

IFAD / ICRAF / ACT Design Document

**SMALLHOLDER CONSERVATION AGRICULTURE PROMOTION (SCAP)
IN WESTERN AND CENTRAL AFRICA**

Programme for
Strengthening livelihood strategies and socio-economic growth among farming communities
in Western and Central Africa through sustainable application of conservation agriculture



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By

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LIST OF ACRONYMS

ACT	African Conservation Tillage network
WCA	Western and Central Africa
AFD	Agence Française de Développement
APD	Public Development Assistance
CA	Conservation Agriculture
SARDI	South Australian Research and Development Institute
CGIAR	Consultative Group on Agricultural Research
CIAT	International Centre for Tropical Agriculture
CIRAD	Centre de coopération Internationale en Recherche Agronomique pour le Développement
CMDT	Compagnie Malienne des Textiles
CS	Cropping Systems
CCS	Candidate Cropping Systems
ESA	Eastern and Southern Africa
FAO	Food and Agriculture Organization
FFEM	Fonds Français pour l'Environnement Mondial
FFS	Farmer Field School
FODESA	Fonds de Développement en zone Sahélienne
GAP	Good Agricultural Practices
GTZ	Deutsche Gesellschaft fuer Technische Zusammenarbeit
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
INSAH	Institut du Sahel
IPM	Integrated Pest Management
MAE	Ministère des Affaires Etrangères
MTR	Medium Term Report
MoU	Memorandum of Understanding
NARI	National Research Institute for Agriculture and Environment
NEPAD	New Partnership for Africa's Development
PRGA	Participatory Research and Gender Analysis.
TERRAFRICA	World Bank end UBN initiative to combat Desertification
NRM	Natural Resources Management
PDRD	Programme de Développement Rural Durable
PICOFA	Community Investment Programme for Agricultural Fertility
R&D	Research and Development
SCAP	Smallholder Conservation Agriculture Promotion
SCV	Systèmes avec Couverture Végétale
SOCOMA	Société Cotonnière du Gourma.
SODECOTON	Société camerounaise e Développement du Coton
SWC	Soil and Water Conservation
WCA	Western and Central Africa

PROJECT TITLE: SMALLHOLDER CONSERVATION AGRICULTURE PROMOTION (SCAP) IN WESTERN AND CENTRAL AFRICA

I BACKGROUND

The past few decades have witnessed a transformation in the demography and agricultural economy in much of Western and Central Africa (WCA). This transformation has featured population growth, urbanization, agroecosystem intensification in better endowed areas including forest zones, and the expansion of cultivated area onto increasingly marginal lands – a process resulting in a shortened fallow period that ultimately affects soil fertility. Furthermore, in many areas, livestock management has progressively become less migratory and more sedentary.

Though about 19% of the region's imports must still be devoted to food products, with these changes, the agricultural sector has been able to feed the rapidly growing rural and urban populations. The observed increase in production, however, has come at a cost with extensive damage to the agricultural resource base through land degradation mainly as a result of deforestation, soil erosion and reduced soil fertility.

Past responses to land degradation

Land degradation in WCA is not new. Even during the 1970's and 1980's it was becoming apparent that population pressure was beginning to have major consequences on the environment. In some regions, land degradation proceeded to the extent that large areas began to be covered with sterile soils with thick crusts in which water infiltration is very limited. In Burkina Faso, these lands are referred to as Zipélé. In response to this process, and in addition to the indigenous techniques developed by farmers, national and international groups, ministries, farmers associations, research centres etc. began testing and implementing a number of soil and water conservation (SWC) practices/techniques aimed at mitigating land degradation and rehabilitating degraded soils.

Although the impact of these practices has not yet been fully assessed, farmers have, however, found several of them to be very attractive, even under the diverse environmental conditions characteristic of WCA. IFAD, through its investment and research and development (R&D) projects, played an active role in the promotion of selected SWC techniques, including zaï (in Burkina Faso), tassa (in Niger), semi-circular hoops (*demi-lunes*), stone cordons, options for natural tree regeneration, and the establishment of pastoral corridors. Many farming communities have fully incorporated these practices into their land management systems, and continue to provide the labour needed for their maintenance.

Some SWC techniques, however, were not widely adopted by farmers. These include agroforestry practices and *haies vives*.¹ Nonetheless, the response to land degradation problems has improved the capacity of many stakeholders – farmers, ministries, NGOs, national and international research centres – to assess SWC practices with regard to environmental conditions and farmers' circumstances.

Conservation agriculture around the world

Past responses may not be enough to deal with the continuing threat posed by land degradation. Additional approaches to soil and water conservation may be needed. One such approach might be found in what has come to be known around the world as conservation agriculture (CA).

¹ Evaluation du programme spécial du FIDA pour les pays d'Afrique Sub Saharienne touchés par la sécheresse et la désertification. Bureau de l'évaluation et des études, FIDA, 1999

CA is based on three fundamental principles: (i) minimum soil disturbance (ii) adequate soil cover at critical periods of the growing cycle, and (iii) diversified crop rotations. Soil cover may be provided by crop residues, cover crops, tree biomass, or even biomass produced ex-situ. CA stimulates dynamic “natural” ecological processes such as those at work in natural forests. Other terms sometimes used for CA include “direct sowing”, “zero tillage”, or “*Systèmes avec Couverture Végétale (SCV)*”.

In many parts of the world, CA practices have been widely adopted by farmers. The most extensive adoption is found in the southern cone of Latin America, especially in Argentina, Brazil and Paraguay, and in North America and Australia. Adoption is proceeding in other regions as well, such as Eastern Europe, East Asia (including China) and even parts of Eastern Africa. Presently, 95 million hectares in the world are under CA.

CA has been the most successful when its three fundamental principles have been fully adapted and tailored to local circumstances by groups of stakeholders. In Latin America, an innovation process has been documented that is best described as the co-evolution of CA technologies together with stakeholder capacity to innovate and test new options. The Latin American experience also illustrates the importance of farmer and farmer organization leadership in technology design and testing. In this way, CA practices have been developed that are suitable for smallholder as well as large-scale commercial farmers. IFAD has successfully supported one of these initiatives in Southern Brazil².

Adapted CA practices are often found to be a practical means for fostering sustainable improvements in agroecosystem productivity. For this reason, the bottom-up process of farmer leadership in CA development is increasingly being matched by complementary support from governments, development assistance agencies and research institutions.

Fostering the use of conservation agriculture in Africa

There is reason to believe that in sub-Saharan Africa, CA might be able to help improve food security, reduce land degradation, and contribute to solving labour losses such as those resulting from the spread of HIV/AIDS. Several actions have been taken to explore how the principles underpinning CA can be used to produce the best advantage in the African context.

One set of actions has been taken by the African Conservation Tillage network (ACT) in fostering research, development and information sharing on CA. The work of ACT has hitherto concentrated on Eastern and Southern Africa (ESA), especially in Kenya, Tanzania, Zambia, Zimbabwe and South Africa. This project will provide the means whereby ACT can further contribute to information-sharing on CA among regions, including between WCA and ECA. ACT can also facilitate information sharing between CA work in sub-Saharan Africa and similar work being conducted elsewhere in the world.

Another set of actions relates to the III World Congress on CA, which took place in Nairobi in October 2005. This conference mobilized an enthusiastic participation of 80 experts and farmers. Past and on-going experiences regarding CA in ESA and WCA were described and discussed and obstacles to CA dissemination in WCA were analysed. Success stories, including some from WCA, supported the notion that there is indeed potential for the development and adaptation of CA in WCA, despite the presence of important issues such as low biomass production potential and the need to respect traditional rules governing livestock grazing. The Congress also led to the emergence of a WCA network on CA.

² Dissemination and development of Zero tillage systems for small farmers in Tropical Brazil, IFAD TAG, 2004

Prior to the III World Congress on CA, an electronic brainstorming conference was organized³, supported by CIRAD, FAO, FFEM, AFD, MAE, ACT and IFAD. This electronic conference specifically focused on the application of CA principles to the conditions of WCA.

The initial design of this project builds strongly on the outcomes of the e-conference and the subsequent Congress. The full design of this project was developed during a stakeholder and project planning workshop held in Ouagadougou (23-25 May 2005), attended by many of the African participants in the Congress.

Implementing CA in different environments

Fundamentally, the concept of conservation agriculture is centred on the sustainable use of natural resources, in harmony with natural processes. The principles of CA can be adapted and tailored to the conditions of many production environments. In other words, the entry points and specific practices for CA may vary, even while the fundamental principles are maintained. CA is not just a fixed set of pre-determined technologies.

CA is widely – but not universally – applicable. There are situations where circumstances are so marginal and resources so fragile that farming itself is simply not viable. This may be the case under very dry or very wet environments, where the challenge of maintaining resilience in natural processes cannot be overcome, even with the application of CA principles. Outside such extreme cases, however, CA has often been successful, even in Africa.

In Southern Zambia, for example, in areas with only 300-400 mm of annual average rainfall, practices inspired by CA⁴ have been successfully taken up by farmers, resulting in a revitalization of the production potential of farmland (Boudron et al.2005).

In Southern Ghana, CA has been successfully applied in areas that receive more than 1000 mm annual average rainfall. In these areas, the problem is one of high biomass. CA has replaced traditional slash and burn technologies, thereby improving soil productivity and avoiding negative environmental impacts.

On the hills of northern South Africa, in areas with 800 to 1000 mm average annual rainfall, CA has helped mitigate the negative effects of heavy rainfall events. Soil cover and improved infiltration (supported by physical structures such as contours and infiltration pits) have helped farmers reclaim for agricultural use, some abandoned fields. In these areas, dangerous land slides induced by heavy rainfall are now a thing of the past (Bwalya, 2004).

Further examples of CA in Africa could be cited for example in Chad, Cameroon or Madagascar.

Some benefits typically associated with CA

The benefits of CA regarding **environmental considerations** can be significant. These include carbon sequestration in soils, which contributes to improved water use efficiency, mineral balance, fertility, energy balance, and biodiversity. Under CA, 0.5 to 1 ton of Carbon per ha per year can be sequestered in humid temperate conditions, 0.2 - 0.5 in humid tropics and 0.1 - 0.2 in semi-arid zones⁵. This represents a significant contribution to mitigating **climate change**, which could be

³ Regards sur l'agriculture de conservation en Afrique de l'Ouest et du Centre et ses perspectives. (101 pages, synthèse d'une conférence électronique préparatoire à la participation de l'Afrique francophone au congrès de Nairobi, Dec. 2005)

⁴ We recognize that the Zambian example is not one of "full CA".

⁵ World Soil Resources Reports 96, SOIL CARBON SEQUESTRATION FOR IMPROVED LAND MANAGEMENT, FAO 2001

taken into account at farm scale (payment of environmental services), and/or at the national scale in the environmental balances, as recommended in the Kyoto protocol.

Usually, soil cover contributes to the elimination of water loss by run-off. In this respect, soil cover can be as efficient as proven traditional techniques. In **economic terms**, there is strong evidence that CA practices can be profitable (eventual lower yields, mostly during the first years, are compensated by lower operating costs). CA also can result in **savings in labour** due to the absence of tillage. In many respects, CA techniques are low-investment and low-cost, and can thus be considered as techniques for reducing poverty. CA practices tend to substitute an understanding of biological and environmental processes for farm labour and external inputs. CA has been identified with many other benefits, including improved timeliness of planting, better resistance to dry spells and droughts, increased agroecosystem resilience & stability, etc.

Conservation agriculture and climate change – a closer look

Crop and livestock production is a major source of two greenhouse gases, methane and nitrous oxide. The latter is produced by the leaching, volatilization and runoff of nitrogen fertilizers and the breakdown of crop residues and animal wastes. Through burning of biomass, agriculture also releases large quantities of carbon dioxide into the atmosphere.

Agriculture also stands to suffer adversely from climatic change. In tropical environments the effects of climate change on agriculture and hence on the livelihoods of millions of rural farming populations are expected to be particularly negative. Average global temperatures are projected to rise by 0.5-1⁰C by 2030 and by 1.4-5.8⁰C by 2100. These higher temperatures will result in increased evapotranspiration and lower soil moisture levels. Some cultivated areas will become unsuitable for cropping and some tropical grasslands may become increasingly arid. This may also expand the range of agricultural pests and diseases.

Even now, farmers are alluding to increases in frequency and severity of extreme climatic factors such as floods and droughts. Rainfall patterns are also said to be getting more erratic and highly unpredictable. This is bringing with it widespread vulnerability and instability in the livelihoods of smallholder-subsistence farmers⁶, problems further exacerbated by continuing processes of land degradation.

As it happens, agriculture can help mitigate the impacts of climate change. Smallholder farmers will wish to have access to practices that reduce their vulnerability to climate change. In the promotion of CA, the SCAP Project will be stimulating, facilitating and empowering rural smallholder-subsistence farmers to adapt for their own use farming practices that help mitigate the negative effects of climate change on food security and livelihoods.

Conservation agriculture, women and men

Conservation agriculture may affect men and women in many different ways. It may influence (more or less) their will to adopt it, or the particular techniques they decide to use. For example:

- Conservation agriculture may cut the overall amount of labour needed, but it may increase the amount of work that women and children have to do.
- Eliminating ploughing (traditionally men's work) may make it easier for women to adopt conservation agriculture.

⁶ As the IFAD investment projects were chosen according to a density population and rainfall gradient, the "smallholder farmer" category cannot be defined *per se* in the whole project, but is site dependent.

- Men who control the family budget may be unwilling to invest in a weed wiper, which would ease the burden of weeding for women.

These distinctions are not always clear-cut. And they differ from place to place and from family to family. Traditional patterns are breaking down anyway as families are forced to cope with the stress of AIDS and migration. A widow may have no choice but to do traditional “men’s work” if she is to feed her family. On the other hand, she may find it impossible to do so if she cannot get the support (land, labour, credit, inputs) she needs.

Even though it is difficult to generalize, differences between men and women are real. They affect their vision of Conservation Agriculture, and also their readiness to adopt it.

Conservation agriculture, input use and labour productivity

CA typically helps restore resilience in agroecological processes. In this way, CA practices can sometimes foster the substitution of biologically based disease, pest and weed control for control measures based on external inputs. Input use efficiency often is increased simply because CA practices allow for their timely application. Improved input productivity helps farmers earn a higher and secure return for even small investments.

Labour productivity is of special interest to most smallholder farm families. In many instances, CA helps increase and stabilize labour productivity, either through reduced labour input, increased farm output, or a combination of the two. CA can help make each minute of time and energy spent on farming more valuable.

Just as the SCAP Project seeks to improve input and labour productivity, it will also seek to monitor, measure and quantify these effects.

Conservation agriculture as means to empower communities to deal with challenges of food insecurity and poverty

Agricultural growth will prove essential for improving the welfare of the vast majority of Africa’s poor. Roughly 80 percent of the continent’s poor live in rural areas, and over 70 percent work in agriculture. Even the urban poor, who spend two-thirds of their income on basic foodstuffs such as maize, cassava, sorghum and millet, will depend heavily on increased agricultural productivity to moderate the basic food prices, which largely govern their real income. Significant reductions in poverty will, therefore, depend crucially on the collective ability of African farmers, governments and agricultural specialists to stimulate and sustain broad-based agricultural growth.

In spite of moments of considerable progress, long-term trends have proven disappointing. Africa remains the only region in the world where per capita food production has fallen over the past forty years. Given the necessity and the possibility of reversing this trend, NEPAD and the African heads of state have placed agriculture at the top of the development agenda for Africa.

II PROJECT RATIONALE

The main rationale for the project is that it will help address important development problems in WCA by means of an approach that appears to have been under-utilized in the past – community leadership in the adaptation of conservation agriculture principles to local conditions. The development problems of concern have been mentioned in previous sections and are described in more detail below. These include population growth, food insecurity, and land degradation.

The average annual population growth rate for countries in WCA is estimated at 2.7 per cent. Using existing agricultural systems and technologies, this implies an ever-increasing pressure on land resources to produce ever greater levels of food. Already, however, land degradation has reached alarming levels. About 50% of farmland suffers to some extent from soil erosion, reduction in soil fertility, reduced organic matter and biological activity, etc. Degradation of tropical soils is typically a creeping environmental problem, the effects of which in the long term can be very substantial: two-thirds of Africa's cropland could effectively be non-productive by 2025. Thus, the region is facing a double challenge: (i) to intensify agriculture in order to be able to feed the present and future generations, and at the same time (ii) to realize this intensification through sustainable practices.

CA is an attempt at promoting a more comprehensive approach to NRM by integrating the environmental, technical, economic and social dimensions. The massive conversion from conventional agriculture to CA can be seen as a worldwide movement towards the restoration of natural resources, integrating biological considerations into the soil / plant / atmosphere continuum while responding to the challenges of climate change.

Former and existing successful approaches in semi-arid areas have focused on ways to make more rainwater available to crops through water harvesting techniques. With CA, the aim is to implement new cropping systems that improve the functioning of the physical, mineral and biological components of the agricultural system, incorporating (among others) water harvesting aspects. As an example, crop cover or crop residues laying on the soil may be as efficient as zaï to stop the runoff, and stimulate water infiltration.

The transition to CA may be spontaneous, or it may be supported through incentives, and we do not yet know whether this will happen within the next five or fifty-year horizon, but the final result seems now to be highly predictable. Regarding the Sahelian and Sudanese zones of WCA, this heavy trend has to be considered against the backdrop of a situation in which existing practices for soil and water conservation have a recognized efficiency, but at a very high labour cost. The former are fully compatible with biophysical and socio-economic constraints, and do not need more adaptive research. Thus, low-labour cost, low-investment CA techniques may be adopted if they prove to be more profitable for the farmers than the already existing water harvesting and agro-forestry techniques.

However, the implementation of CA calls for revisiting cropping systems, farming systems, village-level social organization and the relationship between sedentary farmers and transhumant herders (because the principle of permanent soil cover does not allow the free roaming of animals). This may pose a particular problem for transhumant herders, and for poor farmers, whose livelihoods are partly based on buying and selling crop residues⁷. In communities where these issues are important, there may be fewer possibilities to introduce CA. A comprehensive vision, and one that takes account of all important system interactions, is necessary for the effective and equitable introduction of CA.

Lessons learned from other regions suggest that technical issues may also be important in the local application of CA. To overcome these, adaptive research, information-sharing and training is often important. This is the case for sowing techniques (it is not easy to sow in a soil covered with organic residues), weed control, pest control etc.

CA offers potentially an alternative to capital-based, or input-based conventional agriculture. It is less capital-intensive but it is more knowledge-intensive. CA stimulates complex interactions

⁷ Depending on the regions, villages, communities, crop residues may be considered as a public good, after a determined date. This allows local arrangements between transhumant cattle herders (mainly Fulani), who establish deals with local farmers in which crop residues are offered against fertilization through animal droppings.

between the biological / physical / chemical compartments of the cropping system. The introduction of CA represents a fantastic opportunity for fostering local innovation, indigenous knowledge, and creativity. Specific ligneous trees, wild or domesticated annual species, etc. may have properties that may be of use within CA cropping systems, e.g. specific “service plants” with specific properties (herbicide, allelopathy, sub-soiling).

Presently, some CA cropping systems are working in wide areas of Africa, in a wide range of agro ecologies, between 600 mm annual rainfall in cereal systems in Zambia and maize-mucuna systems in humid areas of Ghana, and intermediate situations like Cameroon, where a well validated cotton technology CA card is promoted by SODECOTON in a 1000 mm annual rainfall area. Wide diversity also exists with respect to social indicators like population density, land tenure or social rules, and several existing systems could be used as prototypes in WCA. However, lessons learned from other regions demonstrate that specific CA cropping systems emerge within the given local context.

According to an initial diagnosis carried out in the context of the technical meetings of nascent WCA network during the Nairobi congress, it seems difficult (due to biomass scarcity) to consider crop residue management as an initial option for CA technologies in areas receiving less than 500 mm of rainfall⁸ and with high population density. Thus, in these conditions, the project will focus on biomass production for soil cover through appropriate trees⁹, and will focus on crop residues and/or crop cover in Sudanian areas.

Rationale for the partnership around SCAP

Participation of ACT:

Efforts to introduce and adapt CA to the conditions of WCA may be facilitated by taking advantage of relevant indigenous knowledge, experience in CA in other parts of Africa, and other regions of the world. The evolution of CA in the WCA context can benefit by knowledge already gained in other regions and, in turn, the evolution of CA in other regions can benefit by knowledge gained in WCA.

The African Conservation Tillage Network (ACT) brings into SCAP a knowledge base on CA practices from varying ecological systems in Southern-Central and East Africa. CA experiences in Central-East Africa are noted to potentially be of interest to WCA.

ACT's networking dynamics will enhance the Project thrust's multi-disciplinary and multi-sector approach. Its strengths in systems and techniques for farmer-based knowledge generation and dissemination including self and social learning will be of particular value in encouraging and facilitating technologies adaptation and local innovations.

Participation of CIRAD :

CIRAD's mission is to contribute to the sustainable development of southern countries. This encompasses issues of food security for rural and urban populations, poverty alleviation, and the preservation of the natural resources base. To achieve this, CIRAD carries out research, experimentation and training actions, and produces scientific and technical information material. CIRAD is highly committed in the strengthening of the capacity of diverse groups of actors in

⁸ Crop residues have been marketed for more than 20 years, and their value may sometimes exceed the financial value of the grain itself. Thus, it is quite unrealistic to consider that these residues would be used to protect the soil...

⁹ The definition and requested specificities of the candidate trees will be précised in partnership with the “Strengthening livelihood strategies in the West African Sahel through improved management and utilization of parkland agroforests”.

southern countries: the scientific community, the leaders of farmers' organizations, the local authorities and more especially farmers and breeders. The objectives of SCAP are very consistent with the mandate and the objectives of sustainable development targeted by CIRAD, and to create generic knowledge and know how, which will be useful on other continents. CIRAD has huge experience in WCA with the understanding and improvement of cropping and farming systems, and CIRAD ability to tackle and articulate different scales simultaneously (field / animal, farm, communities, *terroirs*). CIRAD, very often in partnership with AFD, has also a huge international and also African experience with CA, both with cropping systems development and evaluation, and with CA participatory adaptation and diffusion.

Participation of ICRAF

ICRAF is the global research center within the CGIAR that focuses on agroforestry. Its headquarters are in Nairobi under the official name of 'World Agroforestry Centre'. ICRAF's core area is the development and dissemination of agroforestry options for farmers. Such options are often attractive because they help improve soil fertility and conserve soil water. ICRAF can contribute to the development and adaptation of CA practices through tree-based biomass for soil cover (as well as competing uses for biomass). ICRAF, through agroforestry, can increase the CA-related options from which farmers can choose.

Historically, ICRAF became interested in CA through a merger in 2003 with the Swedish-funded Regional Land Management Unit (RELMA). RELMA worked closely with ACT in CA development and promotion in Africa, and was a key supporter in enabling ACT to give more visibility to CA work in Africa, through the II World Conservation Agriculture Congress in Brazil 2003, and the III World Conservation Agriculture Congress in Nairobi, held in October 2005. ICRAF has continued its interest and commitment to CA, and its links to ACT, under its own "World Agroforestry" trademark.

ICRAF, as a global center, covers all regions of Africa. It maintains a regional office in Bamako, Mali, for activities in WCA. These offices will also be used for the administration and financial oversight of SCAP.

Participation of AFD

The *Agence Française de Développement* (AFD) is a public institution, which belongs to French system of Public Development Assistance. It is active all over the world, mostly in Africa. AFD, in partnership with CIRAD, has been interested from the very beginning to support R&D in adapting conservation Agriculture techniques to a wide range of bio-physical and socio-economic conditions. These situations range from very poor to rich soils, from temperate areas to tropical and equatorial conditions, from dry areas (in Tunisia) to high altitude conditions (e.g. Madagascar highlands). In Western Africa, AFD has been mainly involved in supporting CA options along the cotton commodity chain, in partnership with national private companies like SODECOTON in Cameroon, CMDT in Mali and SOCOMA in Burkina Faso.

AFD is interested in participating in the project, and make it benefit from its experience with CA in francophone Africa.

III PROJECT GOAL

The general goal of the project is to reduce rural poverty, improve food security, conserve agricultural land and water resources, and foster economic growth through sustainable

improvements in the productivity of agroecosystems in WCA, through improved access on the part of poor rural communities to technical options inspired by the principles of conservation agriculture, with a primary focus on selected sites in Burkina Faso, Niger and Guinea.

The project will to stimulate and facilitate community-led processes for the identification, assessment and generalized use of locally adapted crop, livestock and resource management practices inspired by the principles of conservation agriculture.

The development objective is to raise the productivity and improve the sustainability of natural resources in WCA, as a way to reduce rural poverty and to improve the rural poor's access to technology and natural resources including land and water.

IV PROJECT PURPOSE AND OBJECTIVES

Experience in agricultural development in Africa makes one thing very clear – successful adaptation and widespread adoption of new farming practices must emerge from within farming communities. Community-led and community-owned efforts are the best means for fostering technical change. These efforts are most successful when communities show a willingness to vigorously identify, try out, and evaluate new practices. As it happens, many communities in the target areas – with the support of IFAD projects – have already made considerable progress in the adaptation and use of soil and water conservation techniques. The project will actively build on earlier successes.

Target rural communities (including poor and disadvantaged community members) will be empowered to design and assess a range of conservation agriculture farming practices that are compatible with local environmental, social and economic conditions, and that systematically build on indigenous knowledge and skills – including those associated with recent adoption of soil and water conservation techniques. Communities will be encouraged to include practices that can accommodate the needs of herders as well as farmers. The range of options available to communities will be enriched by knowledge sharing within the region – and with other regions – on the implementation of conservation agriculture.

The project has four general objectives:

1. Strengthen the capacity of poor rural communities to identify, assess and further adapt crop, livestock and resource management practices and cropping systems that are in accordance with the principles of conservation agriculture; that are compatible with local environmental, social and economic conditions; and that build on indigenous knowledge and skills. (*Building cropping systems*)
2. Foster networking among farmer-innovators as a means of adapting and accelerating the widespread use of suitable new practices. (*farmer-innovators*)
3. Expand the range of technical options from which communities and farmer innovators can choose, through sharing knowledge on NRM and conservation agriculture practices, including practices used in other communities and even in other regions. (*Knowledge sharing and management*)
4. Strengthen institutional mechanisms, including the consolidation of ACT, as a means of fostering knowledge-sharing and community-led assessment of conservation agriculture practices in the region. (*Capacity building*)

Important features of the project include community-driven multi-stakeholder approaches; farmers as primary innovators; an emphasis on holistic and integrated farming practices; a search for practices that can accommodate the needs of herders as well as farmers, and building on success –

the recent widespread farm-level adoption of soil and water conservation practices. The process inherently allows for the distilling and capturing of evolving knowledge and farmer learning.

The focus in the project on conservation agriculture also enables a unique integration of technical factors (e.g., soils, water, residue management, biomass production, livestock, agroforestry, etc.) and socio-cultural factors (e.g., markets and pricing, policies and institutions, common property management, land tenure etc.). Other important features of the project include knowledge sharing within and among regions; and strengthening the capacity of ACT to stimulate networking and knowledge-sharing on conservation agriculture practices within Africa, and between Africa and other regions of the world.

Finally, by covering a range of environments (rainfall between 500 and 1200 mm/ year; population densities from 20 to 100 inhabitants per km²) the project will be able to synthesize information emerging from different communities and thereby match, at the regional level, specific conservation agriculture practices with particular biophysical x socio-economic environments. This information can be used to help guide further investments in scaling out the most suitable practices.

The project is a solid contribution to IFAD's strategy for rural poverty reduction in WCA. It contributes directly to the second strategic thrust, which is to "raise agricultural and natural resource productivity and improve access to technology". It further complements IFAD's strategy by aiming to improve the sustainability of the natural resources. The project also addresses some of the key areas emerging from the recently approved IFAD Action Plan including fostering innovation and knowledge management. The project will feed into continental initiatives taken by NEPAD, or TERRAFRICA with current and innovative references on sustainable land management.

IV PROJECT STRATEGY

The project strategy combines community-led technology research, development, adaptation and assessment with an ambitious and wide-ranging program of knowledge sharing. Farmer-innovators representative of various social groups, including the poor, women, and those whose livelihoods are based more on herding than farming, will be encouraged to experiment, adapt and develop new practices, including those based on cropping, tree management, and herding / grazing. Emphasis will be placed on practices inspired by the principles of conservation agriculture. Farmer-innovators will be encouraged to compare and further improve their own new practices by comparing them with practices developed by farmer innovators in other communities both from within and from outside the region. By this means, a rich array of conservation agriculture options will be made available for their consideration, for incorporation or not (as they see fit) into their own preferred set of practices.

Study tours and site visits will be used as an important means of fostering interchange among farmer innovators and conservation agriculture “champions”. In planning these visits, agroecological conditions, and demographic, legal, social and organization criteria will be carefully taken into account in order to maximize the efficiency of the expected knowledge exchanges.

The most successful innovations developed within the project will be further shared within and across regions, and parameters identified to help guide further investments in scaling out. In this way, Western and Central African communities will benefit from experiences in Eastern and Southern Africa, and communities in these regions will in turn benefit from progress in WCA.

Thanks to the participation of AFD, the project will also benefit from farmer experience in the use of CA in cotton-based systems in Cameroon, Mali, and in the western part of Burkina Faso. Within commodity chains, and in an integrated approach with industrial partners (SODECOTON, CMDT, SOCOMA), AFD has been successful in working with farmers to develop and assess CA practices for these systems. Whereas the general conditions are rather different in the SCAP selected areas, special attention, visits, monitoring etc. will be given to the CA on-going initiative, which is being implemented in the cotton zone of the PICOFA project. The lessons learned from this experience will be made available to the managers and stakeholders of the future Burkina Faso Commodity Chain Support Programme (PROFIL), to be implemented soon in partnership with the World Bank.

The project, in fostering innovator networks, will begin with the existing networks developed by IFAD financed projects. Building on these, the Project will focus on stimulating local, regional and national innovator networks as strategic components in building self and social learning, and advancing local, self-motivating dissemination/scaling out capabilities.

The project brings in farmers – not just as vaguely-defined “participants” or “beneficiaries” – but as the foundation for project design and implementation. The project will invest heavily in capacity building, education and training – with special attention to knowledge-based empowerment.

More specifically, the project will work directly with farmer learning groups and related local institutions in selected pilot villages in the four partner Investment Project target areas. In doing so, the project will employ:

- Well-known and proven principles and techniques for fostering farmer learning and innovation, e.g., Farmer Field Schools / Farmers Fields Fora .
- New initiatives and methodologies, such as those developed by IFAD and CIAT in West Africa, to strengthen the capacity of research and development professionals and organizations to use participatory methods for collaboratively managing technical and social innovation in rural communities.

Project frontline operations will be:

- Based on local farmer groups, organized for the purpose of collective experimentation, social learning, shared initial diagnosis, monitoring, evaluation, and iterative planning of the steps to be followed in technology design, adaptation and testing. As noted, the project will build on farmer groups already working with IFAD financed Projects. It should be noted that all the selected IFAD financed Projects have strong interest and experience in soil and water conservation practices, and already have built efficient and dynamic farmer networks. Farmer networks associated with other on-going R&D projects, and national programs and initiatives, will also be considered¹⁰. The main idea is to enrich the present scope of existing groups, rather than to create an entirely new set of groups from scratch, an option which might be too artificial to hold farmers together beyond the life span of the project.
- A participatory monitoring and evaluation mechanism that allows farmers and project staff to assess in real time the agronomic, socio-economic and social impacts of their decisions, and to detect any need for adjustments in approaches.
- A farmer learning curriculum. The Kenya-Tanzania CA-SARD Project has adapted a CA curriculum for self-learning in farmer groups that features a combined focus on crops and soils, and that covers the possibility that some results from investment in CA practices may only be observed in the medium to long term.¹¹ SCAP will explore whether this curriculum can be usefully adapted to the circumstances of WCA.

Within the policy of open mutual networking, the project will actively pursue collaborations and interactions with a cross section of players and stakeholders in which the innovations / proposals / evaluations / discussions will be conducted collectively, and space will be open to discuss the interactions between field practices and other aspects (animals management / working time / rights on crop residues etc.).

FIDAFRIQUE and ACT networks will support deliberate actions to learn and build on the efforts and experiences in diversified initiatives within the region and beyond, and will assist participating communities in getting the information needed for the adaptation and adoption of their selected practices. Both networking and CA experiences in Western, Eastern, Central and Southern Africa would be of benefit to the project.

Project sites have been selected to also ensure that the “evolving concentration” of knowledge and adapted CA-NRM options (centres of excellence) can snow-ball into other farming systems, taking into account the key differences and extremes in the various ecosystem parameters within the region and in the rest of the continent. As a basis, we assume that rainfall level (correlated to biomass production) and population density (correlated to the social pressure on biomass) are key variables to define appropriate SLM options, then the project will provide useful information and targeting initiatives, and upscaling them.

The Project will, in the beginning, devote considerable time and resources to participatory diagnostic assessments and situation analysis. Lessons learned, and key existing documents such as *«Evaluation du programme spécial du FIDA pour les pays d’Afrique Sub Saharienne touchés par la sécheresse et la désertification, 1999»*, will be studied collectively and carefully analyzed, and local and detailed evaluations realized as well before selecting options or taking initiatives. The objective is to ensure that Project interventions are appropriately “positioned” with regard to

¹⁰ For examples, the ICRAF led “strengthening livelihood strategies in the West African Sahel through improved management and utilization of parkland agroforests” project could also be used and bring in CA tree management integration options and advantage, and SCAP could benefit from the “Programme National de Gestion de Terroirs (PNGT)” structures as well.

¹¹ Bwalya, M., 2006, CA Curriculum for self-learning in Farmer Groups. Practical process and knowledge based guide in self/social-learning on the adaptation of CA. CA-SARD / ACT

prevailing local socio-economic, agro-ecological and farming systems dynamics, thereby bringing in the “people-factor” (community and household short and long term needs and aspirations) and the “environment-factor” (natural resource resilience, sustainable and quality ecosystem systems).

In this way, the Project will focus specifically on the complementary analysis of issues, so that CA concepts can be used to improve existing cropping and farming systems, thereby providing a valuable contribution to the IFAD financed programmes’ thrust in contributing to attain food security objectives and building local foundations and capabilities for sustainable socio-economic growth and poverty alleviation. This will also contribute to add knowledge and experience to realising the MDGs in target communities / countries.

VI TARGET GROUPS

Smallholder farmers are the primary target group of the Project, including farmer-innovators in selected communities, and farmers in other communities in the target areas. Special attention will be given to vulnerable groups, which might be negatively affected by the adoption of CA practices, e.g. transhumant and sedentary herdsman, who rely heavily on crop residues for feeding their livestock. Some crucial socio economic consequences of the introduction of CA will thus be evaluated.

Policymakers and other decision makers form a secondary target group. They will benefit from the Project by participating in major Project events such as planning seminars, enabling them to more fully understand the potential of CA and related issues, thereby enabling them to bring CA to those fora where higher level food and environmental issues and policies are discussed and decided.

Cotton producers form a third target group. Farmers producing food grains or livestock for subsistence are not the only ones expected to benefit from the Project. Cotton producers are currently suffering from a substantial reduction in cotton seed prices, something that questions the economic viability of cotton production and the economic development of regions where cotton is a mainstay of farm family livelihoods. The SCAP Project will be implemented in cotton-producing regions in Burkina Faso (southern region of PICOFA project, in collaboration with SOCOMA and AFD) and in Eastern Guinea. The Project will thus contribute to improved farm productivity in these regions. Partners and stakeholders involved in the introduction of CA to cotton-based systems include the SOCOMA cotton company and various cotton producer unions.

The Project will initially operate in four sites in three West African countries: Burkina Faso, Niger and Guinea. Other WCA countries in the Sahelian and Sudanese zone (Senegal, Mali, Chad, Togo, Ghana, and Nigeria) will benefit during a second phase, through appropriate mechanisms and support from the FIDAFRIQUE network.

VII KEY PROJECT COMPONENTS

Before realizing its activities, the Project first will have to develop its operational framework, and the following indispensable steps (principles and activities):

- The Project operational framework will stimulate and fosters ownership of the Project by local partners and stakeholders. A sense of Project ownership is especially important for farmer innovators in initial target villages. The operational framework must allow for local capacity

building and the development of a dynamic innovation system that will remain effective even after the termination of the Project.

- During the first year of the Project, SCAP will establish and streamline institutional arrangements and capabilities for Project operation. The emphasis will be on empowering farmer and community based institutions, including those linked to local civic and traditional leadership. Clear operational roles and responsibilities among the various players will be defined, along with modalities for interaction. This relates to the issues of organizing groups of farmer innovators, establishing Project governance arrangements, and defining partnership and collaboration arrangements for the technical functioning of the Project.

- The following are key elements in establishing and strengthening an institutional operational framework for SCAP.

- Setting up criteria and mechanisms for identifying farmer innovators and facilitating their role as “pillars” in farmer learning and innovation clusters
- Establishing or strengthening existing farmer groups and organizations as the primary operational units for Project activity
- Identifying and enrolling potential stakeholders/ collaborators (including private sector) committed to, and active in, reducing rural poverty and improving food security through improved agroecosystem productivity and NRM.
- Identifying and defining pilot sites with a suitable range of variability in agroclimatic and socioeconomic conditions (including population density)
- Defining and articulating governance arrangements and appropriate rules within the context and structures of the IFAD financed projects
- Identifying and strengthening institutional interactions between SCAP and those community, national and regional institutions which are critical for the pursuit of SCAP objectives (in particular) and in NRM and sustainable agricultural productivity, (in general). This includes clarifying the roles and responsibilities of the IFAD loan projects partnering with SCAP

In parallel to the establishment of this operational framework, the Project will implement its activities. Every key project component will contribute to the four main objectives of the project, with which they do not necessarily fully overlap. However, every component is introduced below with a direct link with the objective to which it will mainly contribute, in order to make easier the operational understanding of the project.

VII. 1 Technology development, adaptation and assessment within communities: developing improved cropping systems. (mainly contributes to the objective 1).

This section is based on the output and recommendations emerging from the “cropping systems working group” during the SCAP Project stakeholder and planning workshop, held in Ouagadougou in late May, 2006. (Also see Annex I).

The working group recognized that farmer innovators in target communities must be empowered to develop, adapt and assess CA practices, and in doing so, should have access to adequate information on suitable CA options. The working group further recognized that particular practices were likely to be more attractive to some farmers than others, and that this outcome could be in part anticipated by matching the characteristics of CA techniques (advantages, disadvantages, interactions with livestock, nature of investment decisions) with farmers’ circumstances.

Some existing cropping systems (CS) and soil and water conservation practices (SWC) were listed. These included Tillage based CS, Zaï and half moon based CS, plough based CS, reduced tillage based CS (scarificateur), stone rows, stone or earth dams, and “billons”.

These systems are well known, and the conditions for their successful implementation are well understood by farmers. The questions now are – “What is the next step?”, and “How can existing practices be further improved by introducing CA concepts and principles?”

A suggested methodology for answering these questions is presented below.

Methodological considerations

It is assumed that the necessary knowledge on suitable “next steps” already exists. It may be found within IFAD projects, among farmer experts, or from other sources or even other regions. The challenge is to utilize this information to develop sensible options, among them cropping systems, for farmer assessment.

Improved cropping systems will be developed along the following steps:

- Selecting locations
- Defining problems
- Reaching a consensus about how the system works
- Exploring potential solutions
- Selecting candidate¹² cropping systems (CCS) for experimentation and implementing the experiments
- Improving the CCS

Selecting locations

Given the considerable diversity found in the SCAP study area, multiple sites will be chosen to sample this diversity and to use it in developing strategies for technology targeting and scaling out. The idea is not to develop a single innovative cropping system that supposedly will be suitable for everyone, but rather to identify options that perform relatively well in some locations relative to others.

The complementarities between the four locations of the project will be taken into account, based on the already defined initial reference. The following table shows the range of rainfall and population density conditions for each of the four project locations.

	Low rainfall (400- 600 mm)	Medium rainfall (600- 1000 mm)	High rainfall (1000-1400 mm)
Low population density (<20 persons / km ²)	--	PICOFA Burkina Faso	PDR-HG Guinea
Medium density (20 < < 70)	PDRD Burkina Faso	PICOFA Burkina Faso	PDR-HG Guinea
High density (> 70)	PDRD Burkina Faso PPILDA / Niger	PICOFA Burkina Faso	--

¹² We use the word "Candidate Cropping Systems" (CCS) to qualify the cropping systems which could be a priori and ideally considered as appropriate to satisfy improvement criteria. The term "candidate" is here used by analogy with "candidate genes" in the genetic selection processes. **Special attention will be given to women participation.**

The information to make this selection will mainly come from IFAD loan project databases and field experience. If needed, further investigations will be undertaken during the first year of the Project.

Communities will be selected from within a broader, well-defined universe of suitable locations. That is, a range of communities will be identified and characterized with respect to biophysical and socioeconomic circumstances, including those factors considered in the above Table. From within these communities, several will be finally selected on a voluntary basis.

Defining problems

The Project team will conduct an initial diagnosis on problems, causes, and possible solutions that are related to CA. This diagnosis has three purposes:

- To foster team-building and the development of a common vision among project team members and stakeholders;
- To gain a thorough understanding of farmers' practices, constraints and objectives and
- To provide information needed for decision-making with regard to research priorities, operational strategies and future actions.

Sources of information during the diagnosis may come from existing data, local knowledge, evaluation reports – and more especially, from farmer innovators themselves.

Reaching a consensus on how the system works

An important outcome of the diagnostic process is a shared understanding among team members and stakeholders on how the system works, that is, the nature of important system interactions. For example, for problems associated with soil fertility decline, the global frame of residue management in the community has to be tackled. The effects of the selected improvements will be considered against the effects that they will probably have on other components of the farming systems, as livestock feeding, overgrazing of common lands, working time etc. Understanding how the system works will help in suggesting options to be chosen for adaptation, assessment and further development by farmer innovators.

Exploring potential solutions

Once problems are defined, locations characterized, and system interactions understood, the next step will be to explore and pre-screen a number of potential solutions. The “cropping systems working group” within the SCAP Project stakeholder and planning workshop held in Ouagadougou developed the following list of CA based techniques that may have application in WCA agroecosystems:

- Direct seeding (DS) in bare soil
- DS in residue
- DS in straw (imported straw from other fields may be an option)
- DS cover crop-based CS
- Options emerging from agroforestry, among them alley farming, grassy strips, tree establishment along stone rows, tree hedges, agroforestry parks

The options listed above were grouped into three broad families:

- *Cropping systems featuring agroforestry / tree pruning*
IFAD financed programmes in Niger have developed “natural regeneration” approaches (low cost agroforestry) based on selection by farmers of selected tree species to respond t their

specific needs. ICRAF and partners in West and Central Africa have also developed a number of tree-based technologies aimed at parklands rehabilitation, with a special focus on soil fertility management, soil and water conservation, on-farm diversification and intensification with high income generating potential. The agronomic, economic and environmental soundness of these technologies have been tested on farm, and are in advanced stages of dissemination. These new agroforestry techniques have been introduced to improve soil fertility through nitrogen fixation and nutrient cycling of their leaf biomass and reducing soil erosion, where these are needed.

- *Cropping systems featuring residue retention*

CIRAD and partners in Western and Central Africa have developed options for better water infiltration and management based on residue conservation on the soil surface. Experiences exist in Cameroon and Mali from these teams in dry regions.

- *Cropping systems featuring cover crops*

In other ecologies, cover crops have proven useful for maintaining and improving soil fertility, while enhancing labour productivity. ACT has broad experience with such systems in Eastern Africa; CIRAD has worked on them in Cameroon, Mali, and Guinea; and a huge amount of work has been done on them in Brazil. Other experiences come from Ghana and Benin.

The consequences / risks / costs associated with different options were discussed, and tentative conclusions were drawn as to which options are most likely to be found attractive by farmer innovators in which agroclimatic and socioeconomic circumstances. As the rainfall level is linked with the biomass production potential, and as the population density is correlated with the pressure on the crop residues, animal herding and biomass availability, the CCS will be chosen among the IFAD projects according to initial priorities which can be summarized in the table below:

Density (pers/km ²)	Low rainfall 400-600 mm	Medium rainfall 600-1000 mm	High rainfall 1000-1400 mm
Low density < 20		Cropping systems featuring residue retention	Cropping systems featuring residue retention
		Cropping systems featuring cover crops	Cropping systems featuring cover crops
Medium density 20 < x < 70	Cropping systems featuring agroforestry/ tree pruning	Cropping systems featuring residue retention	Cropping systems featuring residue retention
	<i>Cropping systems featuring residue retention</i>	Cropping systems featuring cover crops	Cropping systems featuring cover crops
High density > 70	Cropping systems featuring agroforestry/ tree pruning	Cropping systems featuring agroforestry/ tree pruning	
		<i>Cropping systems featuring residue retention</i>	

This table will be used as an initial reference for the project. It will be used to define the areas where farmers to farmers visits may be organized in order to share knowledge between and among the various locations in other countries, ecologies and environments,.

Other experiences from innovator networks will be documented from IFAD financed projects or other initiatives. As examples also, dry CA farming systems with smallholders in Tanzania, as well as CA based systems in the cotton commodity chain in Northern Cameroon and, Maize / Mucuna

systems in Northern Ghana, and diverse “old “ smallholders CA based villages in Brazil (and others) should be considered.

The CCS will depend on local decisions. They will, as much as possible, fit into the global CA framework; The approach will remain flexible in order to accommodate innovative CS even if they fall outside the defined framework. It might, however, be also possible that some finally chosen cropping system is outside this frame. We must, therefore, maintain some flexibility to ensure a real dialogue with stakeholders.

Selecting Cropping Systems for experimentation and implementing the experiments

Based on the previous exploration, a participatory process will be established to identify the cropping systems to be tested and monitored. The process must ensure that the interests of all stakeholders are considered. Innovation must be the main objective, but the cropping system experimented may differ on only small issues from the existing practices. Groups of experimenters, especially women, will probably emerge that will have similar objective and constraints, and will agree on the same cropping system to experiment (to ensure proper interpretation of results).

Innovative cropping system may be classified into three groups, depending on its origin and adaptation to local conditions:

- On going / well accepted cropping systems and associated Soil and Water conservation practices

- CCS generated from the communities through innovation networks, and presently under observation by existing IFAD financed projects structures

- Exogenous CCS as identified by SCAP through visits, networking etc.

The conditions of the experiments will be determined at this stage (risk sharing, decision on unexpected cropping interventions, etc). As the CS have to be improved to solve well defined problems, they will have to be assessed accordingly. This assessment will be shared between stakeholders, depending on their interests, capacities and workload. Indicators will be discussed before the implementation. The results will be shared, during field visits and final meetings.

Furthermore, the social processes will be carefully monitored along a multi stakeholder / multidisciplinary approach.

Improving the candidate cropping systems(CCS)

The sharing of the results of the experiments, as defined previously will form the basis of further improvements of the CCS, in a loop system. Depending on the results, new visits to other experiences may be organized, according to the new questions raised. National Research Centres will be available to provide technical support to this process.

Inter-village considerations

Initial considerations will also be taken into account regarding land fertility/ degradation status of the locations on which to establish the monitored fields with CCS. Position in the watershed and in the toposequence will also be carefully determined and mapped, in order to avoid artefacts or confusion effects in the interpretation of the observations. With even a slight slope (not identifiable at the field scale but perfectly notable with a watershed approach, flash flooding effects as well as water accumulation and movement across the landscape may have huge influence on local water and nutrients, carbon etc.).

In parallel, farmers / communities / village organization aspects will be considered, with special emphasis on cattle management, fences (living or dead), social rules and rights regarding access to

public goods (crop residues), and negotiations with transhumant herders. Based on discussions with the IFAD loan projects, special attention will be given to communities which already have experience in establishing rules for collective action aimed at solving technical issues or in undertaking collaborative activities across communities.

The social processes will be carefully monitored along a multi stakeholder / multidisciplinary approaches.

Farmer Field Schools

This package will be interfaced with the Farmer Field School (FFS) methodology for technology diffusion and improvement SCAP shall identify and adopt those elements in the FFS approach that foster participatory and interactive processes for social learning. Although originally developed as a tool for disseminating Integrated Pest Management practices, the FFS has emerged as a more generalized set of tools for people-centered participatory and learning processes and has been adapted for use in various other agricultural and community development initiatives. The CA-SARD Project implemented in Kenya and Tanzania has in the last two years (2004-2006) implemented and adapted a FFS based farmer learning and adaptation process in promoting CA. Close to the SCAP area, the experience of PRODS/PAIA's activities on CA in Western Burkina, as well as other FAO initiatives, also inspired by IPM philosophy, will contribute to improve the dissemination principles.

SCAP will make use of the FFS device in providing farmers with the opportunity to learn together, using practical, hands-on methods of discovery learning. The methods emphasize observation, discussion, analysis, collective decision-making, presentation and taking appropriate action. Discussion and analysis are important ways to combine local indigenous knowledge with new concepts, and bring both into decision-making. Regarding gender issues, the process builds self-confidence (particularly for women), encourages group control of the process, and leaves behind group and community skills when the FFS is completed. SCAP will also refer to Participatory Research and Gender Analysis (PRGA) methods, as initiated by the CGIAR in 2003. This initiative aimed at developing and enhancing the capacity to utilize gender sensitive participatory research and mainstream such approaches in the involved organizations

Based on lessons from the CA-SARD Project in East Africa – by implementing CA promotion through the FFS, SCAP will encourage and facilitate the application by farmers of the CA lessons, in their own private plots from the very beginning as opposed to leaving the experimentation work only in group learning plots.

In adapting FFS elements and techniques for cropping systems improvement, SCAP will give special emphasis on:

- Group based dynamics, which are a means to realizing collective responsibility in NRM issues. The farmer groups also function in providing institutional memory in the advancements of the communities/villages on CA-NRM.
- Empowering of farmers in participatory self/social learning
- Integrated monitoring and evaluation process, which allows the farmers to note and capture evolving knowledge and lessons, to identify and understand challenges of adaptation and innovation.

Other FFS elements and techniques that shall be adapted into the SCAP strategies and methodologies include:

- Guidelines in preparing, conducting and evaluating (capturing lessons from the visit and translating them into actionable plans) of farmer-to-farmer visits; and
- FFS CA farmer self-learning curriculum adapted and refined in the CA-SARD Project implemented (2004-2006) in Kenya and Tanzania.

The FFS techniques/approach adopted in the SCAP approach shall also be one of the practical ways to bringing the farmers and farmer groups to the core of the SCAP purpose and methodologies. These techniques will also be important in empowering farmers with (critical) analysis skills and collective action responsibilities.

The whole process will be led by the SCAP team, in close association with the National Research Centres and the IFAD financed projects personnel and partners, who will be trained accordingly and to technically support the process.

Special consideration on private partnership for CA equipment utilisation and supply.

The same team including the IFAD financed project personnel through the FFS techniques/approach shall evaluate with farmers on the type of farm equipment options that could be suitable for the farming systems and conditions in the field sites. The key equipment that should be considered in these discussions would be:

- a) Planting equipment: hand jab planters, animal drawn planters or tractor drawn planters
- b) Knife rollers for cover crop management
- c) Spraying equipment for chemical weed control (weed wipes, knap sack sprayers)

The SCAP team shall liaise through ACT and propose a list of equipment that should be made available with assistance of FAO from Brazil or locally. At the same time the SCAP team with IFAD financed projects and in collaboration with FAO should consider project evolvement (over time), and review the supply chain channels of equipment suitable for CA practices. Local manufacture or manufacture from East Africa would be preferred against imports. At the level of the FFS groups different scenarios of group ownership, handling and financing of additional equipment should be explored and verified.

After the process of decision making on suitable options for CA equipment and the scale of it (first project year) the SCAP team should also arrange for training and back-up support in equipment and input use for the CA plots. Lessons should be drawn from the experiences of the FAO implemented CA-SARD project that is operational with ACT management in East Africa (Kenya/Tanzania).

VII. 2 Fostering farmer innovation networks (mainly contributes to the objective 2).

The community work plan will be implemented by relying mostly on farmer initiative and local capacity for innovation.

Retrospective analysis, and individual attitudes during the visits, surveys and training sessions will help each community group to identify among its members, innovators with a keen interest in taking part in developing and adapting new innovations or practices through experimentation, and in sharing the results with the group. In Western and Central Africa, there are many examples of farmers' indigenous innovations (forest *zai*, potato « cellar », etc.), and also many adaptations of research proposals. Efforts still have to be made to describe, understand and to assess the whole scope of existing innovations in this sub-region, and an inventory of innovations will be prepared.

In this context, a farmer innovator is defined as someone who designs, creates and invents new technologies and practices, and has the ability and willingness to improve (and share) them with others. The concept of «innovator farmers», «farmer researchers», and «farmer experimenter» is different from that of «contact farmers », or «farmer facilitator». Special consideration will be given to gender aspects. Experiences of SWC-AGF in Yako confirm this. Likewise, innovation may arise from two different processes: one completely indigenous, engaged by autonomous

farmers that may need support, ideas or suggestions, and the second one consisting of a project driven research or an externally facilitated process. This always has to involve motivated and engaged farmers that are able to communicate and to adapt.

The specific criteria to be used for selection of innovators will be developed in interaction with the communities themselves. Based on previous experiences, they are likely to include among others some of the following: previous record as innovator, curiosity towards new practices and technology, good insertion, legitimacy and reputation in local social networks, seriousness, ability to compromise, availability for interaction with the project, and good communication skills.

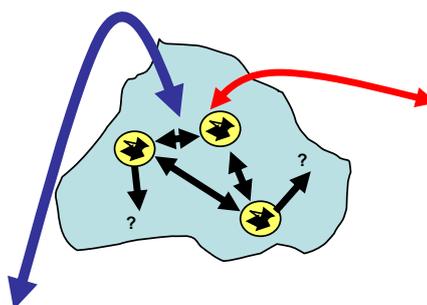
Strengthening and accompanying these innovators in their individual capacity and as members of farmers and community groups will be an essential component of SCAP overall activities. In doing so, the Project will use and adapt methodologies and approaches that support and strengthen the local capacity to innovate. These include farmer experimentation at the individual and collective level, exchange visits and field days within and across communities, capacity-building through hands-on and conceptual training, etc. During the SCAP formulation workshop (Ouagadougou, 23-25 May 2006), different types of network were mentioned. The network may be entirely informal, endogenous/indigenous, generally in a small region; it assembles farmers only as the Zai society (fair of Ouahigouya). The network may also be "institutionalised" though there are few known examples. It may be formed by farmers' organisations (innovations fair of Ségou, 2002). There are also mixed networks supported by INSAH. Hence, it seems pertinent to - within the framework of SCAP - establish a state of the art inventory on existing networks of «farmers facilitators» within the operational zone and in WCA, and to compare them with the experiences of eastern and southern Africa as well as with those of Latin America.

Whenever appropriate, the project will in parallel set-up small controlled experiments in the selected communities, to introduce and assess new CA-related practices that farmers would not necessarily want to experiment themselves, or to confirm the existence and importance of given constraints (e.g. fertility issues) or how best to deal with them (e.g. by applying manure vs. chemical fertilizer).

The possibility of contrasting almost side by side farmer's and project experimentation and solutions will create countless opportunities for confronting and merging local and external knowledge and know-how.

Along with the need to create networks arises the question of the operational scale. Diverse possibilities may exist. Participants in the SCAP formulation workshop suggested the following scheme.

- Action Research (A-R) village**
- A group of A-R villages**
- Region including partner projects**
- Ecological region**
- According to specific thematic themes**



In setting up networks of farmer innovators or of groups of farmer innovators, SCAP will attempt to build on the following considerations:

- To build on existing reliable structures
- To build on farmers organisations or networks when constituting groups of farmer innovators

- To identify villages where soil and water degradation problems are important
- To spot the innovator farmers (men and women)
- To build on a typology taking into account the diversity of farmers in order to avoid exclusion of certain category

Usually, the qualities sought in such a network are: curiosity, sociability, seriousness, commitment, availability, ability to communicate and lawfulness. However, it should be kept in mind that all this does not exclude the risk to discard some categories (the poorest, women and youths).

Functions and roles of the networks within SCAP are to:

- Test CA options at the plot or watershed scale, within the framework of a co-design, installation and evaluation cycle
- Disseminate information (ideas, own results) and making comparison with knowledge obtained from other networks
- Train other farmers
- Contribute to up-scaling (trial → plot → farm): including adoptability and impact assessment
- Assist with support measures (inputs, material)
- Participate in the decision-making institutions (village committees of Land management, local councils, etc.)

These functions and roles may lead farmers to raise the question about their participation in the governance of the project and the need to strengthen their capacity as a network.

VII. 3 Knowledge sharing (mainly contributes to the objective 3).

The stakeholder consultative meeting (Ouagadougou meeting, 23rd to 25th May 2006) highlighted a strong need for mutual knowledge sharing within the region and beyond. Knowledge sharing interactions with East-Southern Africa was specially mentioned in enhancing across regions interaction and mutual learning. The Ouagadougou meeting also highlighted the need for SCAP to explore, stimulate and facilitate the sharing of lessons among the four IFAD funded Programs. Three primary factors to drive the transition towards CA. These are:

- To harvest even in unfavourable years
- Yield stability
- Reduction in labour time and drudgery.

However, it was also noted the need to enhance available knowledge in the sub-region on aspects such as:

- Cover crops that apparently have been - and are being - researched on, but there is still no synthesis of the results
- Crop-livestock integration
- Use of chemical inputs.

In addition, some knowledge gaps were noted regarding issues such as (i) the socio-economic impact and implication on labour reduction as a result of adopting CA (ii) social sharing of benefits and costs of such impact, also including children and women (iii) What and where will be the added value of CA compared to the current systems?

Lessons from CA experiences show that the design, development, adaptation and improvement of CA based systems rely on the existence of dynamic and efficient innovation systems involving all the stakeholders and led by farmers. In WCA, the group noticed the existence of actors and initiatives but the farmers' leadership seems lacking. Also, current networks and means are

insufficient to generate and to share acquired indigenous / endogenous or exogenous knowledge, which remains limited to some areas.

Hence, SCAP, notably in its first year, should allow stock-taking of existing knowledge, the analysis and synthesis of it, and more importantly, it should facilitate the creation of enabling environments that are conducive to the emergence of innovation systems capable of designing CA based alternatives. It should further encourage their development and adaptation to the diverse targeted situations in WCA. Improvement of those CA based innovation systems over time is necessary at least during the whole transition period.

With the generation and capturing of evolving knowledge on one hand, SCAP will facilitate workable mechanisms for mutual knowledge sharing among and between the various players and stakeholders - from farmer to farmer as well as vertically across the various sectors, disciplines including policy. This will also take into account mutual knowledge sharing within and across the Project sites, the region and beyond.

SCAP will, in this regard, also be able to contribute /add value to the knowledge and information available for networking at all these levels.

Participatory monitoring approaches will be followed from the very beginning. Project in-built monitoring processes are also a key component in facilitating farmers' self-learning efforts.

The key knowledge sharing activities to be implemented under SCAP are:

Study tours and field days

Within community look-and-learn visits and field days will be organized, as sharing-learning platforms. This will expose farmers and staff to ideas and innovations from other communities or regions. This will give the farmers opportunity to observe and review what, why and how other communities respond to land degradation and NRM issues and the related effects/impacts.

Study tours/Farmer-to-farmer visits will be arranged around identified areas of interest – related to what is identified as issues the community/group would like to learn something about. This could be in the villages in the vicinity and indeed in other districts or towns within or outside the region.

Field days will be organized around issues of common interest or generic themes as a way to pass on / show case new information. This will also be organized around trial farmers' own experimentation plots. As part of facilitating wide-ranging interaction, the Project will ensure that a wide cross-section of players and stakeholder are invited to the field days – including members / leaders of farmers' organizations, traditional village authorities, input/implement manufacturers and traders, finance institutions, relevant local and regional politicians and professional research and extension staff/institutions, etc....

Technology comparison across communities

Through participatory approaches involving key stakeholders, the Project will facilitate the identification and selection of combinations of CA practices (direct planting, i.e. reduced tillage options; residue management systems; soil cover options; crop mixes; crop-livestock systems, etc...) to form the primary bases for trials and innovations. The Project will facilitate comparison of the experiences and delivered impacts of the technologies between communities and farmer groups.

Assessment of the technical and socio-economic dynamic in the local farming systems, with regard to compatibility with natural resource resilience and at the same time viable farming enterprises;

Identify and understand key technical and socio-cultural and financial-economic parameters that would hinder or foster widespread adoption of conservation agriculture practices in the project site circumstances

Identify and quantify and procure/source external inputs and materials, e.g. CA implements, that will be required as part of the experimentation process

Define and build-in a farmer based participatory monitoring and evaluation for project monitoring as well as a farmer learning tool

This component will also ensure identification of strategies that may be necessary, such as special seeds, or CA equipment. Where need be, as may be the case with equipment, the Project will need to plan for and arrange procurement.

Community discussion of impacts of new practices

Evaluation of activities, measuring and documenting results and outcomes: The aim will not be to just present a description of RESULTS, but will include an in-depth analysis of the WHY and HOW components, and draw out lessons and knowledge that would evolve in the Project process. The following is envisaged.

Evaluation: CA in WCA: where, what, with whom, for whom. Effects on equity, access to assets, technology. Effects on the various target groups. While issues of food security and poverty alleviation are important, the project will also articulate and highlight effect/impact on environmental public services including biodiversity and climate change.

Capitalization: Writing the success (or failure) stories, organizing a final workshop, taking initiatives to formalize a FFS framework.

The Project will stimulate and facilitate the sharing of existing and evolving knowledge and lessons on conservation agriculture and related issues. Various means will be deployed for different groups, with particular focus on enabling farmers to share and learn from each other. The following are some of the means that will be used.

The SCAP Project will undertake to interact and facilitate knowledge sharing and experiences across the region in Africa and beyond. The Project will identify and facilitating learning from CA experiences in other regions. The Central and Southern Africa experiences through ACT and other initiatives will be of particular interest – both in CA technologies and in farmer based experimentation and extension-scaling out/up methodologies, with special consideration on women participation and initiatives.

Interactive project website and links to FIDAFRIQUE site

A Project dedicated web-page will be established and managed within the ACT website, with active linkage and integration to the FIDAFRIQUE website. This will also be closely associated to existing and related IFAD and Loan Project websites.

This is planned to also provide for direct partner interaction and exchange of information, reports, etc... The web page will also provide for inter-regional exchanges and interaction within the context of ACT and its partners and members in other regions (East, Central and Southern Africa).

Within the region and across regions interactions, special attention will be given to collaboration and sharing of information and experiences. In Primarily using the ACT pan-African establishment, the Project will facilitate the Project's networking interactions with other CA/NRM initiations within West Africa and across to other regions.

ACT will specifically facilitate inputting to the Project thrust, the Network's experiences and lessons from Southern-Central and East Africa. Systematic and sustainable self-propelling mechanism for mutual interaction and exploitation of synergies between and among various initiatives across the regions and with the SCAP project will be developed.

Linkages to other initiatives and interventions outside the WCA will also be used to assess and compare impact in regions where adoption has already taken place.

The project will support efforts towards international profiling of CA efforts in Africa, such as the upcoming CA fourth world congress in India in early 2008

VII. 4 Capacity building (mainly contributes to the objective 4).

Strengthening the institutional and networking capabilities of ACT

Strengthening institutional mechanisms, including the consolidation of ACT, as a means of fostering knowledge-sharing and community-led assessment of CA practices in the region. Is a major objective for the project. A major role for ACT is, therefore, fundamental to the Project operational structure.

In addition to fostering a generalized capacity for networking and knowledge management and sharing, SCAP will specifically focus on building a strong and effective WCA branch of ACT. Organisational/institutional capacity building for national and regional institutions is an area of interest to IFAD.

By virtue of its role as lead implementer of the SCAP Project, ACT will enhance its capabilities in managing international multi-partner projects on conservation agriculture. It will be strengthened through the following mechanisms:

- Technical services. It is envisaged that SCAP shall procure from ACT a number of services, including CA training for Project staff, technical backstopping on CA practices, and farmer group organisation for on-farm experimentation and self-learning. ACT will also be expected to facilitate interaction and sharing between SCAP and other CA-NRM initiatives within WCA and with the rest of the continent, especially ECA. Most of these tasks shall be organised through the ACT secretariat.
- Improved staff capability. SCAP will enhance the functioning of ACT through direct staffing support. An ACT staff member posted in WCA will be employed through SCAP and will be responsible for most of the Project activities.
- Cross-regional knowledge sharing. Improved capacity for fostering knowledge sharing between English and French speaking stakeholders will be important for Project success. In order to foster information sharing related to CA across all of sub-Saharan Africa, proficiency in both English and French within ACT will be important.

Strengthening the institutional and networking capabilities of farmers associations

Farmers organised around the concept of learning and experimenting groups will be suitably prepared to assume major responsibilities. Using relevant techniques, approaches and local / community networks and structures derived from the FFS will empower them. The project will contribute to build platforms where farmers share knowledge on the use of appropriate and affordable technologies aimed at better managing their natural resources, and increasing their agricultural produce.

Workshops will be organized for villagers from neighbouring villages to strengthen their capacity in improving cropping systems, observation, evaluation. Active, contextual and experiential learning methods will be used with field-based training modules designed in collaboration with the villagers.

Resource persons from the project's regional and national teams will facilitate these workshops. Additional expertise in experimental design for on-farm trials and surveys, and biometrical and socio-economic data analysis will be provided by the SCAP implementation team.

The project will also help establish strong working relationships between farmers and public or private service delivery institutions, and also create (where and when it is opportune) strong linkages to agribusinesses, lending institutions, government institutions and others. Farmers associations, from local to national scale, the commodity associations provide extension services that enable farmers to produce quality products which are competitive on the market

Training staff

With the aim of empowerment the local staff – especially the frontline agricultural extension/facilitators for long term capacity building, SCAP shall deploy special effort to ensure appropriate training for the concerned staff. Some specialized training will be conducted in identified learning need, especially on aspects related to CA and participatory methodologies and farmer group facilitation. SCAP will also put in place mechanisms for on-going on-the-job training, as the facilitator interacts with Project professions and expert personnel.

In response to expressed training needs, the Project will facilitate appropriate training for all Project staff. All frontline project staff will receive training in conservation agriculture and in on-farm experimentation and dissemination techniques,

Special consideration will be given to the internal evaluation of the whole project methodological options, and objectives. In particular, and in order to avoid the possible technological or science deviation, seminars will be organized regularly to appreciate how much farmers organizations are being strengthened, and how the ACT network capacity to deal with Western and Central African NRM problems, including gender aspects, women participation and initiatives .

This training will be carried out within the context of training of trainers, with the objective that all trained staff and farmers are able to participate in further training and re-training of fellow staff and farmers.

The training, specifically adapted in content and learning methodologies to the various target groups. This will encompass different aspects, from sustainable NR management at field, community and regional levels to CA (placed in a holistic context, i.e. CA principles, the diverse CA technologies and their concrete application, CA impact assessment, etc...), socio-economic aspects and to process issues, such as participatory approaches and methods for diagnostic, experimentation and diffusion, and for monitoring and evaluation.

Training will involve a mixture of hands-on sessions timed at various key moments of the growing season, as well as more conceptual sessions.

In addition to basic training, a series of specialised 1 short duration earning sessions (1 to 3 days) will be conducted on specific aspects of CA, e.g. implements, soil cover and cover crops, etc....

Training students

The specific conditions of SCAP offer an important opportunity to develop analytic capacities of agro-socio-economic simultaneous phenomenon. Given the weakness of the academic training conditions in the Region, and whereas IFAD generally prefers to train technicians than scientists, SCAP will offer its infrastructure to host academic studies.

A number of students will also take part in the activities described in this section. Indeed, they are expected to play a key role in complementing the SCAP's core team capabilities. They will later be part of the capacity building realization of the project. The SCAP project management team will define in collaboration with the advisory team and the IFAD HQ, the rules for defining the quality (Engineer, M.Sc or PhD), fellowship level, selection principles and modalities etc. for the students.

Students from outside the Region as well as inside the continent and the West African region, in self-financed twinning arrangements between north-south institutions, will also be considered. They will be accompanying various activities such as experimentation, which need to be documented in great detail for a good understanding of both technology and process issue. Such an understanding is necessary for future up-scaling of results and processes.

SCAP along the time: an overview

Year 1 will be devoted to the inventory of the research, training and extension past experiences related to NRM, and to the improvement of cropping systems. This includes methods used in performing trials with farmers, training, visits and study tours as well as approaches used in setting up of consultation frameworks for internal management activities or oriented towards the concerted management of spaces and natural resources.

This overview will mobilise all partners of the SCAP Project, particularly the rural populations that will be highly involved in activities of Year 2.

In **Year 2**, two types of activities will be carried out:

- Field trials led by farmers, coordinated by the network of farmers' innovators and field operational teams of SCAP, in order to allow exploration of the ways of improving cropping systems. Farmers with the support of the project teams will design the trials. They should allow at least the comparison of two situations: the usual cropping systems and the improved cropping system. This activity aims at co-designing innovative cropping systems; in other words, the innovation which will allow the improvement of the cropping systems;
- Training of farmers on field plot experiments using FFS approach that aims at helping farmers to understand mechanisms in play (water movement, nutrients management). The objective of such training is to closely associate farmers in the conception of innovations. One can consider a number of training sessions taking place during the vegetative cycle of the crops and during the dry season: the observation of the crop and its root system, the soil surface and the erosion¹³ patterns, weeds etc. An economic assessment will be achieved with the groups of farmers trained. After a call for application, selected Msc and/or PhD students will have their studies co-financed under the SCAP project.

These activities will continue during **Years 3**, as the innovations will have cumulative effects on soil parameters (soil surface, porosity, soil organic matter...), on weeds and parasites (*Striga hermontica* in particular).

Innovation activities will be carried out beyond the limits of the trial plot and the field school. Results obtained in Year 2 as well as the lessons from Year 1 inventory will allow the support of the volunteer farmers in the scaling-up of the practices. The adoption of the innovation on a significant part of the farm calls for a support to farmers. Indeed, it seems difficult for isolated farmers to innovate outside a collective dynamics. Groups of farmer innovators set up in Year 2, are expected to play a leading role in scaling-up.

¹³ The participative experience with Brazilian smallholders concluded that erosion had very high importance as a criteria for adoption (or not) of CA by the farmers

It is also expected that within the groups, some farmers will volunteer to significantly change their cropping systems and other patterns of their farming systems e.g. livestock management, trees management etc. They should benefit from the support of the groups of farmers innovators, the SCAP teams and from the devices of the IFAD loan projects for easy access to some production factors (via rural credit), some equipments and if necessary from mutual aid for some field operations.

The group of farmer innovators should also be part of the local authorities managing spaces and natural resources, in order to address the sensitive question of livestock free roaming, and free pastures as well as collective watershed management.

Every year a participative exercise of extraction of lessons and building of ways for improvement will be carried out, and appropriate conditions of up-scaling will be defined

At the end of the Project, an international workshop will be organized in order to discuss scientific, technical, social and economic findings of SCAP and the way to forward in WCA

VIII PROJECTS OUTPUTS

The following Project Outputs, introduced here vis a vis the four main objectives of the project are envisaged:

Output 1: *Building locally adapted CA-based cropping and farming systems*

- a) CA best practices in defined ecosystems (including wet/dry, large and small, hand and mechanized) developed and validated and application information-knowledge available for potential scaling up/out. The developed practices are expected to address specific agro-ecological and socio-economic systems in the Project sites.
- b) CA impact potentials and possibilities (both with regard to livelihood parameters and environmental dynamics) identified/verified and better understood with practical evidence to justify investment in CA and for lobbying political will and financial commitments (*may not be conclusive due to the time limit but should highlight trends and model projections*)
- c) Plausible entry points and pathways for different types of farmers / environments
- d) Comparative analyses of CA innovations (conventional / current vs CA practices) including environmental, technical conflict-management and economic aspects, and quantitative measurement of differential effects on non target group

In this output, technical options (based on both scientific and indigenous knowledge) for feasible, viable and sustainable agricultural production systems in the target communities/circumstances will be identified/adapted and application information made available to target communities and other stakeholders

The resulting technical information and recommendations should enable farmers and other related stakeholders decide on feasible, viable and environmentally friendly farming practices with regard to:

- reduced/no tillage options
- soil cover options, and
- rotations/intercropping mixes, including tree management options
- compatible crop-livestock systems

This information will capacitate farmers (individual and collective options as well) just as much agricultural extension staff and will be useful information in the planning and implementation of conservation agriculture support programmes/projects.

Output 2: *Farmer innovation network*

- a) Mechanisms and criteria for identifying and rewarding innovations among the participating farmers developed and functioning. The Project will also ensure that farmers are capable of internalizing and managing such mechanisms
- b) An active purpose built farmer innovator network functional; this includes:
 - A dynamic local farmer-based CA-NRM networking arrangement, driven by internal-energies and desires to share/learn CA-NRM. This shall include consolidating farmer capabilities to interact with researchers, and exchanges with other expert farmers. The networking arrangements will ensure a formalized dynamic multi-scale network with stakeholders active in promoting appropriate cropping systems, ideas, warnings alert , methods, initiatives etc. on CA
 - Well-documented farmer stories on the basis of which experiences can be shared to stimulate initiatives. SCAP will encourage and facilitate farmers to write own stories on experiences with agriculture, in general, and CA in particular. The writing process is expected to also encourage self-evaluation and learning.
 - Farmer (individual or groups) “champions” identified and supported as group/community pillars for collective responsibilities in NRM and specifically on the advancements with conservation agriculture
 - Active articulation of the SCAP network with existing international networks including Fidafrigue and the Portal

Output 3 : *Knowledge management and sharing:*

Output 3.1: *Institutional mechanisms to sustain knowledge sharing and to foster innovation and up-scaling in the Region*

- a) Consolidated networking dynamics especially the ACT WCA component including on aspects of membership recruitment drive, national level and institutional ACT focal points in the various countries and institutions in the region. This shall also ensure active linkages to national and regional farmer associations. It is expected that these enhanced capacities will also stimulate and facilitate the pan-Africa thrust in collaboration and knowledge sharing
- b) Strengthened institution to manage knowledge sharing and learning on CA practices and techniques
- c) Partnerships and structures built to facilitate the dialogue between community-based organizations, dynamic innovation networks, commodity chains actors (including private sector) and policy decision-makers
- d) Contractual arrangements between farmer organizations and other stakeholders

Output 3.2: *An active knowledge management basis for distilling, learning and disseminating local and exogenous knowledge established and functional*

- a) Learning, distilling and disseminating local and exogenous knowledge

- b) Paying particular attention to the development of systematic ready-to-use information/data on critical factors influencing adoption and sustained adoption of CA in smallholder subsistence communities, including multi stakeholders agro- and socio-economic basis for supporting the elaboration of investment projects in the form of a validated database including all the elements to be taken into account in a loan projects, allowing profitability criteria.
- c) Identification and recommendation on strategic inputs necessary/essential in adaptation/adoption processes. On the other hand this aspect will also aim to highlighting convincing information and knowledge for promoting a conducive policy environment and related incentive mechanisms
- d) identified and supply / sourcing arrangements identified/recommended
- e) Internet based information and knowledge sharing platform functional and linked to FIDAFRIQUE

Output 4: *Capacity building*

SCAP will consolidate the continental / regional / national / village / local groups and institutions generated by the project

- a) ACT capacitated and functioning as a CA – NRM networking platform in WCA and rest of Africa. This is expected to embrace the strengthening staffing and expertise capabilities of ACT. This will include SCAP project manager and French capabilities in the ACT core office.
- b) Appropriate institutionalized framework and operational modalities for both “vertical” and “horizontal” interactions inside the communities and with the government structures : This output shall also ensure:
 - Farmers organised around the concept of learning and experimenting groups using relevant techniques and approaches from the FFS
 - Workable structures including the farmer level to deal with NRM initiatives

The Project efforts in this regard are also expected to contribute to the empowerment of local farmer groups and associations in self-motivated management and enabling group dynamic – enhancing the farmer groups’ capabilities and functioning in Project implementation

- c) Project Staff knowledge and competencies in CA and people-centered participatory methodologies enhanced All frontline (field level) project staff receive training in conservation agriculture and in on-farm experimentation and dissemination techniques

The project Logical Framework is presented below:

Narrative Summary	Objectively verifiable indicators (by June 2009)	Means of verification	Assumptions
GOAL			
Improved livelihoods and sustainable socio-economic growth among rural communities in WCA...	<p>Area under CA-practices in the various ecosystems and No. of sites (testing, full-scale development...) at community level and donor-funded (including IFAD-funded) projects</p> <p>Strategies and policies elaborated to promote / develop CA-based practices in the Region</p> <p>Improved and stable crop yields from dry land farming attributable to effective water use.</p> <p>Increased number of food-secure periods (months) for households.</p> <p>Increased number of farmers, farmers groups and associations including (and promoting) CA in their NRM practices</p>	<p>External reviews and evaluations</p> <p>Field Surveys</p> <p>Impact evaluation</p>	<p>Favorable worldwide dynamics on promoting CA as a contribution to reduce poverty and improve NRM</p> <p>Difficulties in revisiting simultaneously individual cropping systems, individual farming systems and social rules at community level</p>
PURPOSE			
<p><u>Purpose:</u> to stimulate and facilitate community based processes in which the target rural communities (including the poor and disadvantaged) are empowered to innovate and sustain conservation agriculture farming practices</p>	<p>Existing and published strategies and policies elaborated to promote / develop CA-based practices in the Region</p> <p>Higher number of farmers associations that are committed to modify social rules and rights regarding parklands, land, crop residues, trees and livestock management</p> <p>Existing recognized CA champions at community level, and significant area managed under CA-based practices</p> <p>Set of good CA-based practices prepared and disseminated</p> <p>Active and efficient institutions at all geographical levels (mainly ACT) able to foster innovation in NRM and up-scaling in the Region.</p> <p>Existing new operational networks of CA committed stakeholders.</p> <p>No. of stakeholders by type, No. papers, learning events, interaction with IFAD learning systems (Fidafrique, Portal...), etc</p> <p>Existing recognized CA women associations, and CA women champions among the NRM associations and initiatives</p> <p>Women capacity to cultivate larger areas under CA.</p>	<p>External reviews and evaluations</p> <p>Field Surveys</p> <p>Community Development Plans</p> <p>Supervision, MTR reports of IFAD-funded projects</p>	<p>Favorable worldwide dynamics on promoting CA as a contribution to reduce poverty and improve NRM</p> <p>Difficulties in revisiting simultaneously individual cropping systems, individual farming systems and social rules at community level</p> <p>CA cropping systems are more profitable individually than conventional systems,</p> <p>CA provides more environmental and social benefits to communities than conventional agriculture</p> <p>CA implementation needs and stimulates improved knowledge mobilisation, generation and management</p> <p>CA represents a fantastic opportunity for fostering local innovation, indigenous knowledge, and creativity</p>

OBJECTIVES / OUTPUTS			
<p><u>Objective 1:</u> Building cropping systems</p> <p><u>Associated Output:</u> Locally adapted CA-based cropping and farming systems developed and shared</p>	<ul style="list-style-type: none"> No. of locally-adapted CA-based practices [cropping system] developed and validated: at least one per agro-ecological site, including conditions for good practices at community and farmer levels Comparative analyses of CA innovations (conventional vs CA practices) including environmental, technical conflict-management and economic aspects, and quantitative measurement of differential effects on non target group No. of established FFS dynamics No. of established processes for new community-based rules for land, livestock and crop management developed Average area cultivated by farmers using CA 	<ul style="list-style-type: none"> Published technological briefs describing the sequence of recommended technical actions Studies, reports and external evaluations on the technical/ environmental/economic/ social issues No. of participatory workshops aimed at expressing / analyzing and synthesizing multi stakeholders considerations External review reports Land use statistics 	<ul style="list-style-type: none"> CA may have negative effects on vulnerable groups like transhumant Pre-existing motivation among farmers to invest in soil conservation and NRM, and to develop organizations (and overcome constraints) to manage good practices in both social and regulatory terms Existence of IFAD field staff willing to invest in participatory experimentation and fine-tuning with farmer groups Necessity to accurately control the free roaming of animals.
<p><u>Objective 2:</u> Stimulate self-driven farmer innovator networks</p> <p><u>Associated output:</u> Mechanisms and systems to stimulate and facilitate farmer innovation developed and functioning within the target communities</p>	<ul style="list-style-type: none"> Mechanisms and criteria for identifying and rewarding innovations among participating farmers developed and functioning, published An active purpose built farmer innovator network functional Existence of registered consolidated farmers' associations interacting with researchers and exchanging with other expert farmers Existence of a formalized dynamic multi-scale network with stakeholders active in promoting appropriate cropping systems, ideas, alerts / warnings, methods, initiatives etc. on CA Published success stories on the basis of experiences that can be shared to stimulate initiatives 	<ul style="list-style-type: none"> Documented field trips/workshops/exchange visits Publications Documented organized visits (towards the project demonstration sites and towards other existing active NRM and CA sites) External evaluations Report on workshops and learning events 	<ul style="list-style-type: none"> Pre-existing natural creativity and motivation of farmers to select, improve, monitor and evaluate innovations Exiting worldwide movement towards a wide vision of creation / diffusion of innovations, giving more and more room to farmer's innovations. Existence of national and international field researchers willing to invest in participatory experimentation with farmer groups. Less work is needed with CA than

	<ul style="list-style-type: none"> • Active women innovator associations, and women inside innovator associations and networks. • Active articulation of the SCAP network with existing networks including ACT, Fidafrique and the Portal 	<ul style="list-style-type: none"> • Supervision and review reports 	with conventional agriculture:
<p><u>Objective 3:</u> Knowledge sharing and management (regional)</p> <p><u>Associated output 1:</u> Building institutional mechanisms to sustain knowledge sharing and to foster innovation and up-scaling in the Region</p>	<ul style="list-style-type: none"> • A consolidated CA network in WCA based on ACT and other stakeholders • Strengthened institution to manage knowledge sharing and learning on CA practices and techniques • Pan-African CA initiatives • Partnerships and structures built to facilitate the dialogue between community-based organizations, dynamic innovation networks, commodity chains actors (including private sector) and policy decision-makers • Contractual arrangements between farmers organizations and other stakeholders 	<ul style="list-style-type: none"> • External evaluation of the existing documents • Workshops and learning events' reports • Supervision and review report • Reports on meetings between stakeholders • Organization of a francophone/Anglophone final event 	<ul style="list-style-type: none"> • Farmers will be empowered to better negotiate with international public and private bodies, as well as financial institutions • Villages are well acquainted with working together and social ties are supportive to collective, gender-sensitive plans
<p><u>Objective 3:</u> Knowledge sharing and management (local)</p> <p><u>Associated output 2:</u> An active knowledge management basis for distilling, learning and disseminating local and exogenous knowledge established and functional</p>	<ul style="list-style-type: none"> • Existing training material for Farmer Field Schools (FFS) and Farmer Field Fora (farmers /technicians/ NGOs/ Universities...) • Multi stakeholders Agro- and socio-economic basis for supporting the elaboration of investment projects in the form of a validated database including all the elements to be taken into account in a loan projects, allowing profitability criteria. • Convincing information and knowledge for promoting a conducive policy environment and related incentive mechanisms • No. and quality of multi-stakeholder learning events • Articulation with the IFAD-sponsored Fidafrique network including its capitalization activities 	<ul style="list-style-type: none"> • External evaluation of the existing documents • Workshops and learning events' reports • Supervision and review reports • Documented website linked with the Fidafrique network 	<ul style="list-style-type: none"> • The SCAP will benefit from former CA FFS experience in Anglophone Eastern Africa • Present international initiatives (like TERRAFRICA) need to be fed with rigorous and convincing references (success stories, economic/ environmental analyses), and will be interested in the SCAP results

<p><u>Objective 4:</u> Capacity building</p> <p><u>Associated output:</u> Consolidate the Continental / Regional / National / Village / Local groups and institutions generated by the project.</p>	<ul style="list-style-type: none"> • Farmers organised around the concept of learning and experimenting groups using relevant techniques and approaches from the FFS • A workable Project management structure including the farmer level operational arrangements • Consolidation of the Inter African Innovative Farmers networks, through ACT, and building an official WCA branch of ACT • ACT capacitated and functioning as a CA – NRM networking platform in WCA and rest of Africa. • A Consolidated CA network in WCA based on ACT and other stakeholders, including active women. • Existing Pan-African CA initiatives. • Partnerships and structures built to facilitate the dialogue between community-based organizations, dynamic innovation networks, commodity chains actors (including private sector) and policy decision-makers. <ul style="list-style-type: none"> • Existing contractual arrangements between farmers organizations and other stakeholders • Attitudes towards CA of development and extension staff, and villagers improved • Improved quality of training in the pro-poor orientation of field activities 	<ul style="list-style-type: none"> • Documented Project management and operational framework • Publications • External evaluations • Reports of farmer groups • Supervision and review reports • External evaluation of the existing documents • Workshops and learning events' report supervision and review reports. • Reports on meetings between stakeholders • Organization of a francophone / Anglophone final event • Capacity building assessment reports • Targeted surveys 	<ul style="list-style-type: none"> • Interest and commitment of farmers • Compatibility with local social-cultural norms and practices • Thanks to the SCAP, the farmers will be empowered to better negotiate with international public and private bodies, as well as financial institutions. • Availability of a cadre of research, development and extension agents ready to undertake professional change • Villagers and research, development and extension agents willing to share knowledge and skills
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IX INSTITUTIONAL PARTNERS

Under a MoU to be defined with ICRAF administration (see below), ACT¹⁴ will implement the Project with CIRAD¹⁵ and ICRAF¹⁶ as its main technical partners.

The SCAP Project will develop a strong partnership / integration with ongoing IFAD financed projects. The latter would also provide infrastructure, selection criteria, a knowledge base and an organizational and institutional basis for this operation. Being the experimentation sites, they will provide a realistic basis for comparisons and observations (biophysical, economical and sociological aspects) over time. A regional team and country teams will implement project activities (see Section X).

Four ongoing IFAD financed projects in the three project countries (one in Niger, one in Guinea and two in Burkina Faso) are the primary institutional partners in the implementation of the project. The four IFAD financed projects will host pilot sites and the project thrust is expected to clearly and directly input to and support the attainment of development objectives in these projects.

The four IFAD financed projects have been selected as key primary partner institutions as their main agricultural focus and approaches are consistent with the goal and strategies of the SCAP project, and as the CPM and project leaders expressed interest in opening “their” project to SCAP. The four IFAD IFAD financed projects involved are:

In Burkina Faso:

*** The Community Investment Programme for Agricultural Fertility (PICOFA)**

This programme is using a watershed approach with interest in both the upstream and downstream areas of lowlands. It aims to enhance sustainable agricultural productivity through the development and promotion of soil protection and rehabilitation through soil and water conservation techniques, soil restoration, agroforestry and grazing paths. Simultaneously the programme supports income-generating activities, facilitate improved access to credit and land by vulnerable groups (particularly women and rural youths). Among the key aspects in the programme’s interventions is, on one hand, water supply, agricultural inputs and equipment supply, and on the other hand, institutional capacity building among farmer organizations, agricultural investments and infrastructure development and maintenance.

¹⁴ **ACT** is The African Conservation Tillage network. ACT promotes and facilitates sharing of information and experiences across sectors, disciplines and geographical boundaries among players and stakeholders involved in promoting adaptation and adoption of conservation farming principles and practices in Africa. ACT is an international association of stakeholders - private, public and NGO sectors, including farmers, input and machinery manufacturers and suppliers, researchers and extensionists - who believe that the adoption of conservation tillage principles and practices in Africa “*can not only reduce but reverse the environmental degradation that is devastating the continent*”. ACT is presently mainly active in Eastern and Southern Africa, but is also involved in development of CA in Ghana. ACT received from the Nairobi congress the mandate to develop a West African Francophone CA initiative.

¹⁵ **CIRAD** has been conducting hands-on research on CA for the past 20 years in a host of environments. It is a key partner of CA projects in a variety of countries in the developing world. Specifically in francophone Africa, CIRAD has several partnerships with AFD, specifically in the sudanian zones of Cameroon, Guinea, Mali, and Madagascar and soon in Burkina Faso (dealing with cotton production). A number of research units will be associated to the project: Direct seeding and cover crops, Water management, Livestock systems, UMR System and UMR Innovation and development, among others.

¹⁶ **ICRAF**: The World Agroforestry Centre (ICRAF) has invigorated the ancient practice of growing trees on farms, using innovative science for development to transform lives and landscapes. Our research focuses on four global themes: Land and people, Environmental services, Strengthening institutions and Trees & Markets. The Centre’s headquarters are based in Nairobi, with regional centres throughout the developing world in more than 20 countries across Africa, Asia and South America, one of them (Bamako) is directly involved in the SCAP project.

*** The Programme de Développement Rural Durable (PDRD) (Sustainable Rural Development Programme)**

The programme will assist the target groups (i) in their organizational capacities by empowering the beneficiaries to gain ownership in the planning and management of their own development. (ii) It will help them obtain secure land tenure. The programme involves the implementation of concrete pilot actions to improve land access and tenure rights on land on which agricultural production is hampered because of conflicts and land tenure and (iii) It will enhance the sustainable development of productive capacities by opening up economic opportunities so as to improve the livelihoods and the living conditions of the beneficiaries through: (a) watershed development, protection and management; (b) the intensification and diversification of agricultural production; and (c) support for income generating (iv) The programme is being implemented through village organizations "called comités villageois de gestion des terroirs" (village committees for land resource management), farmers associations and other grass-roots producer groups. The programme will create an enabling environment to strengthen collective action and community involvement. The approach of the programme is demand driven and participatory and focuses on community-development planning and gender balance. The Programme covers cinq provinces in the Northern and Central Burkina Faso, with a total area of more than 21.057 km² (18 % of the National territory).

In **Guinea**, The **Programme for Participatory Rural Development in Haute-Guinea** is a ten-year (1999 – 2009) IFAD IFAD financed project aimed at improving the incomes and living conditions of poor rural households in the Haute-Guine region and achieve sustainable development. Specifically the programme aims to:

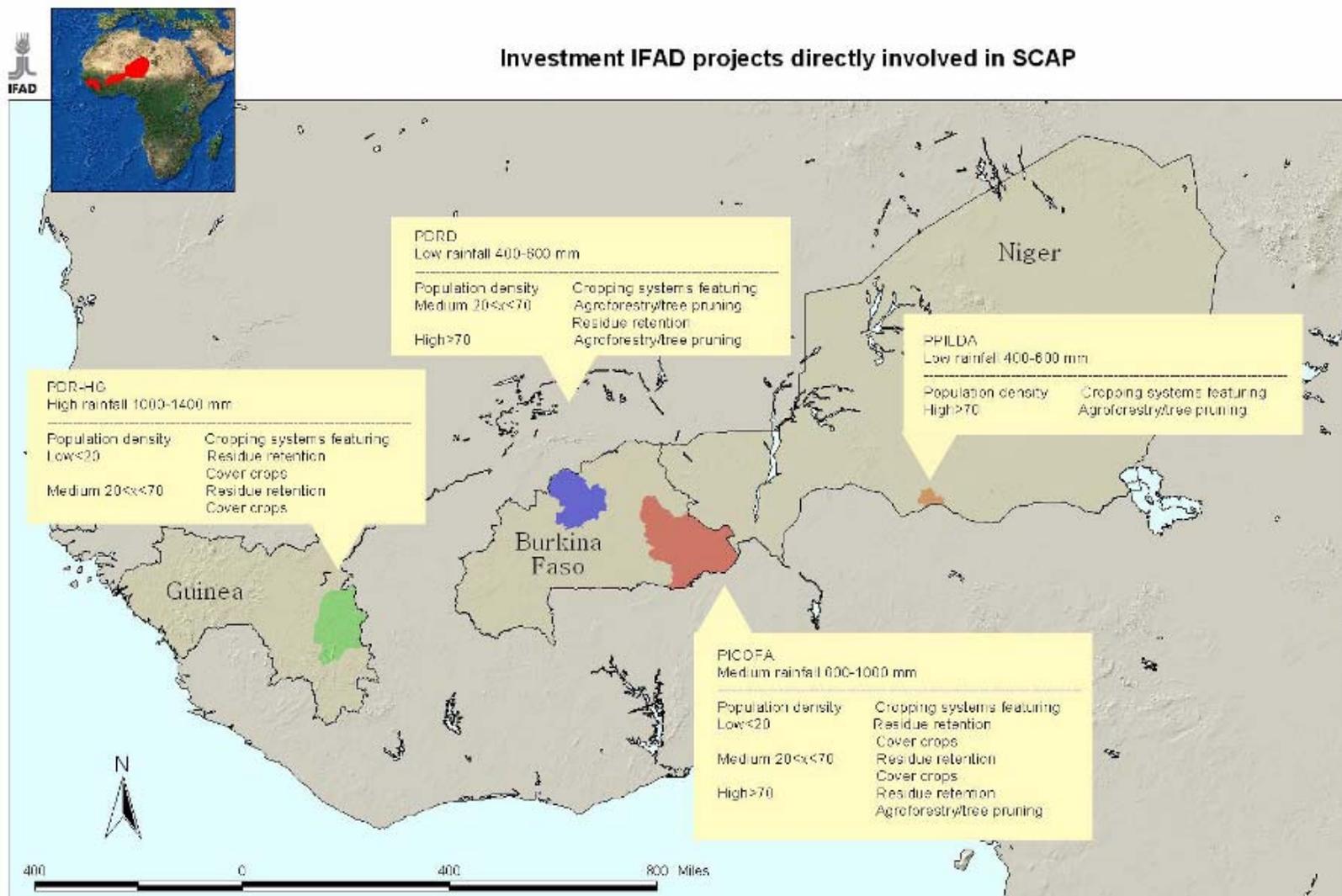
- strengthen the capacity of grass-roots institutions to initiate and manage their own development, with strong emphasis on women, who will constitute 50% of the beneficiaries
- establish viable rural financial institutions along the lines of financial service associations
- improve the on- and off-farm income-earning potential of poor households, and
- strengthen the regional monitoring and evaluation system for rural development.

Focusing on some of the poorest populations in the country, the programme aims to directly target 200 of the poorest villages in Haute-Guine. This represents a direct coverage of approximately 17 000 households. The programme strategically focuses on women with the rationale that their empowerment would result in more effective management of household and external resources. Village stakeholders are being empowered to manage their own development and to take an increasingly leading role in decision-making and programme management activities.

In **Niger**, the **Project for the Promotion of Local Initiatives for Development in Aguié** targeting those rural farming classified as vulnerable to food insecurity and poor, the programme aims to empower the target rural communities in developing and implementing innovations and initiatives (in technical, economic or organizational areas) that could help reduce poverty, vulnerability and improve their food security. The programme expects to directly reach some 30 000 rural families (over 180 000 persons) including poor women and woman-headed households and the youth. The target communities will be organized and participate through local organizations based either on the concept of the terroir (territory) or upon other rationales (thematic, networking, etc.) and fostered at different levels (such as interest groups, intra- or inter-village, profession).

The following map is presenting the project area and its main characteristics.

Within the context mutual collaboration on the project objectives and activities and as part of the regional networking thrust, the project will link up and collaborate with a cross section of institutional players and stakeholders in the region. Such organizations include:



National institutes for research and extension (NARIs) and the national extension departments.

The SCAP project recognizes the NARIs and the national extension departments as valuable players with wealth of experience and knowledge that could directly input to the project. These institutions will also be key partners in issues of scaling up/out. Among the key NARI is the national research institute for agriculture and environment (I.N.E.R.A) in Burkina Faso, the Institut National de Recherche Agronomique du Niger (INRAN) in Niger and the IRAG (Institut de Recherche Agronomique de Guinée) in Guinea.

ICRISAT, already an active collaborator with ACT through its various soil fertility and conservation agriculture programmes in southern Africa, ICRISAT, with also a strong base in West Africa, will be a key technical partner with regard to its wide experience with NRM in West Africa through programmes such as the ICRISAT-JIRCAS Soil fertility project and the GEF financed Desert margins program. Links with ICRISAT will also be established in the framework of the "ICRISAT- Intensification of Sorghum and Millet Systems by unlocking potential of local biodiversity and market opportunities in Semi-Arid West Africa", as CA options should be also intensification options with these crops.

Other potentially key institutional partners include SODECOTON, Sasakawa Global 2000 and World Vision. Their experience in CA inside commodity chains, with private / public partnership would bring into the project original experiences, entry points, approaches

Through its regional characteristics, the Project will involve progressively other IFAD financed projects. Special attention will be given to Mali (with the FODESA project), and Roots and Tuber (Ghana). Their involvement in a second phase of SCAP should be considered as a parallel objective.

The project will also establish active working and collaboration links with farmer organizations at national and regional levels in the region. As already mentioned, the project, identifies farmer organizations as key partners in the implementation of the project. A long list of existing organizations, and their characteristics has been elaborated by the working group number 2 in the Ouagadougou workshop. (see Annex document)

Potential external partnership extension :

During the project building process, intensive exchanges, meetings and perspectives have been developed with a large number of potential partners (Research and Development institutions), and an informal network has been built. These initiatives will produce cross cutting and complementary participations in a very short term (See below on going initiatives).

- **FAO** through the FAO-Germany Cooperative Programme

FAO through a German funded trustfund project is currently implementing the 'CA for SARD' project in Eastern Africa (Kenya/Tanzania). The follow-up phase to this project will include Brazil in order to specifically focus on the CA equipment supply and manufacture and on lessons learnt from Brazil in order to improve the CA equipment supply and manufacture in East Africa. FAO will collaborate closely with ACT as the regional implementing network and counterpart to the SARD Initiative. The intended project will also create complementary exchanges with FAO's good agricultural practices (GAP) programme. KARI, SARI and IAPAR (Brazil) will have intensive exchanges on agronomic challenges and solutions in CA. The proposed IFAD-SCAP project in WCA with ACT, ICRAF and CIRAD will be a strong counterpart and through ACT will enable results to flow between west and east Africa. It is considered that longer-term support to CA knowledge exchange will be assumed by ACT, every effort will be made to build the capacity of ACT to assume this role at the end of the project.

- **FAO** through a mechanization oriented TCP linked with SCAP.

FAO has pilot sites on conservation agriculture in the 'Bobo Dioulasso' area of Burkina Faso. There is a limited number of equipment for CA available that was procured through FAO from Brazil (animal drawn direct seeders, hand jab planters, sprayers). A joint CIRAD/FAO training was conducted in 2003. FAO and the government of Burkina Faso are considering to request a FAO Technical Cooperation Project (TCP) specifically to enable Burkina Faso to build up capacity and knowledge as regarding equipment options for conservation agriculture based cropping systems. Links of this effort to the SCAP will bring in an essential complementary component on CA equipment. The TCP would focus on introducing different equipment options for available farm power sources (hand, animal traction, tractors) and providing the related training for it. The implementation could be considered to be done jointly with ACT and/or the SCAP framework. However these discussions are just beginning and a formal statement from the Government of Burkina Faso is not available at this moment. Within the SCAP framework, ACT and FAO shall jointly pursue to engage relevant government units on this aspect.

- **MAE France**, The French Ministry for foreign affairs could be interested in participating to SCAP through a special project for Natural Resources Management in WCA.

X. PROJECT MANAGEMENT AND IMPLEMENTATION ARRANGEMENTS

The SCAP is a regional multi-stakeholder programme whose key implementation players (ACT, CIRAD, ICRAF and representatives of the four national IFAD financed project) share collective responsibility in the overall programme implementation. ACT is the technical manager of the project and operates under the formal responsibility of ICRAF, which is the formal recipient of the IFAD grant. The Project management and administration is also arranged to provide maximum opportunities for institutional capacity building in ACT. ICRAF and ACT will define in a MoU which will be approved by IFAD how they will share the following responsibilities:

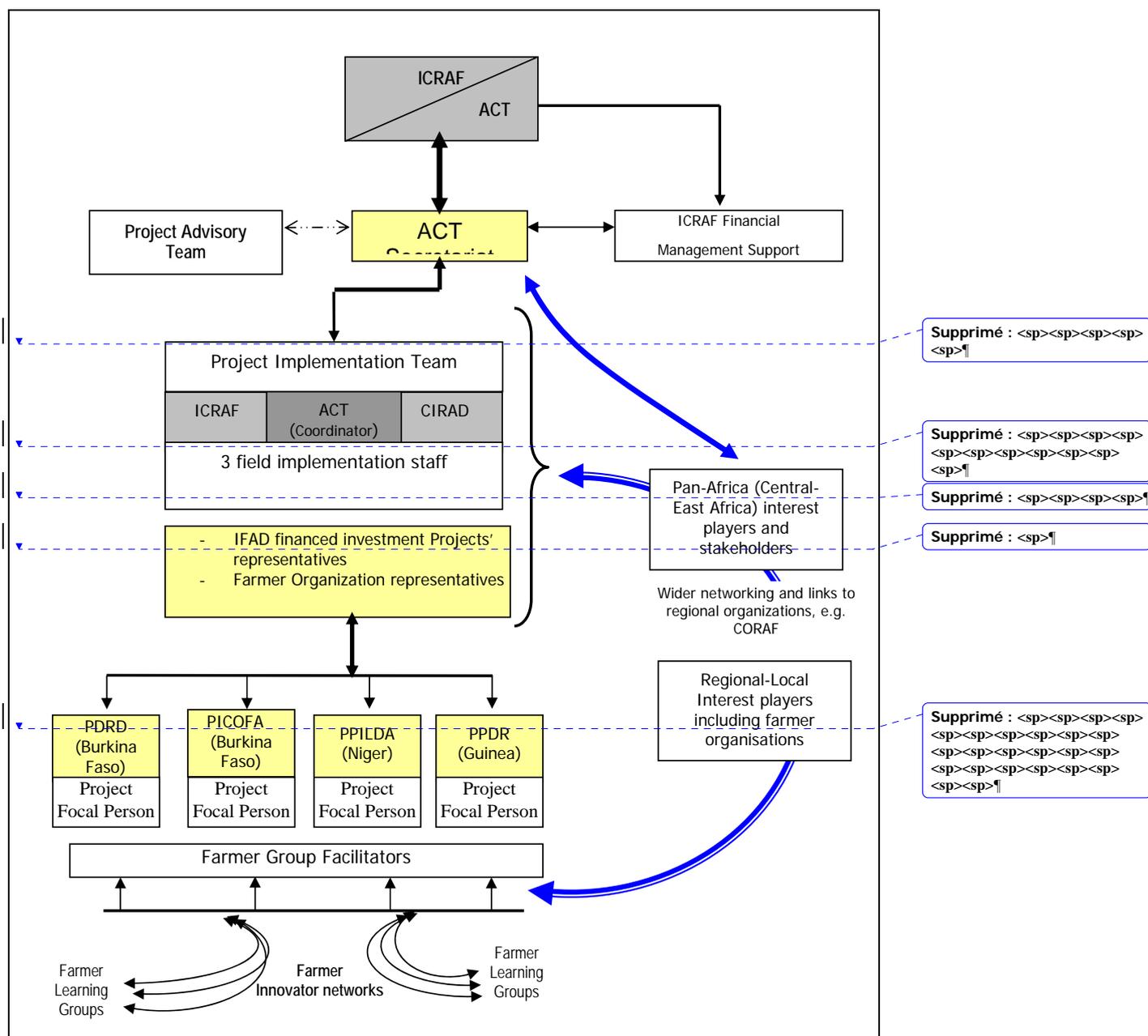
- The main and formal administrative link between the Project and IFAD, including for purposes of Project reporting arrangements
- Technical and financial reporting to IFAD, SCAP Advisory Team, ACT Steering Committee/Trust, ICRAF, CIRAD and the four IFAD financed project partners of SCAP.
- Establish mechanism for budget monitoring and management of related responses
- Project monitoring and evaluation functions
- In liaison with responsible office in IFAD, facilitate approval of the Project's annual work plans and budgets
- Provide/facilitate management support to the Project Implementation Team

The management set-up/structure is also designed to facilitate open and transparent collaboration between the partners, and to establish clear lines of communication and responsibility.

Three interactive components are distinguished in the overall set-up and functioning of the Project's management and implementation arrangement. These are:

- ACT Secretariat – Project Implementation Team
- Field operational Support
- Project Advisory Team
- Core Financial Management support

The following diagram presents the management and organization structure of the project :



The ACT Secretariat: The African Conservation Tillage Network (ACT), through its Coordinator will have administrative functions (defined in the MOU) and technical responsibilities in the implementation of the Project. This is, however, arranged to ensure the Project Implementation Team has the relevant decision making responsibilities and authority for efficient and effective Project implementation

The technical responsibilities of the ACT secretariat are:

- Active articulation of the SCAP network with existing international networks including Fidafrique and the Portal
- Facilitate linkages, collaboration and networking between SCAP and other initiatives and experiences within the region and with the rest of the continent
- Provide/Arrange for desired technical inputs/backstopping to SCAP especially in aspects of documentation and information management, training and Project methodologies and approaches including the farmer field schools and farmer exchange visits
- Facilitate mutual interactions between the Project and CA-NRM initiatives and experiences in Central-East Africa

The ACT Secretariat shall assume responsibility for overall Project delivery according to the time frame; and monitor the quality of work produced and the consistency and compatibility of the outputs with regard to the Project purpose and goals. The ACT Secretariat will jointly with Key Project Implementation partners (CIRAD, ICRAF, Representatives of the IFAD financed project and the Advisory Team) hold half-yearly meetings with the Project Implementation Team to review progress and Project implementation (technical and management) matters. The Secretariat will also facilitate partnership consensus on Project implementation aspects.

The ACT Secretariat arrangement will also facilitate an on-the-spot Project Implementation Team under the coordination of Project Co-ordinator to be based in one of the Project countries. The ACT Secretariat is administratively responsible for the employment of the Project Manager, i.e. the Project Manager is an ACT staff member.

The Project Implementation Team:

Composition: Additional to the Project Co-ordinator, the Project Implementation team shall be supported by one CIRAD¹⁷ and one ICRAF¹⁸ specialists seconded to the Project. The three will function with regional responsibilities, i.e. across the three countries. The Project Implementation team will devise mechanisms for transparent and collective decision making processes involving the mentioned three professional staff. The team will be joined by representatives of the four partners IFAD financed projects with each one having a mandate more about their programmes and the SCAP activities in those programmes.

Additional to this staff, the Project Implementation Team will account with three national staff (one per country). These persons will be selected according to their previous experience in working with farmers in soil and water conservation, and their back ground and motivation to promote Conservation Agriculture practices. They will receive special training, and will be the key interfaces between SCAP and its partners.

These persons will be paid by SCAP as employees of ACT, and hosted (integrated) in the IFAD financed projects staff, which will give them means to work. A MoU will be signed between ACT and the Projects in order to define rights and responsibilities of these staff.

¹⁷ As part of its co-financing, CIRAD will provide on a full time basis an agronomist specialized in farming systems, who could come from the UPR "*Innovations et dynamiques des exploitations agricoles*", or from the "*UMR SYSTEM*". In parallel, the project will benefit from CIRAD's worldwide network specialists in CA. These will participate in direct support through missions, and will also be resource persons for sharing knowledge, training etc...

¹⁸ Likewise, ICRAF will second a full time TA person with the Project Implementation Team. This is expected to be a person with wide experience in agroforestry. He/She will also help the project tap into the wide ICRAF experience in agroforestry and NRM in West Africa and other parts of the continent. The person will also ensure a demand driven mix of CA and agroforestry options in the determination of the feasible and viable CA systems for project site circumstances.

Functions: This Team, responsible to the ACT Secretariat, shall collectively take responsibility for the actual field level management of the Project, both in administrative aspects and in technical aspects. These responsibilities include:

- preparation and implementation of the annual work plans and budgets
- project field level management and coordination including management of field teams
- preparation and submission reports to the ACT Secretariat (as would be stipulated)
- provide technical leadership in Project implementation (including identification of "external" expertise that may be required for technical input to the Project programmes)

Strategic meetings of the Project Implementation Team shall as determined necessary by the Project Implementation Team Manager invite other local stakeholders and players. The Project Implementation Team shall, on the other hand, make standing arrangement to have representatives of partner farmer organizations as members of key strategic meeting of the Project Implementation Team.

Except in matters of policy and major changes to the Project thrust, work plan and budgets (where consulting the ACT Secretariat will be necessary), the Project Implementation Team is expected to take necessary decisions and step in ensuring desired flow in the implementation of the Project, i.e. under the leadership of the Project Manager, the Project Implementation Team shall assume primary responsibility for achieving the project objectives through implementation of set Project activities; monitoring timely achievement of milestones and deliverables and facilitates effective communication between partners including appropriate reporting.

The Manager is also responsible for all communication with the ACT Secretariat and manages the submission of progress and financial reports.

In view of the interdisciplinary nature of this project and its geographical spread, this Project level management arrangement is also meant to ensure that the Project Manager is supported by a pro-active executive, able to advise on scientific/technical, policy and management issues, familiar with all the organizations in their geographic areas and disciplines and whom, also, contribute to the technical outputs in their own right.

The Project Implementation Team will be hosted (physical location and some administrative support) in Burkina Faso by one of the technical SCAP partners. (On going discussions with ICRAF, with the Government of Burkina Faso, and the "Direction Régionale du CIRAD en Afrique de l'Ouet et du Centre" .

Composition of the Project Implementation Team:

- Project Manager (i.e. one person employed by ACT with fulltime placement in the Project)
- CIRAD representative (full time/regional functions)
- ICRAF representative (full time/regional functions)
- Field implementation team
- One representative from each of the four local Programmes (part time and each responsible for activities within own IFAD financed Projects). The Representatives shall provide supervision (directly or by appointing someone) of the day-to-day activities of SCAP and related ground staff in their programmes.

Field Operational Support (technical and administrative) Units/Staff:

The Project's field level implementation arrangement will comprise SCAP Project Focal Persons – i.e. four, one in each Project site. These will be staff with appropriate technical capabilities and will be responsible to the Project Implementation Team. Each Project Focal Person will manage a number of Farmer group facilitators who are the frontline staff expected to be living/working within the target villages. Each group facilitator will support between 2-3 farmer groups.

All the staff assigned to the Project will receive appropriate training in conservation agriculture, farmer field school approach and other relevant training.

Project Advisory Team (Steering Committee): The Project is also expected to benefit from a strategically composed Advisory Team - which shall undertake to secure the interests of the wider stakeholder group and provide advisory backstopping with regard to the Project vision and mandate. The Advisory Team members shall support the ACT Secretariat in its functions as overall Manager of the Project.

The Advisory Team will review progress and give strategic advice/comments on both technical and Project management matters especially with regard to the overall Project goal, purpose and operational strategies/methodologies.

The inputs from the Advisory Team will be expected as routine through comments/advise/questions on the various reports (sent to them by the ACT Secretariat through the Advisory Team Chairperson). The Team will also be specifically consulted on various matters as and when necessary. The Team will be part (through representation by appropriate number of its members) to the various key meetings of the Project.

The reports and advice of the Advisory Team will through the ACT secretariat be distributed to all Project implementation units.

The Advisory Team will have up to five (5) members aimed at securing a balanced representation of user groups, particularly farmer organisations, implementing agencies and regional networks.

With an appropriate budget, the Advisory Team shall also function as the Project ambassadors in the interactions with other initiatives, projects and organizations on matters of mutual interest to the Project.

Core Financial Management support: As mentioned before, ICRAF will provide administrative support in financial management and accounting (until such a time when ACT is able to take up this responsibility) facilitating disbursement as per the approved Project budget and annual work plans and budgets. The ACT Secretariat takes the responsibility to disbursement of funds to the Project operational site according to the agreed work plan and budget and in the context of laid down IFAD guidelines.

Communication: The project will include an explicit communication protocol to ensure systematic arrangements for exchange of information amongst partners and sub-contractors. Regular information exchange will take place by Internet e-mail. ACT will maintain an interactive project website for sharing and dissemination of project information and linked to relevant IFAD websites/webpages.

Intellectual Property: The project aims to make knowledge freely available. The Learning Network will be set up to facilitate this. A data exchange agreement will be negotiated between all partners. Intellectual property will be owned jointly and by copyright on publications that will fully document the project outcomes. Ownership of databases remains with their originators. ACT and CIRAD will

jointly be custodian of the integrated knowledge base. The National Programmes will remain owners and custodians of their national databases.

OTHER KEY MANAGEMENT RELATED PLAYERS

Through the Project Implementation Team, the project will identify and solicit additional methodological and technical expertise from other institutions and ongoing experiences from:

- within the Region (North Cameroon, Chad, Guinea, Mali, Burkina Faso, with the direct participation of ACT)
- other African Regions (through the ACT network, supported by FAO, CIRAD and GTZ); and other continents (mainly Latin America, where CA organizations have now strong capacities among smallholders organizations like in the Parana state of Brazil).

XII FINANCING PLAN AND PROPOSED BUDGET

The total cost is estimated at 2.7 million USD, funded by donor agencies (IFAD and AFD) and by contributions from NGOs, research and development institutions involved in the project. The proposed contribution of IFAD is estimated at 1.5 million USD. ICRAF is the official recipient institution, and will manage the project with ACT. The associated investment projects of IFAD will also contribute to the project through their background, and human / physical infrastructures as well. CIRAD and ICRAF will also contribute through the direct involvement of their technical staff to the project.

The budget is presented as follows:

Table 1: General financing / Co-financing structure and participations / General activities

Table 2: Ratios related to IFAD's contribution.

Table 2: Contribution of every activity to the project objectives

Table 4: Detailed yearly budget

IFAD's contribution is identified year by year, while the other contributions, mainly in kind (except AFD) are globalized for the three years of the project .

Further details about the cost categories are explained in notes below the table 4.

Table 1: Cofinancing plan			ICRAF*	ACT*	CIRAD*	IFAD loans*	AFD**	IFAD**	Total Cash	TOTAL
Personnel			150000		250000	100000		423000	423000	923000
Local travel						50000		116000	116000	166000
Meetings - International visits							150000	181000	331000	331000
Research and technical assistance						50000	100000	265000	365000	415000
National students fellowships			50000		50000			123000	123000	223000
Strengthening the organizations							50000	230000	280000	280000
Background support to the project				100000		100000			0	200000
Management costs								162000	162000	162000
TOTAL			200000	100000	300000	300000	300000	1500000	1800000	2700000
(*)		Contribution in kind: initial knowledge and expertise, data bases, bibliography, initial network, installed capacity								
(**)		Contribution in cash								

Table 2

Relative Contribution of IFAD grant		Percentage of IFAD grant	Percentage of the whole project
Personnel		28	16
Local travel		8	4
Meetings - International visits		12	12
Research and technical assistance		18	14
National students fellowships		8	5
Strengthening the organizations		15	10
Background support to the project		0	0
Management costs		11	6
TOTAL		100	67

Table 3: Contribution of the budget lines to the SCAP objectives		Personnel	Local travel	Workshops and meetings	Research and technical assistance	National student fellowships	Strengthening the organizations	Services to the project	Management costs	Total
OBJECTIVE 1										
Building CA based cropping systems										
		600000	40000	150000	100000	42000	30000	120000	39000	1121000
OBJECTIVE 2										
Consolidating the innovative network										
		100000	20000	70000	80000	42000	20000	50000	39000	421000
OBJECTIVE 3										
Sharing knowledge										
		200000	10000	120000	33000	42000	20000	50000	39000	514000
OBJECTIVE 4										
Capacity building										
		200000	20000	60000	20000	0	135000	80000	39000	554000
TOTAL	IFAD	423000	116000	181000	265000	123000	230000	0	162000	1500000
	Partners	500000	50000	150000	150000	100000	50000	200000	0	1200000
	TOTAL	923000	166000	331000	415000	223000	280000	200000	162000	2700000

Table 4: Yearly SCAP budget (2 pages)	IFAD annual contribution				IFAD	Non IFAD contributions					SCAP
	Year 1	Year 2	Year 3	Total	Total	ICRAF(*)	ACT(*)	CIRAD(*)	IFAD loans(*)	AFD(**)	TOTAL
Personnel											
ACT/ SCAP Project Manager	40000	40000	40000	120000							
ACT/SCAP Field staff (3)	25000	25000	25000	75000							
CIRAD/SCAP full time personnel staff	50000	50000	50000	150000							
ICRAF/SCAP staff	20000	20000	20000	60000							
Local support staff	6000	6000	6000	18000							
					423000	150000	0	250000	100000	0	923000
Local travel											
ACT Scap local team	20000	20000	20000	60000							
Local partners in Burkina Faso	3000	3000	3000	9000							
Local partners in Niger	2000	2000	2000	6000							
Local partners in Guinea	2000	2000	2000	6000							
Field surveys	15000	10000	10000	35000							
					116000	0	0	0	50000	0	166000
MEETINGS - INTERNATIONAL VISITS											
ACT Coordination meetings	10000	10000	10000	30000							
Village learning sessions	4000	6000	8000	18000							
Inter village meetings	2000	2000	2000	6000							
National SCAP Coordination meetings	4000	4000	4000	12000							
Project coordination meetings	5000	10000	10000	25000							
Steering committee annual meeting	10000	10000	10000	30000							
Visits	30000	15000	15000	60000							
					181000	0	0	0	0	150000	331000

Research and technical assistance												
Contracts with INERA	5000	2000	2000	9000								
Contracts with INRAN	2000	2000	2000	6000								
Contracts with IRAG	2000	2000	2000	6000								
Contracts Université de Ouagadougou	5000	5000	5000	15000								
Contracts with the University of Niamey / CRESA	5000	5000	5000	15000								
Expertise (CIRAD/ICRAF/ Others)	20000	20000	20000	60000								
Equipement	20000	10000	10000	40000								
Field operation costs	15000	15000	15000	45000								
Vehicle (1)	28000	500	500	29000								
Other research contracts	20000	10000	10000	40000								
					265000	0	0	0	50000	100000	415000	
National students fellowships												
Cropping systems	1000	20000	20000	41000								
Knowledge Management	1000	20000	20000	41000								
Innovator network	1000	20000	20000	41000								
					123000	50000	0	50000	0	0	223000	
Strengthening the organizations												
Support to ACT international network	40000	20000	20000	80000								
Support to farmers organization	20000	30000	40000	90000								
Training	20000	20000	20000	60000								
					230000	0	0	0	0	50000	280000	
Background support to the project												
						0	100000	0	100000	0	200000	
Management costs												
					162000	0	0	0	0	0	162000	
TOTAL IFAD	453000	436500	448500		1500000	200000	100000	300000	300000	300000	2700000	
(*) Contribution in kind: initial knowledge and expertise, data bases, bibliography, initial network, installed capacity												
(**) Contribution in cash												

Personnel

- * ACT/SCAP project manager (one) : based in Ouagadougou. Frequent meetings in the Region
- * ACT SCAP field staff (three) : one in Burkina Faso, one in Niger and one in Guinea. Paid by SCAP but hosted by the IFAD investment projects.
- * CIRAD/SCAP staff: based in Ouagadougou; frequent meetings in the region. Basic salary paid by CIRAD.
- * ICRAF/SCAP staff: based in Ouagadougou; frequent meetings in the region. Basic salary paid by ICRAF.
- * Local support staff : (driver, etc.)

Meetings - International visits

As mentioned in the project document, exchanges in the Region, and between Eastern, Central, Western and Southern Africa are of a key importance for the four objectives of the project. This aspect will be particularly important during the first year of the project, and will be strongly supported by AFD.

Research and technical assistance

This key activity will contribute to the four objectives of the project. It will have national and international components.

National students fellowships

Students will support the project process, and the project will support students. Specific and competitive rules will be established to define fellowship levels and amounts.

Strengthening the organizations

These budget lines correspond to direct capacity building activities, towards ACT and towards farmer organizations.

Background support to the project

These contributions put into the project basket are “non-cash contributions” (knowledge, network...) which partners have built and accumulated along the years. The value of these contributions has been estimated in relation to the cost the project would have had to buy it if it would have had to pay for it.

XII MONITORING AND EVALUATION

The SCAP will follow IFAD's guidelines for both internal and external integrated monitoring and evaluation of the project's activities and impact. ACT will submit semi-annual progress reports to IFAD, and use feedback from IFAD to ensure that the project achieves its expected outputs and remains aligned with IFAD's mission.

A steering committee will oversee the execution of the project. The committee will be composed of representatives from IFAD, ICRAF, ACT, CIRAD, and representatives of national project partners, including selected persons from farmers' organisations, NARIs, CORAF, universities, NGOs, private sector and the IFAD Development Projects.

Project activities will be closely linked and coordinated with the impact assessment units of the IFAD financed projects.

Special attention will be given by the Medium Term Evaluation team to the strengthening of ACT administrative and technical capacity.

XIII TENTATIVE PROJECT WORKPLAN

A tentative workplan is presented as follows :

Main Activities	2007				2008				2009			
	1 J, F, M	2 A, M, J	3 Jl, At S	4 O, N, D	1 J, F, M	2 A, M, J	3 Jl, At S	4 O, N, D	1 J, F, M	2 A, M, J	3 Jl, At S	4 O, N, D
Inventory and analysis of existing experiences and extracting lessons												
Setting up of farmers' innovators network and of innovation system (leading farmers, SCAP field teams, concerned stakeholders:);												
Local, regional and international field and study tours												
Participative selection of candidate cropping systems, locations and volunteer farmers. Implements, inputs and field approaches to be used.												
SCAP Year 1 workshop to fix in a participatory way: the cropping systems to be tested, the parameters to be monitored and the ways of their monitoring.												
Call for candidates (Ms, Engineers, PhD students)												
Regional field training workshops on technologies and methods to be used and the means of their popularisation												
CS trials according the rainfall opportunities												
CS monitoring and impact assessing												
FFS approach implementation												
SCAP results, participative extraction of lessons and building of ways for improvement, and appropriate conditions of up-scaling												
Final International workshop to discuss scientific, technical, social and economic findings of SCAP and the way to forward in WCA												

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Annex

**Compte rendu de l'atelier de
formulation de SCAP,
Ouagadougou, 23-25 mai 2006**

Hôtel Palm Beach

Organisé par le FIDA et le projet PDRD au
Burkina Faso

Juin 2006

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INTRODUCTION

La promotion des systèmes de production agricoles durables est un élément important de la stratégie du FIDA pour la lutte contre la pauvreté notamment en milieu rural. Dans ce cadre, la plupart des projets financés par cet organisme présentent une composante Gestion Conservatoire des Eaux et des Sols (CES) dans laquelle l'ensemble des acteurs s'efforcent de gérer au mieux les sols et les terroirs, afin d'en maximiser la productivité tout en améliorant durablement leur fertilité.

Pour consolider cette option en Afrique de l'Ouest et du Centre (AOC), le FIDA avec des partenaires (CIRAD et ICRAF en l'occurrence) envisage la mise en œuvre d'un projet Régional qui s'appuiera sur des projets existants pour promouvoir l'introduction des pratiques d'agriculture de conservation (AC) parmi les producteurs d'AOC.

L'objectif de la rencontre de Ouagadougou était de recueillir les éléments pertinents et fiables permettant de finaliser le montage aussi bien technique, institutionnel que financier de ce projet intitulé : *Smallholder Conservation Agriculture Promotion in Western and Central Africa (SCAP) / (Promotion de l'Agriculture de Conservation parmi les petits producteurs d'Afrique de l'Ouest et du Centre)*

L'Atelier a été ouvert par Mr. le Secrétaire Général du Ministère de l'Agriculture, de l'hydraulique et des Ressources halieutiques.

PARTICIPANTS.

L'atelier a regroupé une quarantaine de participants (annexe 1). Il s'agissait : des responsables de quatre projets d'investissement du FIDA (Burkina Faso (2), Niger et Guinée), de représentants de la filière coton (SODECOTON, SOCOMA), d'organisations paysannes du Burkina Faso, d'instituts de Recherche nationaux (Tchad, Guinée, Mali, Burkina Faso), d'organisations internationales (FAO, ICRAF, CIRAD) et des personnes engagées dans la mise au point et/ou la promotion de l'Agriculture de conservation.

Si la participation des paysans a été très forte lors des visites de terrain, on a regretté leur absence lors des discussions en salle, moment où leur avis aurait permis d'enrichir le débat et de faciliter la prise de décision.

ORGANISATION ET ENCHAÎNEMENT DE L'ATELIER

L'atelier avait 3 grandes articulations (annexe 2) :

- les visites de terrain
- les présentations en plénière
- les travaux en groupes thématiques et les restitutions

1. La visite de terrain

Organisée avec le précieux concours du Projet de Développement Rural Durable (PDRD), la sortie de terrain a eu lieu le premier jour (23/05) de l'atelier sur le plateau central, plus précisément à Sibalo (Yako) et à Koura Bagré (25 km de Ouahigouya). Au cours de cette sortie, les participants ont pu apprécier les aménagements (digués filtrants, diguettes, cordons pierreux, démi – lunes, bandes enherbées etc.) et autres pratiques (zaï) mises en œuvre par les paysans pour mieux gérer l'eau et lutter contre l'érosion et/ou le ruissellement.

Les entretiens avec les producteurs ont permis d'appréhender les avantages et les limites des différentes pratiques. Il est apparu qu'il existe une diversité de techniques CES, plus ou moins maîtrisées par les producteurs. En revanche, la question des itinéraires techniques et de la gestion du calendrier agricole, deux aspects importants pour une bonne efficacité des pratiques de CES n'ont pas été suffisamment abordés.

La sortie de terrain s'est achevée par une visite au siège du PDRD où les échanges avec les responsables de ce projet ont donné aux participants un aperçu du type et du fonctionnement des projets financés par le FIDA. Cette rencontre a permis d'identifier quelles pourraient être les articulations avec le projet SCAP.

Globalement, la première journée de l'atelier a servi d'entrée en matière, permettant aux participants de se donner des bases communes pour les discussions des deux journées suivantes. Entre autres questions qui ont émergé de ces échanges sur le terrain, on peut relever : la récurrente question de la participation des producteurs à toutes les échelles, des savoirs locaux, du type de techniques de CES promouvant, des mesures d'accompagnement, l'utilisation de la biomasse, la place et la gestion de l'arbre dans l'optique des CES, l'ancrage institutionnel du SCAP et les modalités de collaboration avec les projets existants du FIDA.

2. Les présentations en séances plénières

Selon leur contenu, on peut les regrouper en trois catégories : la présentation des institutions partenaires du SCAP ; les travaux de recherche et, les actions de CES menées par quelques organismes de développement présents.

2. 1) La présentation des institutions

Dans un premier temps, on a suivi les projets d'investissement (PI) du FIDA sur lesquels compte s'appuyer le SCAP dans sa mise en œuvre. Ainsi outre, le PDRD dont on avait eu un aperçu la veille, les responsables du PICOFA¹⁹ (Burkina Faso), PPILDA²⁰ (Niger) et PPDR²¹ (Guinée) ont présenté les projets dont ils ont la charge. On a pu noter quelques points de différences, mais surtout les similitudes entre ces différents projets. Ils ont pour principal point commun la promotion du développement durable avec une démarche de travail en partenariat avec les populations cibles. De la présentation du

¹⁹ Projet d'Investissement Communautaire en Fertilité Agricole

²⁰ Projet de Promotion de l'Initiative Locale pour le Développement à Aguié

²¹ Programme Participatif de Développement Rural en Haute Guinée

SCAP, il est apparu que l'approche retenue dans les 4 PI est similaire à celle envisagée dans le cadre de SCAP.

Si l'on peut se réjouir de ce partage de centre d'intérêt, du moins dans les grandes lignes, il n'en demeure pas moins que les 4 PI couvrent une aire géographique très vaste et diversifiée aussi bien en termes de conditions agro-écologiques que socio-économiques. Cette donne exige que le SCAP trouve les déclinaisons les plus appropriées dans chaque situation. Par ailleurs, une fois les accords de partenariat formalisés et les points d'ancrage identifiés, il est important que les modalités de collaboration entre le SCAP et les PI soient clairement précisées, en mettant en exergue le caractère gagnant-gagnant de ce partenariat.

Le fait que les 4 PI soient encore à leur démarrage apparaît comme une situation favorable non seulement pour la discussion et la précision des modalités du partenariat, mais aussi pour inscrire les activités à entreprendre dans la durée.

Dans un deuxième temps, la présentation des institutions s'est poursuivie et s'est achevée par les organisations internationales. Tour à tour, les représentants de la FAO, du CIRAD, de l'ICRAF, de l'AFD et de l'ACT ont fait une présentation succincte de leurs structures respectives en insistant davantage sur leur intérêt pour la lutte contre la pauvreté via la mise en place des systèmes de production durables et d'autres, sur leur participation dans le montage et la mise en œuvre du SCAP. Au stade actuel, l'implication du CIRAD, de l'ICRAF et de l'ACT dans SCAP est déjà acquise, celle de l'AFD, de la FAO et probablement d'autres partenaires interviendra peut-être dans la suite.

2. 2) Les actions de CES/AC entreprises par des organismes de développement

Les expériences passées ou en cours au Nord Cameroun, Tchad, Mali, Burkina Faso et Ghana ont été présentées. Dans certains cas (Nord Cameroun notamment) des résultats probants et très riches sont déjà disponibles. Dans d'autres cas, l'on est encore à un stade de démarrage caractérisé par les diagnostics ou la mise au point des références. Globalement, il ressort que le potentiel est important et que la marge de progression est grande.

2. 3) Les opérations de recherche

Ce groupe de présentations a montré que les activités en cours pour la mise au point et la promotion des pratiques de CES sont très diversifiées, allant de l'économie de l'eau à l'agroforesterie en passant par l'introduction du semis direct ou l'utilisation des plantes de couverture. Ces travaux dont la plupart sont sectoriels, (n'intégrant pas simultanément les principes de l'agriculture de conservation), constituent néanmoins un acquis et peuvent servir de base pour une évolution ultérieure vers l'AC (exemple : introduction de la couverture végétale dans les demi-lunes). L'objectif du SCAP c'est justement d'œuvrer à cette évolution et, de favoriser la consolidation des travaux de recherche et, par le biais de sa composante 'Réseau' de servir la dissémination et le partage de savoirs en matière de CES en AOC.

Les discussions générales qui ont suivi ces présentations ont mis en évidence que les avantages des techniques de CES ne sont pas que d'ordre agronomique et environnementale. Ces techniques ont aussi un impact socio-économique notamment en terme de réduction des temps et de la pénibilité des travaux. Mais ils ont aussi un coût économique et social, convient d'évaluer et voir comment les prendre en compte lors de la mise en œuvre du projet. Exemples : certains aménagements tels que les digues filtrantes nécessitent la concertation et une bonne organisation des acteurs, promouvoir la pratique du semis direct exige de s'assurer aussi de l'accessibilité et de la disponibilité des herbicides, etc.

3. Les travaux en groupes thématiques

Quatre groupes de travail correspondants aux principaux axes du projet SCAP ont été définis :

- Groupe 1. Conception et amélioration des systèmes de culture et de production
- Groupe 2. Les Réseaux de Paysans Innovateurs : Rôles et échelles d'intervention
- Groupe 3. Génération et partage des connaissances
- Groupe 4. Renforcer le réseautage régional

Les termes techniques ainsi que les résultats de ces travaux de groupe sont présentés dans un document séparé qui vient en complément au présent compte rendu.

4. Conclusions et perspectives

L'atelier s'est poursuivi par une présentation de Martin Bwalya sur la gouvernance proposée pour le projet SCAP.

Au terme de ces trois journées de travaux, les responsables des PI sur lesquels va reposer le SCAP ont été invités à partager leurs impressions. Globalement ils ont réaffirmé leur disposition à travailler en partenariat avec SCAP, mais ils ont également soulevé quelques appréhensions qui portent notamment sur les modalités précises de ce partenariat

- sur le contenu (les messages innovateurs tels que ceux portés par SCAP sont les bienvenus, mais doivent être bien articulés avec les messages émis par les projets dans leur cadre conventionnel)
- sur le mode opératoire des interventions sur le terrain (les projets tels que celui-ci doivent apporter des moyens en hommes et fonctionnement qui seront complémentaires à ceux dont le projet dispose actuellement).

Le FIDA a conclu la partie technique de l'atelier. Après de chaleureux remerciements, on a rappelé

- que les organisateurs de SCAP ont pris bonne note des recommandations émises par tous, et notamment les responsables des projets. Leurs préoccupations seront traitées dans le montage institutionnel et financier du projet
- que les interventions sur le terrain, les résultats des travaux de groupe constituent une très bonne base de départ, utile non seulement pour finaliser le montage du projet, mais aussi pour identifier les axes prioritaires que le projet devra suivre.
- que ce projet représentait un grand défi, notamment le partenariat avec une association originaire d'Afrique de l'est et australe, et que tous nous attendons beaucoup de ce partenariat.

L'atelier a été conclu chaleureusement par la Direction de l'INERA, qui a assuré les participants de son intérêt et de son total soutien à venir à ce projet.

ANNEXES I.1. LISTE DES PARTICIPANTS

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47	Tindano Aizo	Min Agriculture			BF

Annexe I.2 Programme de l'atelier

Mardi 23 Mai 2006	
8h00	Petit déjeuner / enregistrement des participants
8h30	Présentation / Inauguration de l'atelier par le Secrétaire Général du Ministère de l'Agriculture
9h00	Départ de Ouagadougou vers Sibalo
10h00	Arrivée Sibalo (Arbolé) • <i>Traitement de ravine dans le but de protéger les champs en aval</i>
10h45	Départ de Sibalo vers Koura Bagré Casse croûte en route
12h00	Arrivée Koura Bagré • <i>Cordon pierreux végétalisé avec des ligneux et des herbacées</i> • <i>Demi lunes forestières</i> • <i>Zaï manuel/ zaï manuel amélioré</i>
12h45	Départ de Koura Bagré vers Yako
13h45	Arrivée Yako – déjeuner à Yako au Jardin du Maire
15h00	Présentation historique, et discussion autour du projet PDRD
16h30	Pause-café
16h45	Présentation et discussion autour de la Conservation des Eaux et des Sols
18h45	Retour vers Ouagadougou

Mercredi 24 Mai 2006	
8h	Petit-déjeuner
8h 30	Présentation par les responsables de projets du FIDA. Similitudes / différences entre le PDRD et leur projet. Le PICOFA, Burkina Faso, par Jacob Ouedraogo Le PPILDA, Niger, par Aboubacar Idi Le PPDR, Guinée, par Mamadi Traoré Introduction au projet SCAP Florent Maraux, FIDA
10.30	Pause café
10.45	Groupes de travail sur les objectifs du projet SCAP <i>Groupe 1: Mise au point de systèmes de culture et de production en AC</i> <i>Groupe 2: Construction d'un réseau de paysans innovateurs</i> <i>Groupe 3: Création et diffusion de connaissances exogènes et endogènes</i> <i>Groupe 4: Consolidation des institutions.</i>
12.30	Déjeuner
14.00	Présentation des institutions promotrices du projet SCAP - Présentation de l'African Conservation Tillage network, ACT, par Martin Bwalya. - Présentation de l'ICRAF et de son intérêt dans SCAP, par Soren Damgaard-Larsen et Antoine Kalinganire - La recherche en partenariat au CIRAD, et son intérêt à contribuer dans SCAP, par Rabah Lahmar et Patrick Dugué, CIRAD - La FAO ; perspectives de participation dans SCAP, par Brahim Kébé, FAO
15h 30	Pause café
16h	Expériences des projets de développement et Agriculture de Conservation - Mise au point de systèmes de culture à base de semis direct en production cotonnière. Le point de vue de la filière. Abdoulaye Abou (Projet ESA - SODECOTON Nord Cameroun).

	<ul style="list-style-type: none"> - Le conseil aux exploitations pour raisonner et piloter l'introduction de l'AC au Nord Cameroun; Patrice Djamen (SADEL, Cameroun) - Introduire des SCV avec et chez des agriculteurs en zone cotonnière. Le cas du Mali. Méthodes / perspectives. Patrice Autfray (CIRAD-IER) : - Agriculture de conservation et développement en zone cotonnière du Tchad. Michel Naïtormbaide (Tchad, ITRAD PRASSAC) - Some experiences with Conservation Agriculture in Ghana: the case of Sunyani District. On going institutional dissemination mechanisms? Philip Boahen (Ghana) Présentations non confirmées : <ul style="list-style-type: none"> - Les projet de l'AFD avec la SOCOMA; Ali Compaoré / Jose Tissier / L Gaudard - L'UNPCB et l'Agriculture de Conservation - SASAKAWA et l'AC au Burkina Faso, Beloume Tidjéni
19h	Dîner collectif
19h30	Session nocturne : Groupes de travail (suite)

Jeudi 25 Mai 2006	
8 00	Petit déjeuner
8h30	Présentations d'actions techniques ou de recherche en AC conduites en AOC <ul style="list-style-type: none"> - Utilisation de <i>Piliostigma reticulata</i> pour améliorer la protection et la fertilisation du sol, Barthélémy Yélémo, INERA - Le Zai dans la conservation / restauration des eaux et des sols. Perspectives d'amélioration. Transition vers l'AC, Albert Barro, INERA - Utilisation des plantes de couverture au Burkina Faso. Zackari Segda, INERA - Perspectives et limites du semis direct dans l'agriculture de Haute Guinée : Conséquences pour la sécurité alimentaire Makan Kourouma, Jacques Gigou, (Guinée, CIRAD / IRAG) - La Conservation des eaux et des sols dans les projets du FIDA au Niger. Regards sur le passé et perspectives. Abdou Hassane (Niger) - Les économies d'eau dans les systèmes SCV. Aspects qualitatifs / aspects quantitatifs. Fagaye Sissoko (IER / Mali)
10.00	Pause café
10h15	Groupes de travail (suite)
12.15	Déjeuner
14h	Séance plénière <i>Rapport / discussions groupe 1</i> Mise au point de systèmes de culture et de production en AC <i>Rapport / discussions groupe 2:</i> Construction d'un réseau de paysans innovateurs <i>Rapport / discussions groupe 3:</i> Création et diffusion de connaissances exogènes et endogènes <i>Rapport / discussions groupe 4 :</i> Consolidation des institutions.
16h	Pause café
16h15	Gouvernance (Martin Bwalya) Synthèse / Propositions / Conclusions
18h	Fin de l'atelier

Annexe I.3 Liste des présentations faite en séance plénière

A. Les présentations institutionnelles

A.1 Les projets du FIDA

- Le PDRD, Burkina Faso. Julien Lompo, Sankara
- Le PICOFA, Burkina Faso. Jacob Ouedraogo
- Le PPILDA, Niger. Aboubacar Idi
- Le PPDR, Guinée. Mamadi Traoré
- Introduction au projet SCAP. Florent Maraux (FIDA)

A.2 Les institutions promotrices du Projet SCAP

- L'African Conservation Tillage network, ACT. Martin Bwalya
- L'ICRAF et de son intérêt dans SCAP, Antoine Kalinganire & Soren Damgaard-Larsen
- La recherche en partenariat au CIRAD, et son intérêt dans SCAP. Patrick Dugué et Rabah Lahmar CIRAD
- La FAO et ses perspectives de participation dans SCAP, par Brahim Kébé, FAO

B. Quelques opérations de CES / AC mises en œuvre par les projets de développement

- Mise au point de systèmes de culture à base de semis direct en production cotonnière. Le point de vue de la filière. Abdoulaye Abou (Cameroun, Projet ESA - SODECOTON).
- Le conseil aux exploitations pour raisonner et piloter l'introduction de l'AC au Nord Cameroun; Patrice Djamen (Cameroun, SADEL)
- Introduire des SCV avec et chez des agriculteurs en zone cotonnière. Le cas du Mali. Méthodes / perspectives. Patrice Autfray (Mali, CIRAD-IER) :
- Agriculture de conservation et développement en zone cotonnière du Tchad. Michel Naitormbaide (Tchad, ITRAD PRASAC)
- Some experiences with Conservation Agriculture in Ghana: the case of Sunyani District. On going institutional dissemination mechanisms? Philip Boahen (Ghana)
- Les projet de l'AFD avec la SOCOMA; Ali Compaoré / Jose Tissier / L Gaudard

C. Quelques actions techniques et travaux de recherche sur l'AC en AOC

- Utilisation de *Piliostigma reticulata* pour améliorer la protection et la fertilisation du sol, Barthélémy Yélémo (Burkina Faso, INERA)
- Le Zai dans la conservation / restauration des eaux et des sols. Perspectives d'amélioration. Transition vers l'AC, Albert Barro (Burkina Faso, INERA)
- Utilisation des plantes de couverture au Burkina Faso. Zackari Segda (Burkina Faso, INERA)
- Perspectives et limites du semis direct dans l'agriculture de Haute Guinée : Conséquences pour la sécurité alimentaire. Makan Kourouma, Jacques Gigou, (Guinée, CIRAD / IRAG)
- La Conservation des eaux et des sols dans les projets du FIDA au Niger. Regards sur le passé et perspectives. Abdou Hassane (Niger)
- Les économies d'eau dans les systèmes SCV. Aspects qualitatifs / aspects quantitatifs. Fagaye Sissoko (IER / Mali)

Annexe I.4 : Termes de référence et conclusions des groupes de travail :

Working Groups

1. Design and improvement of cropping and farming systems
2. Networks of innovator farmers: role and working scale
3. Knowledge generation and sharing
4. Strengthening regional networking

Term of reference of the working groups

The four groups have been set up in order to bring information as well as pertinent and realistic suggestions to the design of SCAP. Proposals should meet the expectations of the IFAD loan projects – IFAD-LP, especially as regards the profitability for smallholder farmers in WCA:

- Information should concern the current situation, the leading experiences and initiatives in the region and beyond- state of the art highlighting weakness and strength of local experiences and of knowledge in general;
- Suggestions concerning what should be implemented and how? (Methodology, locations, stakeholders, resources) and what should be the added value of SCAP regarding the development and the dissemination of the technologies and the reinforcement of smallholder farmers in WCA.

Working group 1: Design and improvement of cropping and farming systems

To bring information and suggestions that allow refining and finalizing the SCAP project while reinforcing its reliability and pertinence as well as its complementarity and ability to meet the need of the IFAD-LP, in WCA, for the benefit of smallholder farming.

This may be achieved through:

- Gathering information on current state of the art knowledge and initiatives in the sub-region and specifically highlight weaknesses and strengths of local experiences;
- Identifying actions and appropriate approaches (methodology, choice of sites, stakeholders and the resources). Concretise what is the added value of SCAP in view of the development and dissemination of conservation agriculture and as regards the support and strengthening of the capacity of family (smallholder) farms in WCA.

To succeed in this task, the group may answer the following questions:

What are the technologies and practices of Soil and Water Conservation currently in use or experimented with in the sub-region?

What are the advantages and disadvantages of the different technologies/practices?

What is the role of livestock in the proposed alternative cropping systems?

What are the biggest environmental challenges in the region?

Which different cover crops were adapted to the different agro-ecologies of the WCA?

Production and management of the crop residues;

What are the main driving forces for farmers' towards CA type of practices?

Elaboration of a matrix crossing "cropping systems x agro-ecologies + socio-economic conditions »;

Access to- and availability of inputs and agricultural service providers;

Organisation of commodity chains and access to market;

Rules for (1) access to and (2) management of land tenure and resources.

Working group 2 - Networks of innovator farmers: role and operational scale

One of the objectives of SCAP is « to build up one or more networks of innovator farmers » This should lead to:

- A dynamic network with active stakeholders for the promotion of CA cropping systems, innovative ideas and initiatives;
- Sharing experiences (especially the most innovative and success stories) that stimulate other initiatives ;
- Connection to innovative networks that already exist;

Discussion within the group may focus on 4 points:

A) State of the art

- Does the concept of “innovator farmer networks» make sense for you?
- Within the current IFAD-LP that will collaborate with SCAP: who are the «innovator farmers? How are they identified? Which recognition and profile do they have? What criteria are applied that legitimate them and innovator farmers?
- What are their working topics? Are they organised and how?
- Which formal relationships do they have with research and other organisations?
- What type of support do they receive (IFAD innovation fairs, training, exchange visits...)?

B) Analysis of the existing and potential networks

- What justifies the need to work within a network? Which function should be granted to a network? Is-it realistic?
- What are the needs expressed by the innovator farmers or by their networks? Are they well identified and articulated?
- Which kind of activity should be launched or consolidated by SCAP in order to re-inforce the capacities of the existing potential networks?

C) Role of these networks and connection to the other tasks of SCAP

How and on which subject matter should the network(s) work? e.g.:

- Design of CA based cropping and farming systems? How and with whom?
- Generation and dissemination of indigenous and exogenous knowledge? How should this be crafted?
- Consolidation of the informal or semi-formal institutions? Which institutions (definition)?
- Other complementary questions (supporting measures, services, inputs and material supply).

Also:

At what scale should these networks operate (village, small region etc.)?

Which difficulties do you foresee for the achievement of the objectives (possible limitations)?

D) Other Suggestions

- Any other point of view of the group on the cited matters;
- Any other suggestion to improve the scheduling of the activities of the networks.

Working group 3: Knowledge generation and sharing

Inventory and analysis of existing systems (Cf GT1), synthesis of local knowledge and that coming from abroad with emphasis on impacts; identification of knowledge gaps and the means to fill in them, identification of the partners:

How has the knowledge been generated?

How is this knowledge shared between different stakeholders at different levels (Cf GT2)?

It is necessary to take into account:

- The education systems and the need to change the paradigm in agriculture;
- How to put in practice the results of research, the knowledge and the local expertise?

- Community mutual learning (farmer to farmer exchange; extension; FFS, FFF, workshops, visits, ...)
- Extraction of lessons and proposal of means to use them in order to adapt and improve CA based systems;
- The promotion of the experiences and initiatives that will succeed within SCAP

Working group 4: Strengthening regional networking

What networks and partnerships exist within the region and what are their comparative advantages?
Identify the structures and the means that help dialogue within and across the diverse levels including the decision making sphere;
Identify the major features of efficiency of the networking methods in WCA;
Explore the domains of mutual benefit of networking;
How to reinforce and strengthen ACT, the dialogue and knowledge sharing between east and west Africa (and vice versa) and to monitor the impacts of the Nairobi 3rd WCCS.

Results and conclusions

Working group 1: Design and improvement of cropping and farming systems

The group, made of 15 persons, addressed:

- 1- The state of the art with a attempt to inventory the existing technologies and practices, their classification and the assessment of their advantage/disadvantage;
- 2- The relationship between crops and livestock, especially the role of livestock in the cropping systems;
- 3- The level of decision making, and;
- 4- What are the soil and water conserving cropping systems and practices in the contexts of interest of SCAP i.e. the matrix crossing agro-climatic features and population density.

The result is:

- 1- Existing water and soil conservation practices are much diversified. One has noticed in particular (see table 1):
 - o Mechanical management of the plot with planting pits (zaï, half-moon) ;
 - o planting techniques (direct seeding with or without straw) ;
 - o Biological management of the plot (grassed strips) ;
 - o Tillage technologies.
2. Two specific aspects linked to livestock have been highlighted by the group, especially regarding the actions expected in the frame of SCAP:
 - Advantages seen:
 - o Use of animals for transportation
 - o Labour power;
 - Constraints seen :
 - o Competition for resources ;
 - o Damages caused to stone or earth saving dams.
3. As regards, the levels of decision making (individual/collective; farm level/"specific regional" level) they appear as interlinked and interdependent.
4. As regards the cropping systems, the group attempted to build up a matrix crossing agro-climatic conditions and density of population where have been mentioned the existing systems and the priorities for coming actions (see table 2).

Some of the inventoried practices have already proven their efficiency in some contexts. SCAP may allow to improve them and to set up the modalities for their wider dissemination.

Table 1. Technologies and practices, advantage/disadvantage, interactions, decision level and farming systems.

Techniques / pratiques Existantes	Avantages / forces	Inconvénients / limites	Interactions avec l'élevage	Niveau de décision (échelle)	Système de production
Zaï + demi-lune	- Attractivité croissante	- Temps de travail ; - Pénibilité ; - Indisponibilité de fumier	Disponibilité en fumure organique	Exploitation	Agro-Sylvo-pastoraux
Cordons pierreux	- -Meilleure infiltration de l'eau ; - Efficacité croissante avec le déficit hydrique ; - -Augmentation de la production ; - Recharge de la nappe phréatique ; - -Réhabilitation des terres dégradées ; - -Lutte antiérosive	- Besoins logistiques lourds - Disponibilité des pierres - Pénibilité (recharge) - Exige une cohésion du groupe - Temps de travail - Nids de reptiles	Disponibilité d'animaux de trait pour le transport	Individuel/collectif	Agro-Sylvo-pastoraux
Diguettes en terres (ou ados)	- Matériaux disponibles sur place - Réalisation facile - Meilleure infiltration - Amélioration de la production (idem cordons pierreux)	- Risque d'engorgement - Faible durabilité - Besoins d'entretien - Exigence une plus grande technicité (courbe de niveau) - Contraignant dans les cas de culture attelée		individuel	Agro-sylvo pastoral
Digues filtrantes	- Matériaux disponibles sur place - Réalisation facile - Meilleure infiltration - Amélioration de la production (idem cordons pierreux) - Amélioration des ressources hydriques	- risques de colmatage	Transport	Collectif	Agro-sylvo pastoral
Demi-lunes	- Captage et infiltration de l'eau - Valorisation des terres dégradées	- temps et pénibilité du travail	Transport	Individuel	Agro-Sylvo-pastoraux
Semis direct avec résidus	- Protection du sol - Lutte contre les adventices - pas de contraintes de transport - lutte contre le ruissellement - amélioration des propriétés bio-physico-chimique du sol - récupère mieux les eaux	- la parcelle doit être protégée des animaux, notamment quand la paille est encore fraîche - Nids de reptiles - Compétition avec l'alimentation des animaux - Taux de couverture - Préservation contre les feux - Faim d'azote - Difficulté de la mécanisation	Protection encore plus importante	Individuel	Agro-sylvo pastoral
Semis direct Paillage avec apport extérieur	- Protection du sol - Lutte contre les adventices - Diversification / enrichissement des éléments du sol - récupère mieux les eaux - amélioration des propriétés bio-physico-chimique du sol	- Augmentation des temps de travaux - Disponibilité incertaine - Nids de reptiles - Compétition avec l'alimentation des animaux - Préservation contre les feux - Faim d'azote - Difficulté de la mécanisation	Les animaux servent au transport de la paille. En revanche, cette paille doit être protégée contre la pâture. Les risques de pâture sont d'autant plus forts que les animaux n'ont rien à manger ou que la paille est fraîche	Individuel/collectif	Agro-sylvo pastoral
Plantes de couverture	- - protection du sol contre les intempéries (soleil, battance) - - gestion de l'enherbement - - Favorise l'activité biologique dans le sol	- compétition avec la culture principale - disponibilité des semences - nécessité de bonnes capacités de gestion	Fin de cycle : nécessite et réglementation Début de cycle : pas de cycle	Individuel	Agro-sylvo pastoral

Techniques / pratiques Existantes	Avantages / forces	Inconvénients / limites	Interactions avec l'élevage	Niveau de décision (échelle)	Système de production
Cultures en couloir	<ul style="list-style-type: none"> - lutte contre l'érosion - diversification des productions 	<ul style="list-style-type: none"> - nécessite un droit de propriété sur le foncier - réserves pour les insectes et autres ravageurs de cultures 	Nécessite la protection		Agroforesterie
Bandes enherbées ou bandes végétalisées/ haies vives	<ul style="list-style-type: none"> - facile à réaliser - lutte contre l'érosion et le ruissellement - diversification des productions - protection des parcelles contre les animaux - production de biomasse multi usages 	<ul style="list-style-type: none"> - source de conflits avec les voisins - difficultés de gestion notamment dans le cas des ligneux (quand et comment élaguer, avec quels outils, à quelle fréquence) - consommation de l'espace - corridors pour les feux de brousse - compétition entre arbres et cultures - exige un équipement approprié - risque de rupture si non respect des courbes de niveau 	En fonction de l'espèce choisie veuillez à une protection contre la pâture des animaux	Exploitation	Agro-sylvo pastoral
Billonnage	<ul style="list-style-type: none"> - Installation rapide des cultures 	<ul style="list-style-type: none"> - risque d'engorgement temporaire - inadapté aux sols argileux - Exige un équipement approprié (outils, animaux de trait) - Risque de compaction des sols - Le résultat obtenu doit être affiné avec un autre outil tel que la herse ou le cultivateur pour avoir un bon lit de semences 	Nécessite la TA	Exploitation	Agro-sylvo pastoral
Labour	<ul style="list-style-type: none"> - ameublissement du sol - destruction des adventices - enfouissement des résidus 	<ul style="list-style-type: none"> - Accélération de la minéralisation de la matière organique du sol - Exposition le sol à l'érosion - La pluviosité ne permet pas souvent sa mise en œuvre au centre et au nord - Exige un équipement approprié (outils, animaux de trait) 	Traction animale	Exploitation	Agriculture
Scarifiage	<ul style="list-style-type: none"> - installation rapide des cultures - les résidus de récoltes ne sont pas enfouis 	<ul style="list-style-type: none"> - Accélération de la minéralisation de la matière organique du sol - Exposition le sol à l'érosion - Nécessite une bonne alimentation des animaux 	Traction animale	Exploitation	Agro-sylvo pastoral
Semis direct sans résidus	<ul style="list-style-type: none"> - Installation rapide des cultures - Peu exigeant en équipements - Peu de main d'œuvre - Respect du calendrier agricole 	<ul style="list-style-type: none"> - Forte utilisation des herbicides - Savoir gérer les pluies 	traction animale	Exploitation	Agro-sylvo pastoral
Parc agro-forestier (RNA : régénération naturelle assistée)	<ul style="list-style-type: none"> - lutte contre l'érosion - diversification des productions et des usages 	<ul style="list-style-type: none"> - sécurité foncière 	Protection des jeunes plants	Exploitation + Communauté	Agroforesterie

Table 2. Cropping systems and SWC practices according to SCAP targeted environments (rainfall x population density). Suitability is indicated by the number of (+)

	Forte densité de population (>70 hab./km ²)	densité moyenne de population (30-70 hab./km ²)	Faible densité (< 30 hab./km ²)
Faible pluviométrie (400-600mm)	<ul style="list-style-type: none"> • Zaï + demi-lune +++ • Cordons pierreux +++ • Diguettes en terres (ou ados) +++ • Dignes filtrantes +++ • Semis direct avec résidus + • Bandes enherbées ou bandes végétalisées/ haies vives +++ • Billonnage ++ • Labour + • Scarifiage +++ • Semis direct sans résidus ++ • Parc agroforestier ++ 	<ul style="list-style-type: none"> • Zaï + demi-lune ++ • Cordons pierreux ++ • Diguettes en terres (ou ados) ++ • Dignes filtrantes ++ • Semis direct avec résidus ++ • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage ++ • Labour + • Scarifiage ++ • Semis direct sans résidus ++ • Parc agroforestier ++ 	<ul style="list-style-type: none"> • Zaï + demi-lune +++ • Cordons pierreux +++ • Diguettes en terres (ou ados) ++ • Dignes filtrantes +++ • Semis direct avec résidus ++ • Semis direct avec apport extérieur + • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage+ • Labour • Scarifiage +++ • Semis direct sans résidus + • Parc agroforestier + • Cordons pierreux + • Diguettes en terres (ou ados) ++ • Dignes filtrantes+ • Demi-lunes (pas à plus de 700 mm) + • Semis direct avec résidus +++ • Semis direct Paillage avec apport extérieur++ • Plantes de couverture +++ • Cultures en couloir ++ • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage • Labour • Scarifiage ++ • Semis direct sans résidus • Parc agroforestier • Diguettes en terres (ou ados) + • Dignes filtrantes + • Semis direct avec résidus +++ • Semis direct avec apport extérieur ++ • Plantes de couverture ++ • Cultures en couloir + • Bandes enherbées ou bandes végétalisées/ haies vives + • Billonnage ++ • Labour + • Scarifiage (car pluies capricieuses) + • Semis direct sans résidus +
pluviométrie moyenne (600-900 mm)	<ul style="list-style-type: none"> • Cordons pierreux +++ • Diguettes en terres (ou ados) ++ • Dignes filtrantes ++ • Demi-lunes (pas à plus de 700 mm) ++ • Semis direct avec résidus ++ • Semis direct Paillage avec apport extérieur + • Plantes de couverture ++ • Cultures en couloir ++ • Bandes enherbées ou bandes végétalisées/ haies vives +++ • Billonnage ++ • Labour ++ • Scarifiage +++ • Semis direct sans résidus ++ • Parc agroforestier + • Diguettes en terres (ou ados) ++ • Dignes filtrantes ++ • Semis direct avec résidus +++ • Semis direct avec apport extérieur + • Plantes de couverture +++ • Cultures en couloir ++ • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage +++ • Labour + • Scarifiage (car pluies capricieuses) + + • Semis direct sans résidus + 	<ul style="list-style-type: none"> • Cordons pierreux ++ • Diguettes en terres (ou ados) ++ • Dignes filtrantes + • Demi-lunes (pas à plus de 700 mm) + • Semis direct avec résidus ++ • Semis direct Paillage avec apport extérieur + • Plantes de couverture ++ • Cultures en couloir + • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage • Labour • Scarifiage ++ • Semis direct sans résidus ++ • Parc agroforestier • Diguettes en terres (ou ados) ++ • Dignes filtrantes ++ • Semis direct avec résidus +++ • Semis direct Paillage avec apport extérieur + • Plantes de couverture ++ • Cultures en couloir • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage ++ • Labour + • Scarifiage ++ • Semis direct sans résidus + 	<ul style="list-style-type: none"> • Cordons pierreux ++ • Diguettes en terres (ou ados) ++ • Dignes filtrantes+ • Demi-lunes (pas à plus de 700 mm) + • Semis direct avec résidus +++ • Semis direct Paillage avec apport extérieur++ • Plantes de couverture +++ • Cultures en couloir ++ • Bandes enherbées ou bandes végétalisées/ haies vives ++ • Billonnage • Labour • Scarifiage ++ • Semis direct sans résidus • Parc agroforestier • Diguettes en terres (ou ados) + • Dignes filtrantes + • Semis direct avec résidus +++ • Semis direct avec apport extérieur ++ • Plantes de couverture ++ • Cultures en couloir + • Bandes enherbées ou bandes végétalisées/ haies vives + • Billonnage ++ • Labour + • Scarifiage (car pluies capricieuses) + • Semis direct sans résidus +
Bonne pluviométrie (900 – 1400mm)	<ul style="list-style-type: none"> • Billonnage +++ • Labour + • Scarifiage (car pluies capricieuses) + + • Semis direct sans résidus + 	<ul style="list-style-type: none"> • Billonnage ++ • Labour + • Scarifiage ++ • Semis direct sans résidus + 	<ul style="list-style-type: none"> • Billonnage ++ • Labour + • Scarifiage (car pluies capricieuses) + • Semis direct sans résidus +

Working group 2 - Networks of innovator farmers: role and operational scale

The 10 persons that took part in this group represented a wide variety of situations and partners: (Burkina Faso, Mali, and Guinea) and: projects, private operators, NGO and research. Three aspects have been addressed:

- State of the art, definition and experiences;
- Role, function and setting up of the networks of farmers innovators;
- Complementary options and operational questions.

Suggestions have been made for the SCAP project.

1. State of the art, definition and experiences

The group addressed diverse questions: How to recognise the innovation and the innovator? BY which process it is generated? Plus: the concept of networking.

How to recognise farmer's innovation?

In WCA, there are many examples of farmers' indigenous' innovations (forest zai, potato « cellar » etc.....), and also many adaptations of research proposals. But, only few of these are known. Efforts have to be made to describe, understand and to assess the whole scope of existing innovations in this sub-region. An inventory of innovations is required.

What is a farmer innovator?

A farmer innovator designs, creates and invents new technologies and practices and if possible he has the ability to make them known, to train and to inform.

The concept of « innovator farmers», « farmer researchers», « farmer experimenter » is different from that of « farmer trainer », « relaying farmer » or « farmer facilitator ». Experiences of SWC-AGF in Yako tend to confirm this.

How the innovation is generated?

The innovation may rise from two different processes: one completely indigenous, engaged by autonomous farmers that may need support, ideas or suggestions. The second option is a project driven research or an externally facilitated process. This always has to involve motivated and engaged farmers that are able to communicate and to adapt.

The concept of networking

The network may be entirely informal, endogenous/indigenous, generally in a small region ; it assembles farmers only as the Zai society (fair of Ouahigouya ; cf seeds).

The network may also be "institutionalised" but there are few known examples. It may be formed by farmers' organisations (innovations fair of Ségou, 2002). There are also mixed networks supported by INSAH.

Hence, it seems pertinent to - within the framework of SCAP - establish a state of the art inventory on existing networks of « farmers facilitators» within the operational zone and in WCA and to compare them with the experiences of eastern and southern Africa as well as with that of Latin America.

2. Role, function and setting up of networks of innovator farmers

Along with the need to create networks rises the question of the operational scale. Diverse possibilities may happen:

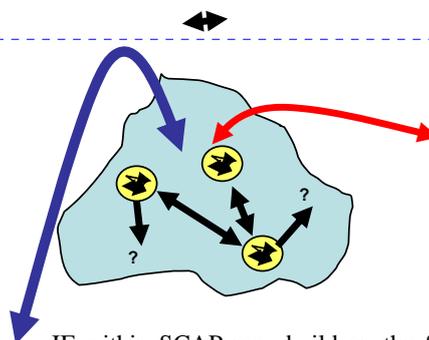
Action Research Village (A-R)

A group of A-R villages

Region including partner projects

Ecological region

According to specific thematic themes



The setting up of networks of IF or of groups of IF within SCAP may build on the following considerations:

1. To build on existing reliable or legitimate structure ;
2. To identify the villages where soil and water degradation are raised ;
3. To build on legitimate farmers' organisations or networks to constitute groups of innovator farmers or experimenter farmer ;
4. To spot the innovator farmers (males and females);
5. To build on a typology taking into account the diversity of farmers in order to avoid exclusion of certain category

Usually, the sought qualities are: curiosity, sociability, seriousness, commitment, availability, ability to communicate and lawfulness. However, it should be kept in mind that all this do not exclude the risk to discard some categories (the poorest, women and youths).

Functions and role of the networks within SCAP may be seen as follows:

1. To test at the plot or watershed scale in the frame of a co-design, installation and evaluation cycle;
2. Dissemination of information (ideas, own results) and comparison with other networks; sharing ;
3. To train other farmers;
3. To contribute to the up-scaling (trial → plot → farm): adoptability and assessment of the impacts;
5. To work on support measure (inputs, material) ;
6. To participate in the decision making organisms (Village committee of Land management, local councils ...).

These functions and roles may lead farmers to raise the question their participation in the governance of the project and the need to reinforce their capacity as a network.

In addition, this process may have to face some difficulties. The limitations that the group foresees are:

- Problem of cost and time linked to travels;
- Many languages in the sub-region;
- Supports (material and inputs), adapted and in due time;
- Problem linked to land tenure;
- Disagreement (point of view) between innovator farmers and the other stakeholders;
- Sustainability of the networks which involves:
 - Autonomy and ability for fund raising;
 - Connection to efficient professional organisations in agriculture.

3. Complementary operational options

- To support of existing innovators;
- Accompagner les innovateurs qui existent ;
- To meet the priorities and expectations of the populations as far as research is concerned (livestock, beekeeping, other);
- Le projet suggère, propose et communique avec les agriculteurs autour d'une nouvelle idée telle que la conservation agricole. Cela nécessite de fréquentes consultations dans une approche ouverte.

Working group 3 - Knowledge generation and sharing

Despite the limited number of participants (8 persons) the diversity of the situation and of stakeholders targeted by SCAP was met.

The group focussed on the system of zaï on zippele associated to stone rows and small stone dams. It seems that variants of zaï exist on sandy soil or even on fertile soils. The half-moon system seems not specifically oriented towards crop production; it seems more used for agroforestry purposes.

The zaï on zippélé system is recognised as a farmers', endogenous innovation. It is attractive for farmers because its practice is simple, it does not need investment beyond labour even it consumes more time and, it ensures a harvest even in unfavourable years.

Some improvement has been brought by research to the zaï system. The group mentioned:

- Reduced tillage and animal draft ;
- Mechanisation;
- Planting along the stone rows;
- Manure pits ...,

These improvements are more or less used by farmers. Other improvements such as crop rotation-succession, forage crops, trees... as well as composting are less adopted. This seems linked to climatic or economic considerations or simply because they are ignored by farmers (weakness of dissemination or extension is just beginning).

Participants noticed that despite the interest of zaï system for farmers and for the recovery of degraded soils, its real socio-economic impact is not well known.

Shifting towards conservation agriculture.

The group noticed that there is at least 3 « driving forces » that may help for the transition towards CA:

- To harvest even in unfavourable years;
- Yields stability;
- Reduction in labour time and drudgery.

However, knowledge available in the sub-region that may be used in the transition process is weak. Many questions have been raised, notably regarding:

- The cover crop that apparently have been - and are being- researched but there is still no synthesis of the results ;
- The crop-livestock integration;
- The use of chemical inputs.

In addition, some uncertainties regarding the socio-economic impact of the labour reduction appeared. Which impact will have the promotion of CA mainly on children education, on women, what would be the social sharing of the labour and the revenues? What and where will be the added value of CA compared to the current systems?

Lessons from CA experiences show that the design, development, adaptation and improvement of CA based systems rely on the existence of dynamic and efficient innovation systems involving all the stakeholders and led by farmers. In WCA, the group noticed the existence of actors and initiatives but the farmers' leadership seems lacking. Also, current networks and means are insufficient to generate

and to share acquired indigenous / endogenous or exogenous knowledge which remains limited to some areas.

Hence, SCAP, notably in its year 1 should allow to take stock on existing knowledge, the analysis and synthesis of it and more important, it should facilitate to create enabling environments that are conducive to the emergence of innovation systems that are capable to design CA based alternatives, and further encourage their development and adaptation to the diverse targeted situations in WCA. Improvement of those CA based innovation systems over time is necessary at least during the whole transition period.

Working group 4 - Strengthening regional networking

The group attempted to create an inventory of the existing networks and institutions (see tables 1 and 2) in WCA and their main characteristics. It was not possible to address their comparative advantages nor their efficiency and the means to build up relationships. The domains of mutual benefits that were identified are essentially linked to the sharing of information and experiences and, to the training of farmers and supervision through:

- Workshops and meetings;
- Fields visits;
- Building-up and sharing databases;
- Dissemination of information bulletins;
- Specific targeted trainings.

Table 1 : Networks existing in WCA.

In addition to the action of these networks, the group expects additional action from national and international institutions present in WCA. NGOs may participate in the dissemination of the

Name	Geographical coverage	Domain	Main tasks	Main Characteristics	Remarks
ROPPA	Regional (WCA)	Dissemination and transfer of technology, organisation	Advocating, lobbying, representation of farmers	Regional Bureau and national representation	Large
CFP	National (BF)	Agriculture Livestock	Advocating, lobbying, representation of farmers	national bureau	Large
AFNT-TSBF	Continental	Soil, fertilisation, biology	Research -action, training	national Bureau, continental	Large
RSSS	Regional (Sahel)	Sol, plant, rain off	Research, dissemination and promotion		Large
ANAFE	Continental	Agroforestry	Training, research and information	Regional bureau (ICRAF), University National	Large
ICRAF-SNR	Regional	Agroforestry	Research -action, training	Regional bureau and National	Large
FIDAFRIQUE	Continental and regional	Communication	Information	Regional bureau	Large
CIEPCA	Regional	Cover crops	Promotion of cover crops, seeds and information	Regional bureau and National	Large

information that could be of interest for farmers. It is obvious that the main information is carried forward by the NSARs.

Table 2. Systems of national and internatio

Name	Domain	Remarks
NSAR (INERA, IRAD, INRAN)	Research, training and dissemination	State
International research centres (ICRISAT, ICRAF, IITA, ADRAO, CIRAD, IRD)	Capacity building, training and information, research action for development	International
National extension systems		
NGOs and Societies - SG 2000, - Vision mondiale, - ENDA, - Hunger Project, - Africare, - CEAS, - ARID		