recovery period for the target zone established. ●

4. Co-management of Small-Scale Fisheries of Senegal (COGEPAS), www.cogepas.sn



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IMPROVING FARM SEED RESILIENCE TO COPE WITH DROUGHTS IN NIGER

Abdoulaye Issa, agronomist and monitoring-evaluation expert for Niger's NAPA, and member of EDER.

EDER (Energy and Environment for Rural Development), is an NGO that works for access to energy and rural development under environmental constraint, in Niger.



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SUMMARY

In Niger, climate change has led to a shift in the timing of the rainfall period as well as to a rainfall deficit. Local seeds, in turn, cannot adapt to these changes. To cope with this, the NAPA–Resilience agricultural programme was started, to test and diffuse drought-resistant varieties of farm seeds in seven municipalities of Niger. This activity was carried out at the local level, to respond to needs expressed by

the small-scale farmers. The project enabled the very vulnerable beneficiary populations to improve their living conditions, via increase in agricultural yields and in sales of products. The activity has been made sustainable by an internal organisation of producers, who work as seed growers and in cooperatives for the sales of their products.

BACKGROUND AND ISSUES

An agricultural system that cannot adapt to recurring droughts

In Niger, more than 80% of the working population is involved in agriculture. Since the 1970s, recurring droughts, in combination with the variable climate, have had disastrous effects on local agriculture and hence on the food security of millions of people. For example, the drought and locust invasion of 2004 led to a food deficit of 250,000 tonnes and affected approximately 2.5 million Nigeriens, or 20% of the total population.



Map illustrating the vulnerabilities to climate change in the National Adaptation Plan of Niger.



Climate change has led to a shorter growing season and a shift in the period of year in which the latter occurs. Due to the rainfall deficit, some local varieties – in particular millet, sorghum and cowpea – tend to dry out before the rain season, which arrives increasingly later. In addition, one of the major obstacles for farmers in Niger – in a context of socio-economic and environmental transformation strongly linked to climate variability – is the nearly permanent deficit in agricultural inputs, including improved seeds of good quality. This situation leads to decrease in agricultural yields, increased vulnerability of communities locally, growth in chronic food insecurity, and poverty stemming from greatly reduced purchasing power.

THE PROJECT

A joint project by the Niger National Institute of Agricultural Research (INRAN) and the government of Niger

The project is conducted in seven municipalities, one for each agricultural region (focusing on rainfed agriculture only). To ensure effective implementation of the project, the government of Niger signed an agreement with the National Institute of Agricultural Research (INRAN), from which the basic seeds are purchased and delivered locally. This structure consolidates the seed diffusion activity and the test of drought-resistant varieties nationwide, by signing protocols

with the local agricultural development (CDA) agents, who supervise the seed producers.

The target villages and seed growers are selected by the municipalities where the project is implemented, based on criteria established beforehand by the decentralised agricultural services and the leaders of those municipalities. The villages are identified according to criteria of accessibility and vulnerability. As for criteria to become a seed grower, these include (i) being volunteer as well as trusted by the local population; (ii) being available during the season; (iii) having a field large enough for setting up test plots; (iv) being a good worker and prepared to accept non-GMO technological innovations; and (v) being prepared to pass on their knowledge to other producers. The choice is then made at village assemblies, during which the considerations of the participants are taken into account.

The key steps to the resilient seed diffusion project

- Information and awareness-raising sessions for producers on the types of agricultural seeds suitable for the agro-climatic zones, the techniques for improved seed production and conservation and for isolation of pilot fields, the use of agro-meteorological information in risk management (especially for sowing dates), the accumulated rainfall needed for

sowing, and the beginning and end of the rainy seasons.

- Supplying producers with non-GMO resilient seeds, agricultural inputs and phytosanitary treatment products. In each municipality, the small-scale farmers chose 10 phytosanitary coordinators, who work on a volunteer basis.
- Training for the 280 producers (including 70 women), on agricultural production techniques and on methods of identifying and fighting the main food crop pests.
- Close supervision of the beneficiaries by the CDAs, with weekly field visits.
- Monitoring of phenological aspects (development and growth of crops) by the departmental agricultural service and a United Nations Volunteer providing assistance for the project in each municipality.
- Visits to the different fields by seed-producer inspectors based at the regional level, to ensure the quality of the products for certification.
- Storage of the seeds produced, in storehouses called ‘agricultural input boutiques’ before their sales at the local level, to NGOs or the State.

A system of resilient seed cooperatives

To ensure ownership of the activity, the project trained 70 producers to become seed growers (10 seed growers per municipality, including at least 2 women). They are organised into seed-grower cooperatives (producer organisations) at the municipality level. These cooperatives are then put into networks. Three years later, the producers are continuing their activities by supervising peers in their municipality.

Intersection between research and local development

What's innovative about the approach is that the activity is one of research, but linked to local development. It brings together several players in a complementary way (researchers, State technical services, local elected officials, and grassroots community organisations). The popularisation of the seeds produced is carried out through the 'spill-over effect'; i.e., each year new small-scale farmers from other villages not initially involved in the project receive seeds before the rainy season. About 3000 small-scale farmers per year participate in this activity. However, only the pilot producers are monitored and supervised by the local agricultural services and the UNV, under the supervision of INRAN. Local radio stations broadcast awareness-raising programmes in local languages, on the climate changes and the use of drought-resistant seeds.

THE IMPACTS

Improved seeds are resistant to local pests

The producers have judged that the resilient varieties tested are very productive and resistant to attacks by caterpillars compared to the local varieties.

Higher yields for greater food security

Eight varieties of drought-resistant millet, sorghum and cowpea were tested and diffused. The yields obtained on small-scale farms are 800 to 1200 kg/hectare compared to 300 to 400 kg for the traditional varieties.

Higher income for farmers

The project contributed effectively to the fight against poverty during the harvest period, as the income per producer increased considerably and was approximately

350,000 CFA francs on average, per producer and per harvest.

Good rate of diffusion for the practice

Approximately 10,000 small-scale farmers used the varieties in the seven target municipalities of the project. In each municipality, between 1/3 and 2/3 of the farmers use the improved seed varieties.

A system on the way to sustainability

Thanks to the NAPA-Resilience project, the region has enough seeds for the next campaign. Initiatives to bring together these producers have already been started, to encourage sustainable management of natural resources and to fight poverty.

THE FACTORS FOR SUCCESS

Fostering technical command to strengthen ownership and coverage

Technical command is essential. To strengthen the farmers' skills and build their capacities, the project insists on collecting agrometeorological data, training and equipping the phytosanitary coordinators, training the producers to work cooperatively, supplying agricultural inputs and arranging for travel for exchanges between farmers.

Finding a solution to lower the cost of improved seeds and facilitate their access for the farmers

One of the impediments identified during the project was the cost of seeds, which is too high for farmers and producers. The project worked because it was subsidised by the State. A mechanism of financial support for the farmer cooperatives will therefore be essential in facilitating purchase of improved seeds by farmers. ●



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RESILIENT SEEDS AND DATA COLLECTION – A TECHNOLOGY EASY TO USE AT THE LOCAL LEVEL

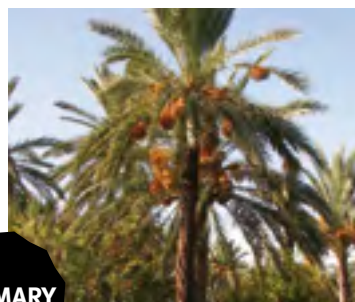
Eight varieties of drought-resistant millet, sorghum and cowpea were tested and diffused. The seeds, for which the optimal sowing period is in June, were planted with a micro-dose of mineral fertilizer. To help the small-scale farmers in the meteorological data collection, 280 easily readable rain gauges were set up in the target municipalities. This technology is easily applicable at the local level and needs just simple supervision to ensure the process is conducted properly. The cost (\$US 146 per hectare) is very affordable compared to the earnings (\$US 800 per hectare). These varieties respond better to the climatic conditions than the local ones because they are both more precocious and more productive.



ADAPTING TO CLIMATE CHANGE IN THE OASES - THE CASE OF BENI ABBES IN ALGERIA

Jean Baptiste Cheneval, Coordinator-General, RADD0, **Christophe Brossé**, Project Officer, CARI, and **Mohammed Bouziane**, President of Les Amis de la Saoura Association.

Le RADD0 (a network of French-speaking associations hosted by CARI and CCFD-Terre Solidaire), CARI and Les Amis de la Saoura in Algeria work for the protection of oases in North Africa.



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SUMMARY

In the arid zones considered by the IPCC as ‘high-risk’ environments in terms of climate change impact, oasis creation is essential for effective management of natural resources – especially water – and for ensuring substantial agricultural production. The traditional oasis helps establish an internal microclimate that optimises space in an environment

where fertile land is scarce. Oases are a solution in the adaptation to climate change, as well as in the fight against poverty. In this context, a local rural development project has been implemented at the Béni Abbès oasis in Algeria, in order to improve irrigation practices and crop-growing there.

BACKGROUND AND ISSUES

‘The oasis effect’

Oases are agro-systems built and maintained by man, based on strict natural-resource management. In an environment subject to extreme aridity, water is an essential condition in the creation of an oasis to preserve plant density and raise air humidity levels. The traditional oasis is characterised by the superimposition of three levels: (i) the tree layer, with date palms reaching a height of 15 – 30 m and whose leaves filter the sunlight; (ii) the shrubby layer (e.g. henna and punica), whose vines grow on the palm and fruit trees (e.g. apple, orange, apricot and peach trees); and (iii) the herbaceous layer, with

low plants for fodder (alfalfa and wheat, etc.), market gardening (including many oasis varieties), herbs and medicinal plants. The fodder plants provide feed for livestock herds, whose excrement maintains soil fertility.

This superimposition results in an ‘oasis effect’ – a microclimate within the oasis – created under the protection of the palm tree. The humidity, heat and light are conducive to crop and livestock-raising systems, thereby optimising space in an environment where fertile land is scarce.

The role and vulnerability of oases

Oases are ecosystems that are part of arid zones. They represent

about 30% of land surface along the arid belt that goes from Africa to Asia, from Mauritania to China. In these areas with hostile conditions, inhabitants of oases have learned how to develop techniques for managing natural resources, especially water, thereby enabling substantial agricultural production. The ‘oasis effect’ and the expansion by oasis inhabitants of crop surfaces in rainy years are very important aspects of agronomic engineering.

For arid regions, oases also represent large centres for human settlement and provide strong potential for sustainable development, based on real capacities for adapting to difficult climatic conditions. Throughout centuries,



local populations have been able to adapt to the constraints of the environment; build up know-how that has become incorporated into the local culture; and preserve the ecosystem, which is essential for coping with the future problems of climate change. In these regions, which are recognised as ‘high-risk’ by the IPCC in terms of climate

RADDO MOBILISES CIVIL SOCIETY!

In 2001, several members of civil society working in oases decided to unite their efforts and create the Oases NGO Network (RADDO). Active in Mauritania, Morocco, Algeria and Tunisia, RADDO seeks to preserve and develop oases by putting members of local organisations into a network so as to encourage and promote sustainable development of oases. In addition to supporting local initiatives, the network also enables civil society to build bridges with other stakeholders such as local authorities and scientists and to remind public authorities of the importance and specificity of oasis zones at the national as well as international level.

change impact, the oases are moreover areas of very intensive agricultural production as well as a stopover point for nomadic or semi-nomadic stock-breeders of arid zones (which are home to 50% of global livestock herds).

All this contributes to local food security. Maintaining oases in a hyper-arid zone is therefore a guarantee for maintaining the development of some of the food security that cannot be replaced by other systems of production in this environment. These oasis ecosystems are considered to be part of the solution for adaptation to climate change, at the same time as they help fight poverty.

Oasis resilience capacity

The centuries-long existence of oases has enabled the development of know-how on adaptation to climatic variations in several respects, especially via social and economic organisational capacities that have integrated the constraints of managing natural resources, such as water in arid environments. At the edge of hyper-arid deserts, these oases also help to preserve

the transitional areas that act as buffer zones. The evolution of this ‘pre-Sahara’ area acts as an indicator of the relationship between deserts and the regions that are more or less humid. Preserving oases is essential to the maintenance and rehabilitation of these buffer zones, which are tending to show signs of degradation all over the world.

THE PROJECT

A national programme of agricultural and rural development

The Algerian government started up a national programme for agricultural and rural development in the Béni Abbas oasis, located in the Saoura Valley in Algeria. was used to support a local rural development project in this same oasis. The objective of this project was to improve irrigation and adapt farming practices. It was implemented by Les Amis de la Saoura Association, with financial support from the local municipality, the Béchar Wilaya, the Wilaya’s agricultural services department and the GIZ.

RADD0'S IMPACT

The advocacy actions implemented by RADD0 since 2001 have had impacts on the protection of oases at various levels. Following mobilisation by civil society, Morocco announced that the priority themes for southern Morocco were water and oases. In 2006, a programme of oasis preservation to fight against desertification and poverty was initiated. At the international level, RADD0's participation in many Conferences of Parties of United Nations Conventions on the fight against desertification and climate changes has enabled civil society's voice to be heard at the United Nations General Assembly in 2011 and 2012, as well as the incorporation of oases in the declaration of the World Summit on Sustainable Development at Rio+20.

A participative diagnostic to start with

A diagnostic was conducted with participation of the farmers, in order to analyse the existing system. Following this assessment, the farmers agreed to mutualise their rights to water by sharing a collective water basin and to adopt smarter water management principles, by irrigating according to the plants' water needs. This innovative practise entirely changed the irrigation system (traditionally through submersion) and significantly reduced water losses.

An improved irrigation system

The project improved the irrigation system by (i) establishing a basin for storing and sharing water (300 m³); (ii) constructing 800 m of irrigation channels through the gardens; and (iii) repairing 450 m of water pipes, thereby reducing water losses.

THE IMPACTS

Better water management to protect the oasis and cope with the future impacts of climate change

By improving the irrigation system and repairing the water pipes, the municipality reduced water losses

and stored water in anticipation of drier periods. This made it possible to save water and guarantee the preservation of oases in drier periods.

Effective participation by oasis inhabitants

By encouraging the participation of all the stakeholders, the project strengthened community spirit locally. Further, an in-depth change in behaviour concerning distribution and use of water can be observed. The oasis can now prepare itself for increasing scarcity in water, by limiting the drying out of the groundwater essential to its livelihood and that of its inhabitants, and by consequently increasing its resilience.

Increased productivity

By tearing out more than 200 unproductive palm trees and replacing them with 200 fruit trees, the municipality created new sources of income and food.

desire of the actors to accept this change. The foremost actors of this practice are the farmers, who are simultaneously the beneficiaries. It was at the initiative of the Association that the farmers participated in the diagnostic, but it was the farmers themselves who decided to implement the innovation. It is thus essential to enact participative processes in order to guarantee that the stakeholders of the oasis are included.

The importance of public policies in financing oasis protection

It is essential for the government to seize hold of these problems in order to support the resilience of oases and adaptation by oases populations to the impacts of climate change. The project was part of a national rural and agricultural development programme, thereby facilitating funding and the implementation of the project. ●

THE FACTORS OF SUCCESS

The key role of farmers in the success of this type of practice

This process is relatively simple, but it is based essentially on the



MANGROVE CONSERVATION AS A TOOL TO FIGHT POVERTY IN JOAL-FADIOUTH

Emmanuel Seck, Knowledge Manager- Environmentalist and Programme Coordinator at ENDA Energie Environnement Développement.

ENDA Energie is a Senegalese member-association of ENDA Third World, promoting access to sustainable energy and environmental protection.



SUMMARY

In Senegal, the Saloum Delta mangrove in Joal-Fadiouth is very rich in biodiversity but severely affected by climatic disturbances, which are exacerbated by human pressure. One of the initiatives developed to protect the mangrove in Joal-Fadiouth is the establishment of a 17,400-ha protected marine area as well as the decentralisation of State

policy, by which environmental management jurisdiction has been transferred to the local authorities. Civil society has taken advantage of this opportunity to develop an initiative to encourage the conservation and community management of the mangrove ecosystem and at the same time develop the services offered by the latter.

BACKGROUND AND ISSUES

Mangroves have important ecosystemic functions for local populations

Mangroves are home to numerous plant varieties and animal species, and they provide means of existence and energy to local populations. They are a source of food, fishery resources, biomass, recreation and medicinal plants, etc. They play a role in climate regulation as well as in soil and coastal protection. Finally, they also represent heritage of importance to the community and to tourism.

Degradation of Senegalese mangroves by climate changes and human pressure

In 2005, the Millennium Ecosystem Assessment concluded that 60% of the ecosystem studied, including mangroves, have been severely degraded or used in a non-sustainable way. In Senegal, the combined effects of human pressure and climatic disturbances have affected many ecosystems – especially the Saloum Delta mangrove, located in the Sine Saloum natural region, which spreads over approximately 500,000 ha. Its richness in biodiversity and landscapes led to this zone being included among UNESCO world

cultural heritage sites and in the Ramsar Convention.

The mangrove: one of the natural resources of Joal-Fadiouth that must be protected

Joal-Fadiouth is a rural municipality of the Mbour Department, located in the Delta area. A significant mangrove system can be found there. The inhabitants of Joal depend heavily on the mangrove's fauna and flora resources. But the mangrove has become degraded from coastal erosion, climatic variations and heavy usage by nearby populations. This threatens both the means of subsistence of these populations and the richness of its

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biodiversity. The economic stakes and conservation issues are hence important, as Joal is the foremost small-scale fishing port of Senegal, with catches estimated at 96,000 tonnes per year.

Multiple initiatives to protect the mangrove

The various environmental initiatives in Joal-Fadiouth, including the establishment in 2004 of a protected marine area of 17,400 ha and the State decentralisation policy that transferred environmental management jurisdiction to the local communities, have furthered the blossoming of local associations and environmental projects in the town over the last decade. This proliferation of grassroots commu-

nity associations and organisations that reforest the mangrove require better harmonisation and work to make them consistent with the local policies of natural-resource management. The practice of both use and conservation of resources requires good knowledge of the ecosystem and a local institutional framework that can guarantee better governance of natural resources.

sustainable development and poverty reduction. It further sought to positively influence users and decision-makers via better knowledge of ecosystemic services, in order to manage these ecosystems sustainably. Two in-depth studies were carried out, on the mangrove’s molluscs/crustaceans and flora respectively. The species and varieties identified were illustrated and named scientifically, in French and in the local language (Serer).

THE PROJECT

In 2009, ENDA developed a capacity-building project targeting grassroots community organisations, for the conservation of the mangrove ecosystem and the fight against poverty in Joal-Fadiouth. Through this project, it carried out advocacy, awareness-raising, capacity building activities and advisory support. The innovative nature of this project lies in determining and developing services offered by the mangrove ecosystem, all the while preserving it.

An awareness campaign on the radio

In partnership with the local radio station ‘La Côtière’, 10 radio broadcasts were developed to heighten the awareness of the local populations. This helped make the latter realise they must carry out community management of the mangrove and use its natural resources more rationally.

Environment and development consultation framework

A local framework for consultation on the environment and development was set up with the support of ENDA. It is made up of more than 100 local organisations active in development and the environment and is made up mostly by women and young people. It works as a tool for mobilising action and participation by civil society in decision-

MOBILISATION BY CIVIL SOCIETY!

ENDA has been working in Joal Fadiouth for more than a decade, in partnership with the Drynet network and IUCN Netherlands, to provide capacity building for local stakeholders, for better conservation of the mangrove ecosystem and for fighting poverty. ENDA encourages community management of natural resources, eco-citizen awareness, pooling of resources, environmental monitoring, improved organisation of local associations so that they can be key negotiators in local planning, incorporation of environmental issues in local development plans, and networking of organisations.

Heightening community awareness about the services provided by this ecosystem

In order to build capacities for better resource management, ENDA strove to improve understanding of the ecosystems in terms of the services they provide for both



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making and implementation of local and national environmental policies. It also plays an advisory and intermediary role with the municipal authorities, with the aim of real participative management of the environment.

National advocacy campaign with representatives of local organisations

Along with representatives of local organisations working within the consultation framework, ENDA has developed advocacy campaigns to make national decision-makers aware of the problems of mangrove degradation in Joal and of the salinisation of land affecting the rice growing practised by the town's women. It is thanks to this advocacy that the anti-salt dike, which retains rainwater upstream for rice growing and prevents salt intrusion from downstream, was repaired.

THE IMPACTS

Better understanding, for more sustainable management of the mangrove

Understanding of the various functions and values of the mangrove ecosystem have furthered more sustainable resource-management practices in the town. These latter include reforestation of the man-

grove, the development of oyster beds and biological recovery in stocking zones for ark shells.

Successful mobilisation of the population!

The local population's interest in and enthusiasm for environmental issues is an important achievement of the awareness-raising and informational activities carried out by ENDA. The creation of the Joal-Fadiouth Association of Ecological Tour Guides (AEJF) can be credited to this process.

The ecological balance is better preserved

Now that the behaviour of the inhabitants of Joal-Fadiouth has changed in regard to use of the mangrove. They take the sustainability of resources more into account, by considerably reducing woodcutting and by involvement in the management of the protected marine area.

Advocacy helped obtain funding for protection of the mangrove

In 2011, the Adaptation Fund financed the 'Adaptation to Coastal Erosion in Vulnerable Zones of Senegal' project, which included the building of the anti-salt dike to start up rice growing again and to mitigate soil salinisation.

THE FACTORS FOR SUCCESS

Consultation frameworks

Frameworks like the one implemented through the project play a key role in creating space for dialogue and negotiations with the local authorities and allow for continuous stakeholder participation in the design of local strategies of sustainable development.

Reconciling the local economy and mangrove conservation

This consolidates the local economy by giving new value to the mangrove's ecosystemic services and results in the actual conservation of the mangrove becoming a source of income. ●



RE-GREENING THE SAHEL INITIATIVE

Christine K, Director of the Heinrich Boell Foundation in Nigeria & West Africa.

The Heinrich Boell Foundation Nigeria (office for Nigeria & West Africa) works for green political solutions that improve people’s means of subsistence faced with growing climate stress.



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SUMMARY

African agriculture is highly threatened by climate changes and is even more vulnerable in the semi-arid Sahel region. Niger must deal with the advance of the Sahara Desert, which is affecting local populations and subsistence agriculture. Yet, it is possible to better manage land and ensure the wellbeing of communities. In 2007, it was discovered that millions of hectares in the drylands of

Niger were covered with young trees and that certain practices such as agroforestry and the presence of animals on the land would intensify agricultural yields and make it possible to diversify their systems of production. This simple and very low-cost technique of re-greening was applied in Niger with very impressive results.

BACKGROUND AND ISSUES

The impact of climate change on agriculture in arid and semi-arid zones

Climate changes represent a major threat for the 2 billion poverty-stricken people in the world. But better management of natural resources can help countries such as Niger adapt. Recurring droughts and growing desertification linked to climate change are going to hit Africa hard. More than 300 million Africans live in zones that are regularly affected by drought.

In a recent report published by the World Bank, a rise in global temperatures of 1.5°C between now and 2030 could make around 40% of the land surfaces currently devoted to production of maize unfit for growing this crop in sub-Saharan Africa. It could also significantly damage production capacities for sorghum in the west of the Sahel and in southern Africa. A temperature rise of less than 2°C between now and 2050 could nonetheless reduce all plant production by 10%. Some indices suggest warming beyond this 2°C threshold could lead to decreases of 15 to 20% in

overall crop yields in all areas of production.

African agriculture is obviously facing a crisis and is being made increasingly vulnerable to the extreme events stemming from climate change. In Niger, the Sahara Desert is spreading south more and more, into the semi-arid Sahel region, and rain is unpredictable. This has led to degradation of agricultural lands and groundwater, thereby displacing local populations and subsistence agriculture.



THE PROJECT

Better soil management to reinforce agricultural resilience

But it is possible to improve land management and the wellbeing of communities. Decades ago, the principle of efficient agriculture – which clearly separates agricultural land from forests through the clearing of agricultural land – made its way as far as West Africa and marginalised the principle according to which all organic matter nourishes the soil. This cleared land was very vulnerable to droughts in the 1970s and 80s, and its fertility continued to decline as the Nigerien climate changed.

It was in 2007 that the international community discovered that 7.4 million ha in the drylands of Niger had quite unexpectedly been covered with young trees at the initiative of farmers who wanted to protect and fertilise their land. These farmers had realised that practising agroforestry, ceasing

the cutting of trees and shrubs, and having animals on their lands would intensify agricultural yields and make it possible to diversify their systems of production. In some regions of Niger, the level of underground water rose up to 10 metres because rainwater was retained in soil that was no longer compressed, but had become permeable thanks to natural composting, termites and cooler ground temperatures in the shade of trees.

How does it work?

The technique of re-greening is simple, costs nothing and is entirely managed by the farmers who till their land. Rather than planting new trees, the technique provides for protecting the trees, shrubs and roots that grow naturally on the land, rather than cutting them. The farmers thereby give priority to certain tree varieties according to their co-benefits: fodder for livestock as well as wood for cooking, building and sales at local markets. The term ‘agroforestry’ can also be used.

THE AIM OF THE ‘LET’S RE-GREEN THE SAHEL’ INITIATIVE

is to inform farmers of different West African countries about the approach and its success. The initiative organises observation and knowledge-sharing missions in order to mobilise other farming communities in the region. In Mali, a ‘Let’s Re-Green the Sahel’ banner was given to the farmers who replanted the most and the best, making it possible to unite them into a single movement. The Heinrich Böll Foundation has funded a research and exchange visit in Niger for researchers, small-scale farmer organisations and civil society from Nigeria, where the practice of re-greening by farmers is not well known and where forest cover is markedly less dense.

THE IMPACTS

12 million hectares protected

Since 2007, the innovative initiative to re-green Africa has made even more progress. According to data from the US Geological Survey EROS Center, in 2009 more than 12 million ha were greened in Africa. The Nigerien farmers protected and managed at least 200 million new trees in 20 years.

Positive impact for farmers

Thanks to this technique and to the presence of animals, farmers no longer need to purchase chemical fertilisers or transport great quantities of compost. Thanks to the tree plantations, they have several sources of income and are less vulnerable to the climatic and economic variability of the agricultural production each year. In the most difficult years, they can sell fruits and wood to buy food. The experts of the initiative estimate that the technique represents earnings of 200 million dollars per year for the farmers.



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Positive impact on food security

The presence of trees in the fields makes it possible to both protect the land from wind and sun and to reduce losses of water due to evaporation. The leaves that fall from the trees help create organic matter in the soil and store humidity, thereby stimulating fertility and production volumes. Whereas in 2012 Niger had a 500,000 to 600,000-tonne deficit in cereals because of irregular rainfall in 2011, one department of Niger – with a very dense green coverage – produced a surplus of 14 tonnes compared to 2011.

Positive impact in fighting climate changes

Thanks to this technique, the forest coverage enabled storage of large volumes of carbon dioxide. By increasing the number of trees on the farms, the Nigerien farmers are contributing to reduction in GHG emissions.

A positive impact on the entire region

Farmers in the Sahel region have started to promote the technique, especially in Mali. More and more farmers are adopting greening in Burkina Faso, Senegal and Ethiopia. In Kenya, the Waangari Mathai green belt initiative is along the same lines.

THE FACTORS FOR SUCCESS

The importance of setting up policies to urge millions of farmers to invest in agroforestry

The re-greening of Africa is going to require efforts from all stakeholders, including political and religious leaders, to export and reproduce this good practice. A national agricultural policy and a forest law will have to be made so that they support small-scale farmers by eliminating the obstacles and by facilitating investments in the management of natural resources, especially trees. This work will not be simple, because agroforestry often involves several government ministries.

Success will depend on community involvement

The initiative functions especially because it is implemented and promoted by the farmers themselves. Replication requires convincing the communities to invest in and trust this practice. In particular, a system for diffusing the practice at the community level will have to be created, in which ‘farmers learn from farmers’, through local radio, among other methods. ●



Satellite photo of Nigeria, a country that is not using the regreening technique.

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Satellite photo of Niger after a few years of regreening.

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IMPROVED OVENS FOR FISH SMOKING IN THE SALOUM ISLANDS OF SENEGAL

Abdou Ndour, energy expert with ENDA Energie
Coordinator of INFORSE West Africa.

INFORSE Africa is a network of associations, hosted by ENDA Energie, working to reform public policies on energy access, production and consumption.



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SUMMARY

Fish smoking is a local activity for processing fish, requiring firewood. It is generally practised using traditional methods and techniques that are highly energy-consuming because non-efficient. This leads to perverse effects on the profitability of the value chain and on the aquatic and forest biodiversity of these areas, especially in island mangroves. But improved ovens considerably reduce consumption of wood fuels, rationalise ex-

penses, improve the quality of the products and optimise production. In Senegal, smoking is practised in nearly all the coastal and island areas where fishing is significant. It also represents the main income-generating activity for the island women. Through their organisations, they were able to benefit from improved ovens thanks to support in 2011 from ENDA Energie.

BACKGROUND AND ISSUES

Smoking, known locally as 'khé-thiakh', is a system of processing fresh fish into smoked fish. It is a traditional technique for preserving fish and enhancing its value. It provides strong added value in economic, food and socio-cultural terms, in many African countries. Smoking is a sector that provides jobs through its various aspects (fishing, boat unloading, oven-making, wood gathering in mangroves, smoking, skinning and gutting, transport by pirogue, and sales of the finished product to consumers). In isolated zones, smoked fish also helps strengthen

food and nutritional security. Additionally, the processing wastes are good livestock feed and a very good fertiliser for farming. From a socio-cultural point of view, fish smoking is an activity practised above all (95%) by women, and this among many ethnic groups in Senegal.

Along with fishing, fish smoking is practised all along the Senegalese coasts, from S^t Louis to Dakar (Grande Côte) and from there to Ziguinchor (Petite Côte). In Senegal, fishing generates approximately 600,000 direct and indirect jobs, and 1,600,000 to 2,000,000 people are dependent on sea fishing⁵. In the isolated

Saloum Islands, most of the economic activities centre on fishing. More than 80% of the men there fish, and more than 90% of the women process fishery products, especially through smoking (Enda 2011).

However, despite its significant economic and food dimension for the country, the smoking process today continues to use traditional ovens that are not very efficient but easy to build locally. Such non-standard ovens pose many problems:

- **They are fragile** - As they are not very resistant to heat and rain, the ovens must be rebuilt or repaired each year. This generates extra expenses before the smoking sea-

5. <http://www.ikagel.com/peche-senegal.php>



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son, which lasts from November to June.

- **They consume a lot of energy** - causing very big loss of heat and fuel. Huge quantities of wood, representing more than 60% of production expenses, are consumed each year by the traditional ovens. Fuel supply (mangrove wood) is moreover increasingly expensive and scarce, leading to extra expenses for smoking.
- **They are inefficient** - This makes working time longer and limits both production capacity and economic development opportunities.
- **They are noxious** for the respiratory health of women who inhale the smoke during the process.

The ovens therefore have an impact not only on production expenses and the final cost of the product, but especially on the environment through their consumption of great quantities of firewood.

An additional problem is the lack of financial resources of the local communities, especially among women, to develop their own smoking activity. The women are often employed as labourers by people from outside the region. Yet, smoking can provide opportu-

nities for job creation and income for the local communities.

Finally, promotion and sales are smoking-related activities that remain undeveloped. In the islands, the value chain faces a real problem in terms of markets, due to its isolation and to attempts by outsiders in the area to monopolise it.

THE PROJECT

With this as the background, since 2011 ENDA Energie-Environnement-Développement has been developing a project within the framework of its EASE programme, for the diffusion of improved ovens for fish smoking. Its goal is to empower women and strengthen their economic power.

The improved ovens provide several advantages, including the following:

- cost savings, by reducing the amount of fuel;
- less pressure on natural wood resources, especially from mangroves;
- time savings, because the smoking is faster with the improved ovens;

- improvement in the quality of the smoked fish;
- elimination of the rebuilding and maintenance expenses for the ovens;
- durability, because the lifespan of the improved ovens is at least 10 years.

For the women working in smoking, the technology of this oven offers resilience and adaptation to climate changes. The concrete ovens are standardised, with uniform dimensions.

The project is structured around women's organisations and groups (Women's Empowerment Groups and EIGs). Its innovative approach to facilitate the diffusion of the improved ovens includes the aspects below.

- **A training programme** has been set up to improve management/accounting, marketing and communication skills, and to teach the construction technique to masons and other craftspeople. This ensures transfer of technology and know-how.
- **A forum on fish smoking** has been created, bringing together all the specialists in the field. Its goal is to improve sharing of experiences among the major fish-processing centres of the country. The forum organised visits to processing sites, to better assess and understand the best techniques and technologies used. It was after these field visits that the women unanimously chose to adopt the improved oven technology.
- **A participative and inclusive approach** has also been given priority, along with strong involvement by local decision-makers and grassroots actors. Financial

institutions, local decision-makers, grassroots community organisations and development organisations were mobilised and involved in the consultation process.

- **Financial support for purchasing improved ovens** was made available. Given the many difficulties undermining this sector, the project for popularisation of ovens requires technical-financial support to reinforce the empowerment and economic power of women. This is why the organisations of women processors in the islands worked out a joint financing plan before the building of the ovens. A loan of 37.5 million CFA francs was made available from a bank.
- **A documentary film on smoking** was produced to illustrate the project and act as reference material for capitalisation of the value chain.

THE IMPACTS

- **Capacity building in smoking techniques**, in accounting/management and in marketing of smoked products was provided for a total of 12 EIGs (which included approximately 20 women processors). This capacity building ensures the sustainability and the ownership of the tools and lessons covered. Handbooks were also produced to facilitate the learning and management of smoking.
- **Local transfer of technology** thanks to the training of around 10 craftsmen (mainly masons) on the various islands, on the techniques of building improved ovens. The project also provided for the publication of a manual for oven-building in order to optimise the work conditions.

- **The building of nine improved ovens, co-financed by the loans** taken out by the women's groups. These ovens have a lifespan of more than 10 years. They are very efficient and generate energy savings of around 30% compared to traditional ovens. After one year of operation, the ovens were observed to have better performance than the traditional ones.

- **A bank loan of 37.5 million CFA francs** available for borrowing by the groups. A special rate of interest was provided to stimulate the smoking value chain.

- **Local communities made more aware about energy and environmental issues.** These ovens help to raise the awareness of communities and of women about the importance of energy efficiency, on both an economic and environmental level.

- **Big savings in wood.** For the 2012 smoking season, the ovens enabled the production of approximately 302 tonnes of smoked fish. This made it possible to economise about 13.6 tonnes of wood, representing nearly 1 million CFA francs, not to mention the land surface preserved and the carbon emission quantities avoided.⁶

THE FACTORS FOR SUCCESS

Heightening stakeholders' awareness about the issues and the improved technologies, to facilitate ownership. It was observed that the local communities initially lacked knowledge about new technologies, and this is why the women had continued to use traditional ovens.



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Making sure that the stakeholders work in close cooperation.

The project began working straightaway with groups of women and local cooperatives. This guaranteed that the entire economic community participated in the project and gained ownership of the new technology. The entire local value chain was transformed and shared the risks and benefits.

Making sure technology and know-how are really transferred, to make the practice sustainable. It is essential to create a system of local production to make the ovens. The training of masons who could make and diffuse them has been a key factor in the initiative's success and sustainability.

Provide for an attractive financing mechanism. Without this mechanism, it would have been difficult for the women to purchase the improved ovens at a higher price. The latter would have been a barrier to purchase and to continued use of the ovens by the communities over the long term. The low-rate borrowing mechanism has enabled the project to take on a broader scope as well as to facilitate a change in behaviour of communities used to development projects at no cost. ●

6. Calculated based on the following: 9 ovens with 400-kg capacity operating 3 days/week over 7 months, with each oven economising 18 kg per smoking compared to the traditional ovens



Conclusion **DRAWING ON GOOD PRACTICES TO PLAN LOW-CARBON AND CLIMATE-RESILIENT POLICIES**

MULTIPLE GOOD PRACTISES

The diversity in the good practices illustrated in this paper highlights the multiple opportunities to reconnect pro-poor development and climate change, and design ambitious policies. However, despite the number of successful projects, it is still a challenge to make the shift from successful projects to successful policies.

Indeed, most of the good practises presented in this paper are at project-level. Until recently, they lacked the communications tools to enhance their visibility and disseminate their outcomes and know-how. In the past few years, knowledge-sharing platforms have developed to connect climate change and development and promote good practices for mitigation, adaptation and sustainable development – such as AfricaAdapt, AfricanClimate or the Climate & Development Network. As these good practices are increasingly visible, it's high time to scale up climate action through effective and well-designed policies. As long as policymakers avoid the stumbling block of « turnkey » projects. Too often, good practises and the public policies are systematically replicated and disseminated across countries or regions. The C&DN promotes the shift from good practices to local and national public policies under certain conditions. They must be adjusted and tailored to the socioeconomic, climate and energy context.

HOW TO SCALE THEM UP

Communicating to disseminate the good practice.

It requires work to capitalise and learn from the good practises, and share these lessons with decision-makers. Communication will be key to improve ownership of the project, the stakes and the lessons drawn by the policymakers. It worked in the case of the Regreening Sahel Initiative illustrated in this paper and promoted across many African countries.

Assessing whether and how to duplicate. How can we be sure that what worked here will work elsewhere? Identifying the pre-requisites for duplicating and scaling up any successful project will be decisive. It will be necessary to develop a set of simple qualitative and quantitative indicators to assess the feasibility, adequacy and effectiveness of the project in a different context and/or on a different scale. It will also help adjust and tailor the duplication process accordingly, and ensure all the boxes are checked. The decision to duplicate a good practice should involve all stakeholders

Supporting participatory approaches. We believe that only bottom-up and participatory approaches are effective in planning sustainable development. Top-down planning without consulting stakeholders has had limited impact and threatens the sustainability, adequacy and consistency of the project with the needs of the beneficiaries. This is why all the practices presented in this paper build on participatory approaches.



FACILITATING KNOWLEDGE-SHARING AND MULTI-STAKEHOLDER DIALOGUE

In Morocco, 16 regional observatories for environmental awareness and sustainable development were established, building on the success of the National Environmental Observatory in Morocco. The observatories help assess the state of the environment in Morocco and the performance of public policies in managing and protecting the environment. They also collect and share environmental data and monitor the sustainability of environmental and development projects. The observatories have brought together all the stakeholders and facilitated the involvement of civil society in the design and monitoring of public policies.

INTEGRATING CLIMATE CHANGE IN LOCAL DEVELOPMENT PLANNING

With the launch of the decentralisation process in 2004 in Niger, 266 local authorities were established and requested to design a Local Development Plan to tackle poverty. Unfortunately, these plans did not take into account vulnerability to climate change nor include adaptation practices crucial to protect agriculture and ensure local food security. The project implemented by DEMI-E raised awareness among the local authorities, village communities, elected representatives, technical departments on the impacts of climate change, and the need to factor them in the programmes and investment plans. This local work supported climate-resilient market gardening micro-projects and land conservation work.

Acting locally first. Integrating these good practices at the local level (in the local development plans) is a first step to scaling up the practice at the national or regional level. In many African countries supporting decentralisation, national planning tends to build on the programmes and the orientations defined in local development plans. It's common practise to start with local initiatives. In fact, the national policy in Senegal promoting sustainable management of octopus resources built on a good local practise supported by REPAO.

Building crosscutting, dynamic and sustainable public policies. Integrating climate change into development policies requires a crosscutting approach in time, space and issues. Civil society has long criticized the Millennium Development Goals for working in silo and isolating interconnected priorities. For example, health is a pre-condition for education which itself comes after poverty eradication and a sound environment. This kind of interconnection is also true for water access, energy and food. Also, MDGs aim to eradicate poverty without tackling the drivers (inequalities, the economic system) and the indicators used are global and can hide or create further inequalities. Observers have also criticized the lack of governance goals and the lack of sustainability of the MDGs once they are achieved. The current discussions on Sustainable Development Goals (SDGs) could avoid making



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the same mistakes by promoting more crosscutting and less sectoral objectives to achieve low-carbon and climate-resilient development. The SDGs could also look set regional or local objectives, often more relevant, participatory and sustainable in time.







Translating climate principles into investments and budgets. Drafting and adopting principles or language on integrating climate change in sectoral planning is not enough to effectively and concretely tackle climate change. Funding is a core driver of integrated climate and development policy. These principles can only become operational through investment plans and annual budgets.

Moving forward! The consultations on the post-2015 agenda demonstrate willingness to move beyond sectoral approaches and to define a framework for crosscutting and participatory planning of development, building on successful local practices. Each country could choose its path to sustainable and resilient development accordingly. For the past few years, the C&DN has been contributing to this post-2015 vision. ●

FINDING THE RIGHT SCALE FOR CLIMATE ACTION

The FERLO region in Senegal is a sensitive and climate-vulnerable territory. With the decentralisation process in place since 2006, and increasing awareness on environmental and climate issues, local authorities are playing a more important role in managing environmental issues and adapting to climate change. In this context, the GERES implemented the CLIMTERR project promoting a territorial approach to climate change adaptation through a partnership with the French Rhône Alpes region. The approach was innovative because five regions came together to function as one local authority.

Mainstreaming climate objectives in the MDGs

Millennium Development Goals	Impacts from climate changes	Examples of climate-development objectives
<p>1</p>  <p>Eradicate extreme poverty & hunger</p>	<ul style="list-style-type: none"> → Decrease in subsistence agriculture production and in commercial production. → Limited access to drinking water and to ecosystem goods and services. → Unforeseen destruction of stocks/harvests related to extreme climate incidents. 	<ul style="list-style-type: none"> → Strengthen resilience of agricultural systems by adapting crops, seeds, farming methods. → Limit use of chemical inputs and fertilizers in agriculture. → Develop use of water pumps that operate with renewable energy. → Ensure and rationalise access to drinking water and water for farming (drip irrigation). → Protect and consolidate food-storage systems against extreme weather conditions. → Develop the use of energy-efficient cooking stoves.
<p>2</p>  <p>Achieve universal primary education</p>	<ul style="list-style-type: none"> → Increase in household chores due to gathering water and wood, thereby keeping children out of school (especially young girls). → Extreme climate conditions forcing migration and the interruption of children's schooling. 	<ul style="list-style-type: none"> → Develop widespread climate-change awareness-raising campaign, adapting content to rural and urban areas. → Provide education on climate change for all. → Support travelling schools.
<p>3</p>  <p>Promote gender equality and empower women</p>	<ul style="list-style-type: none"> → Strain on daily tasks that women are traditionally responsible for, leading to exacerbation of inequalities between men and women. 	<ul style="list-style-type: none"> → Promote the primordial role of women in the fight against climate change. → Drastically reduce the time women spend in searching for wood-energy (e.g., via improved cooking stoves).
<p>4 5 6</p>  <p>Reduce child and maternal mortality, as well as mortality from diseases (HIV, malaria)</p>	<ul style="list-style-type: none"> → Heightened vulnerability to diseases: more frequent flooding and strong rains on top of lack of water sanitation. → Heightened mortality due to higher temperatures. 	<ul style="list-style-type: none"> → Fight against stagnant water by building drains for rain and wastewater. → Adapt housing construction methods using natural ventilation and improved water and sanitation structures.
<p>7</p>  <p>Ensure environmental sustainability</p>	<ul style="list-style-type: none"> → Reduction in ecosystem productivity and in natural resource availability, due to droughts, flooding, etc. → Losses in biodiversity, depletion of local resources. → Landslides in slums due to strong rains. → Atmospheric pollution and respiratory problems. 	<ul style="list-style-type: none"> → Protect the most vulnerable communities from the impacts of climate change. → Ensure access to clean and economical energy for all. → Fight against deforestation, all the while creating new sources of income for local communities. → Strengthen actions related to the participative management of natural resources.
<p>8</p>  <p>Develop a global partnership for development</p>	<ul style="list-style-type: none"> → Incremental cost of climate change on development policies. → Impact of climate change on achieving the MDGs. 	<ul style="list-style-type: none"> → Identify, provide housing to and protect environmentally displaced people. → Increase resources for adaptation and mitigation (200 billion euros in public resources from the industrialised countries per year). → Develop access to direct micro-financing for communities.

RECOMMENDATIONS FOR OUR DECISION-MAKERS

APRIL 21ST 2013, CONAKRY

Not only do our countries in Africa suffer from extreme poverty and political and socio-economical instability in a context of strong demographic growth, they must also cope with the impacts of increasing climate change, and the degradation and rarefaction of the continent's natural and energy resources. Yet, governments around the world are not taking action. Our public economic and energy policies seldom take into account environmental and climate impacts. Unless stakeholders include these new energy, environmental and climate constraints when planning and implementing development policies and projects, they will undermine the success of Millennium Development Goals and the meaning of and process towards the post-2015 Sustainable Development Goals. There are good practises on the ground. It's high time that they be promoted and scaled up in order to become the low-carbon and climate-resilient public policies we need for the future we want. The Climate & Development Network and partners, gathered in Conakry from the 17th to the 21st of April, call upon local and national decision-makers to adopt the following principles.

1/ Efficiently plan adaptation to climate change and access to clean and efficient energy consumption by:

- Ensuring coherence with the agreements and treaties adopted internationally;
- Strengthening cross-border and regional initiatives particularly for adaption (eg. of coastal zones);
- Ensuring that national planning efforts build on existing local development plans and strengthening the decentralisation process in countries to ensure effective climate action at the local level;
- Avoiding any duplication or redundancies within existing institutions when planning adaptation and mitigation of climate change;
- Strengthening coordination among ministries, services and stakeholders at all levels.
- Strengthening capacity and information on the impacts of climate change, including through partnerships with the scientific community;
- Prioritizing sectors with strong employment potential in the field of sustainable development (particularly that of renewable energy and energy efficiency);
- Applying a participatory approach involving all stakeholders, including parliamentarians, local authorities, women, youth, field NGOs and direct beneficiaries;
- Building on good practises for adaptation, conservation and management of natural resources, energy efficiency and renewable energy, that exist within countries, including those implemented by civil society;
- Adding a set of legislative, financial and technical regulation to facilitate implementation and consistency;
- Applying the guiding principles for sustainable development to investment plans and budgets.
- Monitoring and evaluating the plan and its implementation, with the help of civil society.

2/ Make adaptation a crosscutting requirement for any development policy or project by:

- Creating or strengthening national adaptation funds as well as direct access to international climate financing for adaptation;
- Allocating adequate human, financial and technical resources at the national and local level to make adaptation a cross-cutting priority;
- Establishing innovative financial mechanisms to scale up resources for adaptation;
- Allocating at least 50% of all international climate finance for adaptation;
- Taking into account recommendations and concerns by all stakeholders when planning development and adaptation policies/projects to ensure their sustainable and long-term impact.

3/ Improve energy efficiency and develop renewable energy sources by:

- Widely promoting biogas in environmental and energy policies, and through adequate budgetary allocation;
 - Promoting the use of energy-saving lamps ;
 - Promoting the large-scale development of solar cookers, improved cooking hearths and ovens for both household and economic uses;
 - Transforming farm waste into fuel briquettes;
 - Developing solar public lighting;
 - Creating the needed incentives to facilitate access to quality renewable energy infrastructure/equipment;
 - Raising citizen awareness on how to produce and consume energy without degrading the environment and the climate;
 - Assessing country needs in terms of energy services;
- Implementing dedicated financial mechanisms to support renewable energy.

4/ Improve management and conservation of our natural resources in the context of climate change by:

- Creating institutional mechanisms to facilitate effective and democratic participation of civil society and local communities in the management of natural resources;
- Committing States to mobilise the needed resources and implement adopted environmental policies and regulation immediately;
- Include priorities identified by the communities in policy-making through early and representative consultations;
- Create budget headings in climate and environmental funds to enable direct access by civil society to help them mainstream climate change in their conservation projects;
- List, promote and disseminate good practises implemented by countries and local communities, and use them to build development policies.

We firmly believe that our decision-makers and local communities can more effectively curb climate change and address its impacts if existing policies were consistent with each other, anticipated climate and energy vulnerabilities and built on good and innovative practises.

The Climate & Development Network

Members of the C&DN

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DEVELOPPEMENT

www.climatdeveloppement.org
info@climatdeveloppement.org