Output 4: Project papers for priority water management adaptation in the target communities

I. Context / Justification

II. Objective:

The purpose of this study is to elaborate ten(10) project sheets (including 4 for Dioura and three for each of the sites of Kiban and Massabla) corresponding to the immediate and urgent needs of adaptation to climate change identified during local consultations on these sites.

III. Duties of the consultant:

Elaboration of four sheets for Dioura village, including:

- One sheet on the artificial mud- pit pond ;
- One sheet for access to safe drinking water ;
- One sheet for job creation for the benefit of youths ;
- One sheet for income generating activities.

Elaboration of three project sheets for Kiban village, including:

- One sheet for the canal rehabilitation and development ;
- One sheet for electrification from solar panels ;
- One sheet for access to safe drinking water from solar pumps.

Elaboration of three project sheets for Kiban village, including:

- One sheet for access to safe drinking water from solar pumps ;
- A sheet for the construction of a mini-dam on the Mono river ;
- One sheet for the carrying out of income generating activities.

IV. Expected Results

Four project sheets are elaborated for Diouna village, including:

- One sheet on on artificial pond development ;
- One sheet for access to access to safe drinking water ;
- One sheet for job creation for the benefit of youths ;
- One sheet for income generating activities.

Three project sheets are elaborated for Kiban village, including:

- One sheet for the canal rehabilitation and development ;
- One sheet for electrification from solar panels ;
- One sheet for access to safe drinking water from solar pumps.

Three sheets are elaborated for Massabla village, including:

- One sheet for access to safe drinking village from solar pumps ;
- One sheet for the construction of a mini-dam on the Mono river;
- One sheet for the carrying out of income generating activities.

SHEET N°1

Title of the project : Artificial pond development for promoting irrigated crops

Location: Diouna (Koulikoro region)

Sector: Agriculture

Justification

Depressions were an important source of production (agriculture, livestock, agro-forestry. Agro-ecological degradation, resulting from climate related-factors, is apparent everywhere in Mali. The consequences are, inter alia, the impoverishment of agro-pastoral lands, sand-silting causing the reduction of water flows, the drying up of water courses ,even the disappearance of water points, the destruction of habitats for animal biodiversity and the disappearance of some plant species.. That is the case for many depressions or plains in the Koulikoro region, mainly the artificial pond at the level of Diouna village in the circle of Koulikoro.
The populations in these localities will be the target beneficiaries of the project. They mainly draw their livelihoods from agro-pastoralism. Their living conditions are not were considerably degraded following the phenomena described above..
The implementation of this project will allow for managing and developing this artificial pond for carrying on market-crop gardening. This would contribute to improving the socio-economic situation of the population of this locality.

Overall objective

To valorize the artificial pondwith a view to improving agricultural production, access to water, and ecological conditions.

Specific objectives

- To develop the artificial pond,
- To promote agricultural production,
- To rehabilitate a degraded ecosystem,
- To bring up the level of ground water in wells.

Technical feasibility :

- Existence of a technical expertise for supervision the populations ,
- Needs expressed by the populations during local consultations ,
- The project's objectives tally with the orientations of CSRP

Financial feasibility:

- Support to NCAP,
- Contribution from the State,
- Contribution from the communities,
- Existence of a number of projects in the areas of implementation of the project that could bring about their synergy. .

Expected results

- The artificial pond is developed

- Plant production is improved ,
- Ecosystems are rehabilitated and biodiversity is improved at the level of the artificial pond and in its surroundings,
- Agricultural production is increased
- Agricultural production is increased.

Activities

- The artificial pond development,
- Soil improvement,
- Agricultural development (irrigated crops) of water resources and rehabilitated lands,
- Protection of the banks of water courses by planting indigenous plants ,
- Building the capacities of the populations ,
- Setting up of management organs ,
- Monitoring-evaluation.

Project-related risks

- Rainfall : insufficient in quantity and poor spatial distribution;
- Inadequacy of outlets ;
- Delay in funds disbursement.

Institutional arrangement

The project will be implemented under the tutelage of the local services of the Ministry of Agriculture, in collaboration with the one in charge of hydraulics, supported by a Steering Committee composed of all parties involved. The coordination and follow up of the project implementation will be ensured by a technical unit.

Monitoring-Evaluation

Monitoring-Evaluation Indicators

- Production of artificial mud- extracting pit pond ,
- Developed land-area ,
- The number of linear meters constructed by type of structures ,
- The status of ecosystems.

Monitoring and Evaluation Mechanism

- Field missions will be carried out periodically,
- Interim and Annual Progress reports as well as a final report will produced ,
- A mid-term review and a final evaluation will be made. .

Duration: Three (03) years.

Financial costs: 2,000,000 $US

SHEET N°2

Title of the project: Construction of a borehole equipped with solar or wind-powered pumps

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Localisation : Village de Diouna (Régions de Koulikoro)

Secteur : Ressources en Eau, Agriculture, Elevage

Justification

Despite the great efforts made by the State and its development partners, water supply for the needs of populations and livestock remains a priority for many Malian localities. which, however, avail of considerable ground waters. The major obstacle remains the cost of making these ground waters available to the populations through modern water-raising devices (solar or wind-powered pumps).
The project consists in creating modern water-points for feeding the populations and their livestock, and a support to market-crops development.

Overall objective

To contribute to the mobilization of water resources for reducing poverty and for improving food security in the target area. .

Specific objectives

- to increase the rate of satisfaction of the water requirements of the population and the livestock in the area involved,
- to increase the volume of agricultural productions (agriculture, livestock, fisheries)
- to contribute to environmental protection

Technical and financial feasibility

Technical feasibility :

- Existence of water potentialities in the localities,
- Mastery of techniques for mobilizing waters through technical service,
- Needs expressed by the populations during field missions,
- The project's objectives tally with the orientations of CSCRP.

Financial feasibility

- Support to NCAP
- Contribution from the State,
- Contribution from communities,
- Contribution from beneficiary communities,
- Existence of a certain number of projects in the project area

Expected results

- Modern water-points for safe drinking water supply are created or rehabilitated
- Ground water catchment structures (boreholes, wells, water draining wells…) for agricultural purpose are created or rehabilitated ,
- Irrigated crops and small scale livestock are promoted around these water points ,
- Fishing and fish-breeeding activities are carried on ,
- Sites are reafforested.

Activities

- creation and/or rehabilitation of modern water points for safe drinking water supply,

- development of surface water points
- creation and/or rehabilitation of ground water catchment structures designed for small
- small scale irrigation (boreholes, wells, draining wells..),
- irrigated crops development around these water-points ,
- carrying out of fishing and fish-breeding activities ,
- re-afforestation ,
- monitoring-evaluation.

Project- related risks

- delay in funds disbursement and rainfall deficit

Institutional arrangement

The project will be implemented under the tutelage of the Ministry of Hydraulics, Mining and Energy, supported by a National Steering Committee composed of all parties involved.

Monitoring-evaluation

Monitoring-evaluation indicators

- coverage rate of water needs ,
- increase rate of agro-sylvo-pastoral. activities

Monitoring-evaluation Mechanism

The project will undergo mid-term reviews and a final review as well as field visits Similarly; intermediate and annual reports as well as a final report will be produced.

Duration: Three (03) years

Financial cost : **1500, 000 $US**

SHEET N°3

Title of the project: Diversification and intensification of irrigated crops

Location: DounaVillage (Koulikoro Region)

Sector : Agriculture

Justification

At the level of the Doiura locality, it comes out the interviews with the population that drought and erosion contributed to the drying up of ponds, to the sand silting of stretches of smooth water, to the lowering of underground water and the reduction of irrigable land-areas. This degradation of natural resources, combined with inappropriate farming practices entailed the decrease in agricultural yields and the reduction of biodiversity; which consequently caused, inter alia, migration and the deterioration of the living conditions of the population in this locality in view of these harmful effects of climate change.

Overall objective

To favour sustainably increase in the productivity of irrigated crops in the localities involved..

Specific objectives

- to contribute to meeting the food requirements of the population;
- to increase producers' income ;
- to provide producers with easier access to irrigation both in dry season and in rainy season

Technical and financial feasibility

Technical feasibility:

- Existence of experiments in the field of irrigated crops;
- Seed availability ;
- Existence of supervisory structures (Technical services techniques and NGOs) ;
- Needs expressed by the populations during the field missions ;
- The project's objectives tally with the orientations of CSCRP and SDR

Financial feasibility

- Support to NCAP;
- Contribution from the State ;
- Contribution from communities ;
- Contribution from beneficiary communities ;
- Existence of a certain number of projects in the area could bring about their

synergy.

Expected results

- irrigation infrastructures are constructed an/or created ;
- irrigable potentiality is increased and developed ;
- land productivity of lands is improved. ;
- producers' income is improved.
- farmers and other production factor are rationally managed ;
- farmers' know how is improved ;
- capacities of technical services are strengthened ;
- limited rural migration.

Activities

- rehabilitation and creation of irrigated farming systems ; ;
- development and promotion of irrigated systems;
- respect of the farming calendar ;
- sensitization on use of adapted crop species ;
- physical and economic accessibility of agricultural input;
- support to information, education and communication actions ;
- strengthening of capacities of technical services;
- improvement of food and nutritional security for the population;
- Construction of liquid waste discharge wells;
- Monitoring-evaluation.

Project-related risks

- rainfall : insufficiency in quantity and poor spatial distribution ;
- inadequacy of outlets ;
- delay in disbursement of funds

Institutional arrangement

The project will be implemented under the tutelage of local services of the Ministry of Agriculture, in collaboration of the Ministry in charge of hydraulics supported by a Steering Committee composed of all parties involved. The coordination and monitoring of the implementation will be ensured by a technical unit

Monitoring –Evaluation

Monitoring –evaluation indicators

- increase in yields ;
- level of producers' income ;
- number of rehabilitated and /or established infrastructures ;
- irrigated land area ;
- productivity of farms.

Monitoring-evaluation of Mechanism

- field missions will be carried out periodically :an interim report and a final report will be produced ;

- an interim report and a final report will be shall be produced ;
- a mid-term review and a final evaluation of the project will be made..

Duration: Two (02) years.

Financial cost: (FCFA): 200.000$US

SHEET N° 4

Title of the project: Promotion of Income Generating Activities and Development of mutual Assistance Funds

Location: Diouna village (Koulikoro region)

Sector: Agriculture, Livestock

Justification

It comes out of the field missions carried out that women and youths constitute the group which is most vulnerable to the effects of climate change .Recurrent droughts due to climate change entailed a decrease in agro-pastoral production in the various localities mentioned above. This situation is the cause of the massive migration, each year, of able persons and only women and youths are left behind. The latter are compelled to carry on petty trade for adjusting themselves to the situation. This trade is mainly based on gardening and the selling of dairy products and by-products from the livestock sector. For improving their income and for strengthening their adaptation capacities to the effects of climate change, the promotion of income generation activities and the development of mutual assistance funds turn out to be necessary.

Overall objective

To contribute to poverty alleviation through the diversification of the sources of income in the localities concerned.

Specific objectives

- to develop market-gardening and animal-fattening activities for women,
- to assist in the creation of mutual assistance funds as well as savings and credit funds banks
- to strengthen women's and youths' economic capacities .

Technical and financial feasibility

Technical feasibility:

- Existence of experiments in the field of Income Generation Activities (IGA) in all the localities concerned ,
- Existence of supervisory structures (Technical services and NGOs),
- Needs expressed by the population during field missions,
- Existence of the raw material,
- The project's objectives tally with the orientations of the SDR of PDS, and of CSCRP.

Financial feasibility

- Contribution from GEF,
- Contribution from the State,
- Contribution from communities,
- Contribution from beneficiary communities,
- Existence of a number of projects in the area that can bring about their synergy.

Rationale of Results

- Women's and youths' incomes are increased,
- Equipments are provided to beneficiaries,
- Yields of market-crops are improved,
- Animal and dairy productions are improved,
- The nutritional status of the population is improved.

Activities

- providing of improved seeds,
- contribution in equipment to women and youths ,
- purchase, leasing and development of lands by women ,
- providing of fodder and monitoring of animal health
- counselling-support to women for animal fattening and monitoring of animal health ,,
- strengthening and/or creation of a mutual assistance savings and credit fund at the level of the Regions concerned ,
- allocation of necessary financial resources,
- setting up of credit management committees,
- informing ,sensitization and training of beneficiaries,
- monitoring-evaluation

Project -related risks

Delay in the disbursement of funds, shortage of seeds, and competition with external products.

Institutional arrangement

Given the integrated nature of the project, its implementation will be the responsibility of several ministries, especially the Ministry of Agriculture and Livestock, the Ministry of Territorial Administration, the Ministry of Handicrafts, the Ministry of Economy and Finance, the Ministry for the Promotion of Woman,, Child, and the Family, and the Ministry for Elderly persons. A consultation committee composed of representatives of these ministries, representatives of administrative, communal, and customary authorities as well as representatives of civil society organizations will be set up. That committee will be responsible for orienting and monitoring the project's activities.

Monitoring-evaluation

Monitoring –evaluation indicators

- level of income of target groups and level of migration ,
- number of wells for market- crop gardening,
- level of consumption of products,
- number of processing- units set up,
- amounts of credits granted and credit reimbursement rates.

Monitoring-evaluation mechanism

- monthly monitoring and mid-term review of the project ,
- end-of-project evaluation will be made.

Duration: Two (02) years

Financial cost: 350,000$US

SHEET N°5

Title of the project: Support to the promotion of peri-urban market-crop gardening and livestock – breeding

Sector: Agriculture, Livestock

Location: Massabla Village

Justification

The peri-urban market-gardening and livestock breeding activities carried on by small producers in the vicinity of Massabla, plays a crucial role in the food security of the population. However, agricultural yields remain low due to land degradation and the inadequacy of water resources (farming lands are transformed in glacis, formation of sand-dunes, etc…), the lowering of underground water due to climate variability and climate change as well as the use of rudimentary farming techniques. As for the livestock-subsector, it is difficult for it to valorize its rich potentialities, owing to the little availability of animal-feeds due to climate and anthropic factors which reduce rangelands, and the livestock-breeding method which has been contemplative and extensive so far. Currently, these vulnerable small producers benefit only very little support from communities and the State; the implementation of this project aims at enhancing their production capacities in order to meet an increasingly high demand of market-gardening and livestock-breeding products and for improving their income and their living conditions that are being deteriorated because of the harmful effects of climate change.

Overall objective

To contribute to the improvement of the food security of the population of the locality of Massala.

Specific objectives

- to increase agro-pastoral production ;
- to revitalize supply and marketing channels for market-gardening products and animals ;
- to capitalize on achievements and positive experiments for their replicability at the level of the other urban centers;
- to develop the capacities of agro-pastoralists .

Technical and financial feasibility

***Technical feasibility*:**

- Existence of' experiences in the field of marketing and livestock-breeding in the locality concerned ;
- Existence of supervisory structures (Technical services) ;
- Needs expressed by the population during field missions ;
- The project's objectives tally with the orientations of the CSCRP of PDES and SDR.

Faisabilité financière

- Contribution from GEF;
- Contribution from the State;
- Contribution from communities ;
- Contribution from the beneficiaries communities ;
- Existence of a number of projects in the area hosting the project.

Expected results

- Peri-urban market-crop gardening and livestock-breeding are strengthened.;
- The capacities of technical supervisors are strengthened ;
- Production system and equipments are modernized l ;
- Cooperative structures are revitalized;
- The income of producers is improved ;
- Food security is improved.

Activities

- setting up and empowerment of proximity animal health services ;
- support to the promotion of livestock-related income generating activities (IGA) for women ;
- valorization of fodders ;
- supply and management of stocks of concentrated products ;
- construction of warehouses for storing inputs ;
- training of producers in the field of preservation and processing techniques ;
- creation and structuration of subsectors and setting up of selling kiosks ;
- facilitation of the selling of products ;
- monitoring-evaluation.

Project-related risks

- urbanization ;
- delay in funds disbursement ;
- epidemics.

Institutional arrangement

Given the integrated nature of the project, its implementation will be the responsibility of several Ministries, mainly Ministries in charge of Agriculture, Livestock, Territorial Administration, the Promotion of Woman, Child, and Family. A consultation committee composed of representatives of those ministries with a view to orienting and monitoring the

project's activities.

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Monitoring-evaluation

Monitoring-evaluation indicators

- livestock growth rate ;
- Number of warehouses for storing inputs constructed ;
- Number of proximity animal health services set up and empowered ;
- Level of producers'income ;
- Irrigated land-areas ;
- Yield increase.

Moniitoring-evaluation mechanism

- Proximity monitoring of communes and of the Region will be carried out ;
- Filed missions will be carried out ;
- A mid-term evaluation and a final evaluation will be carried out ;
- An intermediate report and a final report shall be produced.

Duration of the project: Two (02) years

Financial resources: 100,000$US

SHEE N° 6

Title of the project: Harnessing of run-off waters, creation and restoration of water-points.

Location: Massabla

Sectors: Water resources, Agriculture

Justification

The Malian Rural economy is currently characterized by a poor performance of agricultural and pastoral production systems related, inter alia, to rainfall deficit and to the inadequacy of available surface water resources..

This project consists in harnessing run-off waters for the rehabilitation of former water points, on the one hand ,and in the creation of modern water points ,on the other hand, for supplying the population and livestock with water as well as for promoting market-crop gardening, irrigated crops, and reafforestation activities around water-points. .

Overall objective

To contribute to poverty reduction and to the improvement of food security through the mobilization of water resources.

Specific objectives

- To increase the rate of satisfaction of water needs for the population and the livestock in the areas concerned,
- To increase the productivity of agricultural production systems (agriculture, livestock, fisheries),
- To contribute to environmental protection.

Technical and financial feasibility

Technical feasibility*:*

- Existence of run-off water potentialities in the localities,
- Mastery of water harnessing techniques by technical services,
- Needs expressed by the populations during field missions,
- The project's objectives tally with the orientations of the CSLP(Strategic Poverty Alleviation Framework)

Financial feasibility

- Contribution from GEF,
- Contribution from the State,
- Contribution from communities,
- Contribution from beneficiary communities,
- Existence a number of projects in the area that can bring about synergies.

Expected results

- modern supply points of safe drinking water are created and rehabilitated supply ,
- stretches of surface water are developed ,
- surface water harnessing structures with agricultural and pastoral purposes are created or rehabilitated,
- irrigated crops and small scale livestock-breeding are promoted around these water points,
- fishing and fish-breeding activities are carried on,
- sites are reafforested.

Activities

- the creation and/or rehabilitation of modern points for supplying safe drinking water ,
- development of surface water points,
- the creation and/or rehabilitation of surface water harnessing structures meant for small scale irrigation,
- the development of irrigated crops around these water points ,
- the rehabilitation of fishing and fish-breeding activities ,
- reafforestation ,
- monitoring-evaluation.

Project-related risks

- delay in the disbursement of funds and rainfall deficit.

Institutional arrangement

The project will be implemented under the tutelage of the Ministry of Mining, Energy and Water, assisted by a National Steering Committee composed of all parties involved. .

Moniitoring-Evaluation

Moniitoring-Evaluation indicators

- coverage rate of water requirements ,
- growth rate of agro-sylvo-pastoral production ,
- reduction of the youths unemployment rate

Monitoring-Evaluation Mechanism

The project will undergo mid-term reviews and a final evaluation as well as field visits. Similarly, intermediate and annual reports shall be produced as well as a final report.

Duration: Three (03) years

Financial cost: 280,000$US

SHEET N°7

Option: Construction of boreholes equipped with solar pump

Title of the project: Construction of a borehole equipped with a solar pump

Location : Massabla Village (Koulikoro Region)

Sector: Water resources, Agriculture, Livestock

Justification

Despite the great efforts made by the State and its development partners, water supply for meeting the water requirements of the population and the livestock remains a priority for many Malian authorities which, however, avail of considerable underground waters .The major obstacle remains the cost required for supplying the population with these waters through modern underground-water extracting devices (solar or wind-powered pumps).
The project consists in creating modern water-points for supplying water to the populations and to livestock, and a support to market-crops development. ..

Overall objective

To contribute to water resources harnessing for reducing poverty and for improving food security in the target area.

Specific objectives

- to increase the rate of satisfaction of the water requirements of the population and of the livestock in the area involved ,
- to increase the volume of agricultural productions (agriculture, livestock, fisheries),
- to contribute to environmental protection .

Technical and financial feasibility

Technical feasibility:

- Existence of water potentialities in the localities,
- Mastery of water harnessing techniques by technical services ,
- Needs expressed by the populations during field missions ,
- The project's objectives tally with the orientations of CSCRP

Financial feasibility

- Support from NCAP
- Contribution from the State,
- Contribution from communities,
- Contribution from beneficiary communities,
- Existence of a certain number of projects in the area hosting the project.

Expected results

- modern water points for supplying safe drinking water are created or rehabilitated ,
- underground water harnessing structures (boreholes, wells, draining wells..) with agricultural purpose are created or rehabilitated,
- irrigated crops and small scale irrigation are promoted around these water points ,
- fishing and fish-breeding activities are carried on ,
- sites are reafforested.

Activities

- creation and / or rehabilitation of modern water points for supplying safe drinking water ,
- development of surface water points,
- creation and/or rehabilitation of underground water harnessing structures meant for small scale irrigation (boreholes, wells, draining wells.),
- development of irrigated crops around these water points,
- carrying out of fishing and fish-breeding activities ,
- reafforestation,
- monitoring-evalaution.

Project-related risks

- delay in the disbursement of funds and rainfall deficit .

Institutional arrangement

The project will be implemented under the tutelage of the Ministry for Hydraulics, Mining

and Energy, supported by a National Steering Committee composed of all parties involved..

Monitoring-evaluation

Monitoring-evaluation indicators

- coverage rate of water requirements ,
- growth rate of agro-sylvo-pastoral production.

Monitoring-evaluation mechanism

The project will undergo mid-term reviews and a final evaluation as well as field visits. All the same, interim reports and annual reports as well as a final report will be produced..

Duration: Three (03) years

Financial cost: 1500, 000 $US

SHEET N° 8

Title of the project: Construction of a Micro Dam on the Mono river in Massabla

Context and Justification

Mali prepared a National Plan on Access to Safe Drinking Water for the 2004-2015 period for coping with development difficulties related to lack of water. .
This plan is aimed at attaining the millennium development goal, viz: to reduce by half the number of persons not having access to safe drinking water by the year 2015.

The project is a response to a request by the population and the authorities of the commune for facilitating access to safe drinking water, mainly for stabilizing livestock and providing to it water to drink.

In fact, the populations of the commune spend daily 2 to 5 hours fetching water (i.e. a 10 to 15 kilometres walk).Children, mainly girls are deprived of school because they have to go and fetch water. Waters are harvested under poor sanitation conditions, and they cause diarrhoea, malaria, guinea-worm disease and other water-borne diseases.

Thus, the area is located on the routes for the transhumance of livestock-breeders and their herds from the northern parts of the country. The very few water points that exist in the area are often sources of violent conflicts between livestock-breeders on transhumance and the local populations who often prevent the former from having access to the water in the village.
.
The commune is seeking a partner with a view to constructing a micro-dam which will contribute, undoubtedly, to its socio-economic development.

The choice of the micro-dam by the village is justified by the combination of several constraints it suffers from, inter alia:

- The early drying up of water points (traditional wells, ponds) ,
- The water fetching chore (women get water from a water point located 3to 5 kilometers from their dwellings) ,
- The deepening of temporary wells in lowlands every year
- Non-existence of many safe drinking water points(only one borehole)
- Frequent conflicts around water points

The construction of a micro-dam remains necessary and will contribute to mitigating safe drinking water –related constraints, through:

- Bringing the ground water level closer to the surface of the ground,
- Access to safe drinking water,
- The promotion of rice-farming and market-crop gardening
- Improvement of the food equilibrium of the population through the availability of market-gardening products ,
- The strengthening of social stability through the reduction of conflicts around water points ,
- Regular providing of water to livestock at the level of the commune,
- Alleviation of the workload of women through the availability of water on spot at the level of the existing water points.

Development objective

Meeting the safe drinking water and sanitation requirements both quantitatively and qualitatively through the involvement of the sensitization of all the commune.

Specific objectives

- To contribute to bringing the ground water level close to the surface of the ground,
- To facilitate access to water for livestock and increase in agricultural production through having women carry on rice-farming and market-crop gardening,
- To contribute to alleviating women's workload

Expected results

Impact :

- Technical data exist on the site of the micro-dam
- An enterprize is retained for constructing the micro-dam
- A concrete-structured micro-dam is constructed in the commune
- The number of water-related conflicts has been decreased in the village
- Competent persons exist in the village for managing the water points.

Effects :

- A concrete-structured micro- dam is constructed in the commune,
- The underground water level is brought up closer to the surface of the ground
- The permanent availability of water all the year round ,
- At least 10 hectares are grown cultivated by women for rice-farming and market-crop gardening.

- ❖ Watering livestock is ensured all the year round ,
- ❖ The time devoted to water fetching is reduced ,
- ❖ The sources of income of women are diversified.

Indicators :

- ❖ Underground water level is brought up closer to the surface of the ground ,
- ❖ Duration of water retention by the dam
- ❖ Number of animals drinking water retained by the dam
- ❖ Degree of accessibility to the water in the dam ,
- ❖ Level of increase of women's income
- ❖ Quality of the data of the study

Activities

- Carrying out of the technical study ;
- Hiring of the contracting enterprize :
- Constructing the micro-dam ;
- .Building the capacities of beneficiaries

Monitoring/evaluation :

During the implementation phase, weekly meetings bringing together the management committee members and the enterprize will be held regularly.. Such meetings will allow for making an assessment of the progress of the work achieved, for highlighting the difficulties encountered, and for making a planning of activities for the following week.

Project cost. : 50, 000 $ US

SHEET N° 9

Title of the project : Rehabilitation the Kiban canal

Location

Kiban village (Koulikoro region)

Sector : Water resources

Justification

For several years now, and following sand-silting, one can observe a serious degradation of ecosystems such as ponds, water courses, depressions, and watershed areas .This is the case of

the Kiban canal which ensured the greatest part of the water supply for the populations. The rehabilitation of this canal is therefore a real concern for the local population for contributing to meeting their water requirements and will allow for promoting the development of agricultural and pastoral activities .The development schemes to be achieved will allow for reducing the drift and increase the volume of water carried away through the canal in order to achieve a better regulation of their hydrological system of storage depressions and underground water. The populations in this locality will be the target beneficiaries of the project. The implementation of this project will allow for improving the socio-economic situation of vulnerable populations.

Overall objective

To contribute to a better coverage of water requirements

Specific objectives

- To contribute to meeting the water requirements of livestock and water recession farming;
- To fight against sand-silting in the canal ;
- To store water in ponds for pastoral activities

Technical and financial feasibility

Technical feasibility

- Mastery of techniques for the protection of river banks and the rehabilitation of canals by technical services and the populations concerned. ;
- Existence of supervision by technical services ;
- Needs expressed by the populations during field missions ;
- The objectives of the project tally with those of the PAN-LCD/GRN(National Action Plan on Desertification Control and Natural Resources Management)
- The project's objectives tally with the orientations of CSCRP and SDR

Financial Feasibiliy

- Contribution from GEF ;
- Contribution from the State ;
- Apport des communautés bénéficiaires ;
- Existence a certain number of projects and NGOs in the area hosting the project

Expected results

- Water requirements for livestock water recession farming are ensured ;
- The canal is rehabilitated ;
- Fishing activities are resumed in the restored ponds.

Activities

- Land development work for the rehabilitation of the canal and drinking troughs ;
- Planting of live hedges and fixing of dead wood hedges ;

- Removal of sand-situation from the canal;
- Market-crop gardening and fishing activities ;
- Monitoring-evaluation.

Project-related risks

- Delay in the disbursements of funds.

Institutional arrangement

The project will be implemented under the aegis of the deconcentrated service of the Ministry in charge of Hydraulics .It will be managed by a village development committee.

Monitoring-evaluation

Monitoring-evaluation mechanism

- The number of rehabilitated ponds l
- ;
- The increase of water availability ;
- Time length during which water remains in the pond during a year:
- The level of reduction of drifts in the canal ;
- The increase in the income of the population

Monitoring- evaluation mechanism

- Annual surveys ;
- Field missions ;
- Report publishing ;
- Setting up of a Monitoring-evaluation mechanism :
    - At local level : the village development committee
    - At communal level : the communal development committee
    - At the Administrative region level: service providers (NGO, Association, technical service) will support beneficiaries in the technical implementation of structures.

Du ration : Two (02) years

Financial cost: 150,000$US

SHEET N°10

Title of the project: Drilling of a borehole equipped with a solar pump

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Location : Kiban Village (Koulikoro Region)

Sector : Water resources,, Agriculture,Livestock

Justification

Despite the great efforts made by the State and its development partners, water supply for meeting the needs of the populations and livestock remains a priority for many Malian authorities which, however, avail of considerable ground water resources. The major obstacle remains the cost for making these underground resources available to the populations and livestock through modern means of groundwater extracting devices (solar or wind-powered pumps).

.The project consists in creating modern water points for supplying water to the populations and their livestock as well as a support to market-crops development

Overall objective

To contribute to the mobilization of water resources for reducing poverty and for improving food security in the target area..

Specific objectives

- to enhance the rate of satisfaction of the requirementsAugmenter le taux de satisfaction des besoins en eau des populations et du cheptel de la zone concernée,
- to increase the volume of agricultural productions (agriculture, livestock,fisheries, ..)
- to contribute to environmental protection

Technical and financial feasibility

Technical feasibility:

- Existence of water potentialities in the localities ,
- Mastery of water harnessing techniques by technical services,
- Needs expressed by the populations during field missions ,
- The project's objectives tally with the orientations of CSRP (Strategic Framework for Poverty Reduction)

Financial feasibility

- Contribution from NCAP
- Contribution from the State,
- Contribution from communities,
- Contribution from beneficiaries communities,
- Existence of a certain number of projects in the area hosting the project.

Expected results

- Modern water points for supplying safe drinking water are created or rehabilitated ,
- Groundwater harnessing structures (boreholes, wells, draining wells…) with agricultural purposes are created or rehabilitated
- Irrigated crop- farming and small scale livestock-breeding are promoted around these water points
- Fishing and fish-breeding activities are carried on.,
- Sites are reafforested.

Activities

- creation and/or rehabilitation of modern water points for supplying safe drinking water ,

- development of surface water points ,
- creation and /or rehabilitation of underground water harnessing structures meant for small scale irrigation (boreholes, wells, draining-wells. ...),
- the development of irrigated crops around these water-points ,
- the carrying out of fishing and fish-breeding activities,
- reafforestation,
- monitoring-evaluation.

Project-related risks

- delay in the disbursement of funds and rainfall deficit

Institutional arrangement

The project will be implemented under the tutelage of the Ministry of Hydraulics, Mining, and Energy, supported by a National Steering Committee composed of all the parties involved..

Monitoring-evaluation

Monitoring-evaluation mechanism

- coverage rate of water requirements ,
- growth rate of agro-sylvo-pastoral production

Monitoring-evaluation mechanism

The project will undergo mid-term reviews and a final report as well as field visits. Similarly, intermediate progress reports and annual reports will be produced as well as a final report. intermediate and annual reports

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Duration: Three (03) years

Financial cost: **1500, 000 $US**

SHEET N° 11

Title of the project Electrification of Kiban village with renewable energies.

Location : Kiban village (Koulikoro region)

Sector : Energy

Context / Justification

For improving the living conditions of rural populations, the government undertook a vast rural electrification programme which led to the adoption of the national energy policy document in March 2007. .

This policy forecasts to develop the extraordinary the new and renewable energy potential (sun, water, wind, and biomass).

Overall objective:

To enable local population to have access to energy services

Specific objectives :

- to ensure the lightening of community infrastructures(prefecture, school, mayor's office, mosque, CSCOM, public places, market) .
- to ensure supply of energy services allowing for improving the living conditions of the populations (supply of energy for fridges and solar heaters, solar cooking-appliances) ;
- to initiate market-gardening perimeters by drilling boreholes equipped with solar pumps or powered by wind-energy .

Technical and financial feasibility :

Technical feasibility

- Existence of a great solar potential and of an great wind potential in the locality ;
- Technical mastery of the services of the Ministry of Energy and Water ;
- Needs expressed by the populations ;
- The project's objectives tally with the orientations of CSCRP and of PDES

Financial Feasibility

- Contribution from NCAP ;
- Support from UNDP ;
- Support from the State ;
- Contribution from communities ;
- Contribution from beneficiary communities ;
- Existence of a number of projects in the area hosting and which could bring about their synergy.

Expected results :

- Solar panels and aerogenerators,and wind-powered pumps are installed and functional ;
- The main community infrastructures of the village are supplied with electricity ;
- Boreholes equipped with solar pumps or wind-energy-powered are achieved ;
- Market-gardening perimeters are developed ;
- Income generating activities related electric energy are initiated ;

- Solar water heaters, solar cookers and fridges are installed.

Activities :

- Installation of the solar panels of aerogenerators and wind pumps ;
- Supplying the main community structures(SECOM, schools, mosques, public places,market,mayor's office, district administrative office) are provided with electricity ;
- Drilling boreholes equipped with pumps operating with solar panels or with wind energy ;
- Development of market-gardening perimeters;
- Initiation of income generating activities ;
- Installation of solar water heaters, solar fridges, and solar cookers.

Project-related risks :

Delay in the disbursement of funds and rainfall deficit

Institutional arrangement:

The project will be implemented under the tutelage of the Ministry for Hydraulics, Mining and Energy, supported by a local steering committee composed of all parties involved..

Monitoring-evaluation

Monitoring-evaluation indicators

- coverage rate of electricity requirements ,
- coverage rate of water requirements ;
- growth rate of agro-sylvo-pastoral production.

Monitoring-evaluation Mechanism

The project will undergo mid-term reviews and a final report as well as field visits. Similarly, interim and annual reports will be produced as well as a final report.

Duration : One (01) year

Financial cost : 100, 000 $US

SHEET N° 12

Title of the project : Aquaculture schemes s i

Location: Diouna, Kiban and Massabla

Sectors: Fishing and fish-breeding

Justification :
The update on aquaculture in the world (FAO, 1989a) highlights the increasing role of this sector at the economic, social, and nutritional level

In view of the gradual decrease in fish resources as consequence of climatic hazards, aquaculture development is today an appropriate concrete strategy for meeting the fish requirements of the population.

Overall objective:
This project's objective is to promote a sustainable increase in fish production and diversify the fishing activities of communities with a view to improving their living conditions, through their sedentarization and their contribution to local development.

Specific objectives:
The project's specific objectives are the following:

- to develop ponds for organizing the sustainable exploitation of aquatic systems ;
- to make aquaculture ponds for valorizing the existing potential ;
- to diversify activities for optimizing food production in areas where full water control is achieved ;
- to promote aquaculture in floating cages in propitious areas ;
- to ensure a large dissemination of all actions conducted in the fisheries and aquaculture subsector ;

Technical and financial feasibility:
Technical feasibility:

- Existence of an important potential ;
- Existence of a technical expertise ;
- Experience of producers ;
- Needs strongly expressed by the communities and the populations ;
- Programme Document adopted by the Government

Financial feasibility :

- Contribution from the Mali Government
- Contribution from Communities
- Contribution requested from GEF

Expected results :

- Enhancement of fish production and availability ;
- Improvement of fisheries management ;
- Sedentarization of the populations and reduction of migrations ;
- Diversification of activities and sources of income of the fishing communities ;
- Improvement of food security ;
- Potential and production valorization ;
- Building the capacities of stakeholders.

Activities :

- Pond development ;
- Construction of fish-breeding basins ;
- Irrigation/aquaculture integration in hydro-agricultural development schemes ;
- Construction floating cages ;
- Organisation of producers ;
- Providing producers with equipment

Project-relaterisks :

Delay in the disbursement of funds.

Institutional arrangements :

The project will be implemented with the support of the National Directorate of Fisheries. A local Steering Committee will be set up for the project management

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Monitoring-evaluation:

Monitoring-evaluation mechanism:

- Monthly monitoring;
- Quarterly monitoring ;
- Annual review ;
- Mid-term evaluation ;
- Final evaluation finale ;
- Impact assessment.

Monitoring-evaluation indicators :

- Land-area of ponds developed ;
- Number of ponds constructed ;
- Fish production.

Duration : Five ((5) years

Financial cost. : 200, 000 $US
