Chapter 3: Current situation of the water reservoir and categorization

3.1 Situation of the construction

3.1.1 First phase

According to the document titled "Repertories of the main dams and their characteristics in Niger: September 2004" published by the Direction of Management and Rural Agricultural Equipment of the Ministry of Agricultural Development, during the first phase (2001-2002) of the Special Program of the President of the Republic, the construction of 54 water reservoirs was planned in the zone of this study. For one of these reservoirs, that of Angoual Denia, works do not yet start, although an advance on this work was given to the contractor. On the other hand, the reservoir of Aoka whose construction was planned 1 km upstream the water reservoir of Aboka changed destination during execution, and is used as dam to prevent from sand accumulation in the reservoir of Aboka, this makes it not possible to fulfill the functions of a water reservoir. In addition, a new additional reservoir, that of Edouk, was built. The reservoir of Guidan Bado remains always unfinished and the contract with the profit service provider for its construction was terminated to be given to another more able to complete it.

Thus, today (August 2009), among 55 water reservoirs object of the first phase there existed in the area of this study 52 built reservoirs, and 1 reservoir almost completed although partially unfinished, making a total of 53 reservoirs.

Table 3.1 (1) List of water reservoirs built during the first phase

Number of reservoirs	Water reservoir	Region	Department	Year of construction envisaged
1	Tondibia Gorou	Niamey	CommuneI	2001
2	Kongou Gorou	Niamey	CommuneII	2001
3	Sorey	Niamey	CommuneIII	2001
4	Bartchawel	Tillaberi	Kollo	2001
5	Aboka	Tillaberi	Kollo	2001
6	Bonkor	Tillaberi	Tillaberi	2001
7	Husband	Tillaberi	Tillaberi	2001
8	Gaigorou	Tillaberi	Tillaberi	2002
9	Hamagorou	Tillaberi	Ouallam	2002
10	Fanakoira	Tillaberi	Ouallam	2002
11	Kandoum	Tillaberi	Filingue	2002
12	Sanam	Tillaberi	Filingue	2001
13	Tchantchergou	Tillaberi	Say	2002
14	Foneko	Tillaberi	Tera	2001
15	Karta	Tillaberi	Tera	2001
16	Farey Gorou2	Tillaberi	Kollo	2001
17	Farey Gorou3	Tillaberi	Kollo	2001
18	Balideye	Dosso	Loga	2001
19	Bouki	Dosso	Loga	2001
20	Toulmeye	Dosso	Dosso	2001
21	Kogarbeye	Dosso	Dosso	2001
22	Bougiri	Dosso	Doutchi	2002
23	Rouda Goumandey	Dosso	Doutchi	2001
24	Kore Behcemi	Dosso	Doutchi	2001
25	Koure Kobardeye	Dosso	Doutchi	2002

Number of reservoirs	Water reservoirs	Region	Department	Year of construction envisaged
26	Tanda	Dosso	Gaya	2001
27	Malam Kadi	Dosso	Gaya	2001
28	Kalgo	Dosso	Gaya	2001
29	Koygolo	Dosso	Boboye	2002
30	Tchankargui	Dosso	Boboye	2002
31	Gombewa	Dosso	Boboye	2002
32	Tarwada	Tahoua	Keita	2001
33	Gourgoutoulou	Tahoua	Bouza	2001
34	Chanyassou	Tahoua	Illela	2001
35	Edir	Tahoua	Madaoua	2001
36	Akoukou	Tahoua	Tahoua	2001
37	Jaja	Tahoua	Tahoua	2001
38	Gadiyaw	Tahoua	Tahoua	2001
39	Tchidafawa	Maradi	Madarounfa	2001
40	Bokologi	Maradi	Dokoro	2002
41	Rafin Wada	Maradi	Guidan Roungi	2002
42	Koumchi	Maradi	Guidan Roungi	2001
43	DaN Gado	Maradi	Guidan Roungi	2001
44	Sico-Niger	Maradi	Commune	2001
45	Downstream CDR	Maradi	Commune	2001
46	Beriberi	Maradi	Tessaoua	2001
47	Iyataoua	Maradi	Tessaoua	2001
48	Mili	Maradi	Aguie	2001
49	Soura	Maradi	C.Tibiri	2001
50	Kananbakache	Maradi	Mayahi	2001
51	Dan Lssa(Danja)	Maradi	Madarounfa	2007

Table 3.1 (2) List of water reservoirs actually being constructed

Number of reservoirs	Water reservoir	Region	Department	Year of construction envisaged
1	Guidan Bado	TAHOUA	Bouza	2001

Table 3.1 (3) List of additional water reservoirs built in the first phase

Number of reservoirs	Water reservoir	Region	Department	Year of construction
1	Edouk	TAHOUA	Tchintabaraden	2001

Table 3.1 (4) List of water reservoirs planned in the first phase which were not built

Number of reservoirs	Water reservoir	Region	Department	Year of construction
1	Angoual Denia	TAHOUA	Bouza	2001

Nb: The reservoir of Aoka in Tillabery region department of Kollo was carried out

3.1.2 Second phase

During the second phase (2003-2005) of the Special Program of the President of the Republic, the construction of 14 water reservoirs was planned in the zone of our study. For two of them, those of Sounarana and Angoual Mata, the contractor actually does not start the work yet, although an advance on this work was given to him. The construction of a new additional reservoir, that of Zongon Roukouzoum, in Tahoua region was undertaken but still, the work are always partially unfinished, leading to the cancellation of the contract with the company for another capable company to finalize the work.

Thus, at the date August 2009, among 15 water reservoirs object of the second phase there was in the zone of our study 12 built reservoirs, and 1 almost completed reservoir, giving a total of 13 reservoirs.

Table 3.1 (5) List of water reservoirs built in the second phase

Number of reservoirs	Water reservoirs	Region	Department	Year of construction
1	Djebou	TILLABERI	Say	2003-2004
2	Boukari Kouara	TILLABERI	Tera	2003
3	Roufai Kouara	DOSSO	Dosso	2003
4	Tounga May Komso	DOSSO	Doutchi	2003
5	Bakassomouba	MARADI	Guidan Roungi	2003
6	Kazazome Tabouka	MARADI	Guidan Roungi	2003
7	Roura	MARADI	Guidan Roungi	2003
8	Goumar	MARADI	Guidan Roungi	2003
9	Magagi Rogo	MARADI	Guidan Roungi	2003
10	Bourdi 1	TAHOUA	Illela	2003
11	Bourdi 2	TAHOUA	Illela	2003
12	Molia	TILLABERI	Tillaberi	2007

Table 3.1 (6) List of reservoirs partially unfinished

Number of reservoirs	Water reservoirs	Region	Department	Year of construction envisaged
1	Zongon Roukouzoum	TAHOUA	Illela	2005

Table 3.1 (7) List of water reservoirs planned in the second phase which were not built

Number of reservoirs	Water reservoirs	Region	Department	Year of construction
1	Soumarana	MARADI	Madarounfa	2003
2	Angoual Subdued	MARADI	Madarounfa	2003

3.1.3 Third phase

It is envisaged during this third phase the rehabilitation of water reservoirs already built and the completion of the unfinished reservoirs. The Presidency decided to devote for that a budget of 200 million CFA as "support and consolidation of dams", and in mid-December 2007, the Ministry of Economy and Finances spent 152 million CFA. The construction of new water reservoirs is not envisaged in this third phase, the orientation taken being to check first the level of implementation of reservoirs already built.

3.1.4 Water reservoirs object of this study

It is thus noted that currently in August 2009, the water reservoirs built in the zone of this study were 64 in number. The two reservoirs of Guidan Bado and Zongon Roukouzoum must be completed in a few years, and also consider them as object of this study, giving a total of 66 water reservoirs object of this study.

3.2 Classification

The observations carried out on field enabled to release two types of reservoirs which according to their structure and mode of water storage are clearly different. It was also made clear that while the state of sand embankment of a water reservoir, its period of storage or the degree of deterioration of the structure more significant than they are envisaged, the use as a water reservoir becomes problematic. There were cases of water reservoirs built at ends other than that of agriculture.

For these reasons it is decided to take into account the current situation (mode and period of water storage, presence or not of serious deteriorations of the structure, objectives of construction) of the water reservoir to carry out a categorization. These are now the results of this examination for categorization, heading by heading.

3.2.1 Mode of storage of the water reservoir

The water reservoirs are divided according to their mode of storage into two types, the small scale dams and the weirs, which will be treated:

(1) Small scale dams

The small scale dams are reservoirs which retain the water of the rivers in wintering by a tight threshold, and make it possible to store water upstream threshold. They are of trapezoidal section and are built of tight materials. In general, they are provided with a spillway at the center of the threshold. The agricultural use of the soils around the small scale dams is done mainly in the form of irrigated agriculture solely downstream of the dam, as figure 3.2(1) and 3.2 (2) shows it. If the dam has heading reservoir, the gravitating irrigation is possible, but if there are no heading reservoirs, it is the irrigation by manual pumping out or using pumps, that is practiced

Photo3.2 (1) Water reservoir (of small scale dam type) of Rafin Wada in the region of Maradi , photographed in August 2006

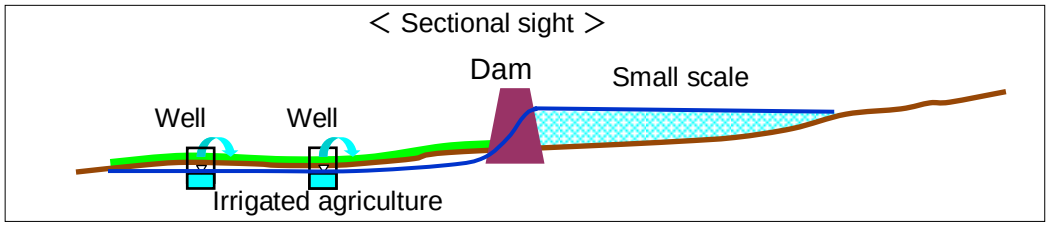


Figure 3.2 (1) Small scale dam constructed in a river and the irrigated agriculture is done only downstream of the dam (Sectional sight)

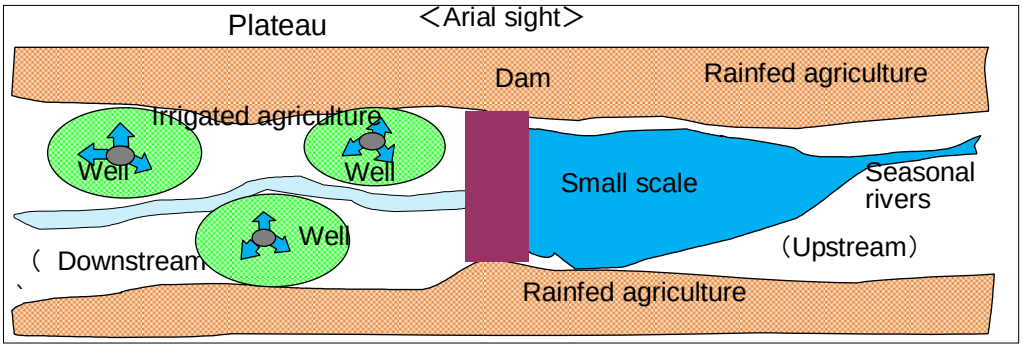


Figure 3.2(2) Small scale dam constructed in a river and the irrigated agriculture is done only downstream of the dam (Arial sight)

(2) Weirs

The weirs do not have as a function to stop completely the water run-off. They are set up in the minor bed of a seasonal river to reload of water the soils upstream by lengthening the period during which the upstream part is temporarily immersed. The reservoirs are normally of rectangular section, and often composed of filter gabions overlapped the ones on the others. As shown in figure 3.2 (3), the agricultural use of the soils around the weirs is mainly carried out in the form of flood recession farming and irrigated agriculture, on lands with soils soaked with water of the easily flooded zone upstream of the weir.

Photo3.2 (2) Water reservoir (of weir type) of Zongon Roukouzoum in the region of Tahoua, photographed in August 2006

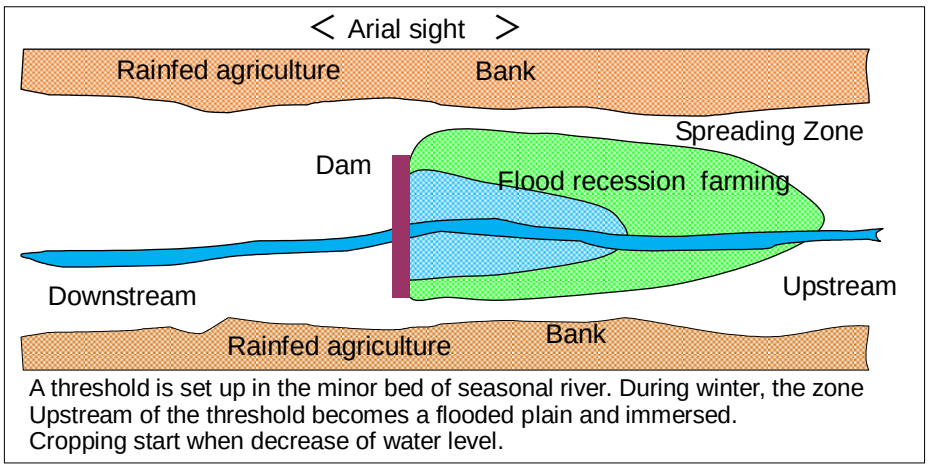


Figure 3.2 (3) Weir constructed in a seasonal river

3.2.2 State of sand accumulation (problem of the weirs)

In the case of the small scale dams, even if the sand accumulation progresses, insofar as the sealing of the reservoir does not pose problem, it continues to take up its duty of storage as an underground dam, and there is no change for the cropping practiced downstream of the dam. In other words, the irrigated agriculture downstream of the dam is durable. On the other hand, in the case of the weirs, if the threshold is filled with sand, the function of spreading is not provided any more, and the development of the flood recession farming becomes impossible. (See figure 3.2(4))

Consequently, the 41 sites of the weirs were classified according to their ability of accumulating sand into three categories: (i) the sites which will be filled with sand in five years at most, (ii) sites which will be filled with sand in five to ten years, and (iii) the sites which will be filed with sand within more than ten years. There are 15 weirs which are supposed to be no more able to take up the duty of weir in five years at maximum

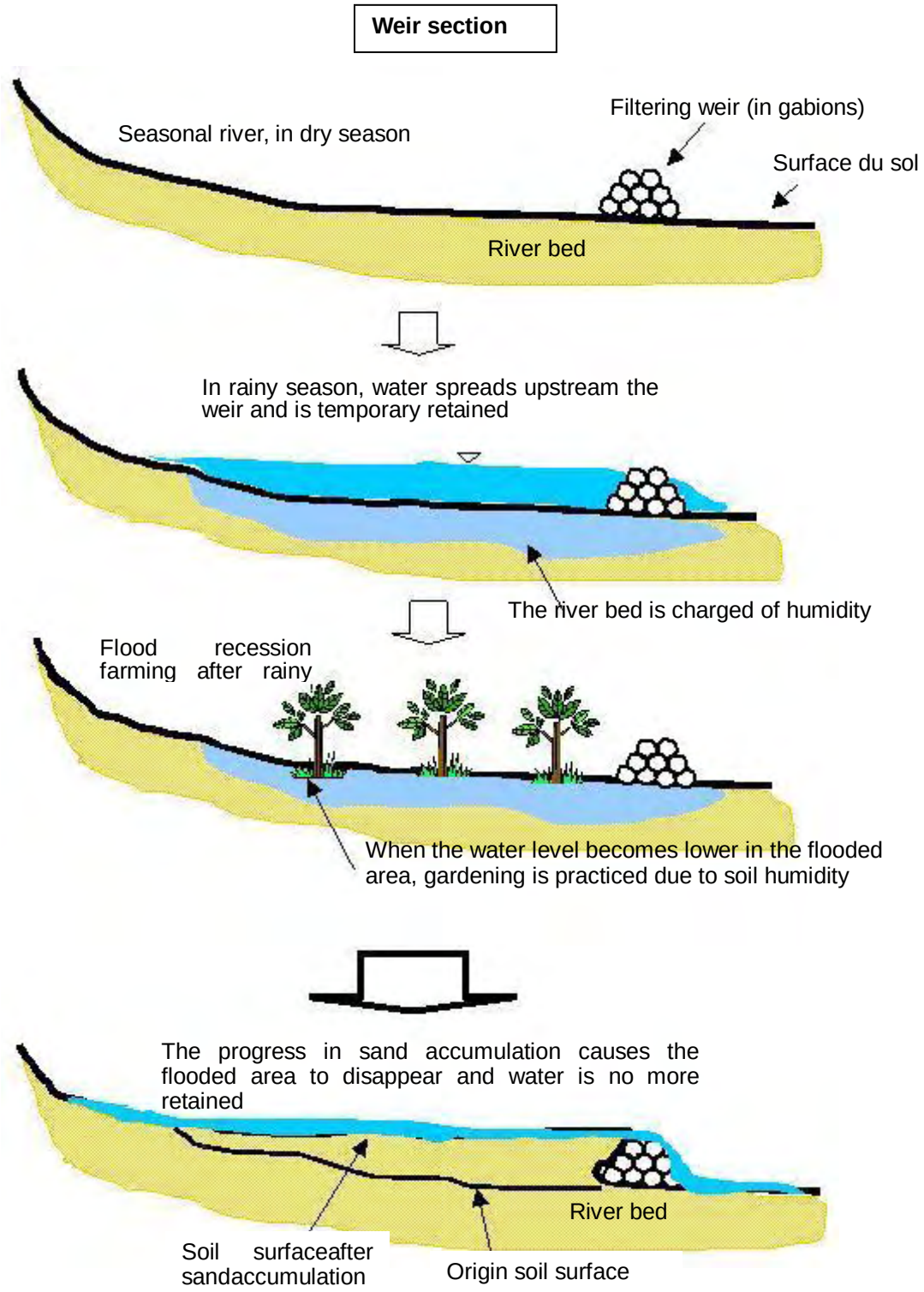


Figure 3.2 (4) Problem of sand accumulation in a weir

3.2.3 Period of storage (problem of the small scale dams)

The small scale dams retain surface water upstream of their threshold and make render arable the downstream of the dams. It is necessary for gardening practiced by using these water resources, to count preparations for the cropping until harvests a duration of 6 months, which if it starts as soon

as possible, extend from September until February. Thus, if the period of storage of water last for less than six months full, the practice of the gardening becomes problematic. On 25 small scale dams there are 7 of them which have a storage period lower than 6 months full.

3.2.4 State of deterioration of the reservoirs (problem concerning the small scale dams and the weirs)

For the 25 small scale dams and the 41 weirs object of the inventory study, it is noted the state of the various components of each reservoir (foundations, work of slope, works top, works of thrust, main element of the embankment, slope of the embankment) on three levels:
- No problem (marked 3)
- Existence of problems (marked 2)
- Danger (marked 1)

The average of these marks is made for each reservoir. It is considered that if a reservoir obtains an average lower than 2, it is urgent to repair it, but if its average therefore lies between 2 and 3, it can be maintained by an ordinary management work.

When talking of the small scale dams as for the weirs, of a situation requiring some urgent repairs, it is understood by there a situation in which problems of structure prevent the reservoir from fulfilling its function of dam or provisional reserve of water, or a situation such as if things remain in their state, the reservoir is likely to become completely out of use. In such a situation, the development of agriculture using the water of reservoir becomes problematic. It is considered, following the inventory study that 3 small scale dams out of 25 require some urgent repairs.

3.2.5 Objectives of the construction of water reservoirs at ends other than agricultural

As result of the inventory study, it is noted that there were two water reservoirs built having as main objective the watering of the animals. This concerns the reservoir of Jaja (of weir type) in Tahoua region and that of Bokologi (of small scale dam type) in Maradi region. These reservoirs are surrounded by lateritic stony grounds, which were at the beginning unsuitable for agriculture, and we can suppose that they will still continue to be used for the watering of the animals.

Photo3.2(3) Water reservoir of Jaja (of weir type) in Tahoua region, pictured in august 2006

3.2.6 Categorization

Based on the results of the analysis presented above, a categorization was carried out considering the current state of storage of the water reservoir (for the weirs, the state of the flooding zone). This categorization is based on two great divisions which are on one hand the reservoirs in a situation such that the water resources are usable for agriculture, and on the other hand the reservoirs for which the use is currently problematic or it will be in a few years. The water reservoir whose water

resources are usable for agriculture are also subdivided into small scale dams which retain surface water, and into weirs which give rise to a zone of flood. Thus a total of three categories of water reservoir were obtained (see figure 3.2 (5)).
The results of the classification according to these three categories of the 66 water reservoirs object of this study are found in table 3.2 (1).

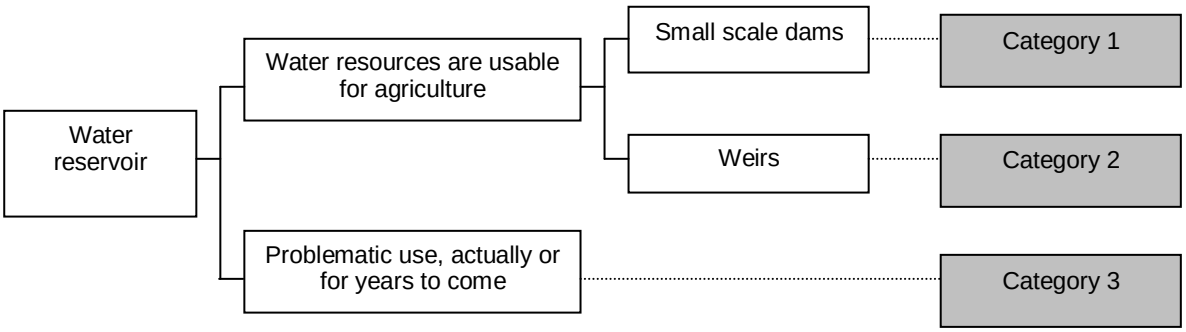


Figure 3.2 (5) Categorization of water reservoirs

Table 3.2 (1) List of the water reservoirs per category

Category 1	**Category 2**	**Category 3**	
Small scale dams whose water resources are usable for agriculture	**Weirs whose water resources are usable for agriculture**	**Water reservoirs for which the use of the water resources is currently problematic, or it will become in the future**	
Kongou Gorou (Ni, MB)	Molia (Ti, WEIRS)	Weirs with sand accumulation in less than 5 years	Boukari Koira (Ti, WEIRS)
Sorey (Ni, MB)	Bougiri (Do, WEIRS)		Farey Gorou 2 (Ti, WEIRS)
Tondibia Gorou (Ni, MB)	Kogarbeye (Do, WEIRS)		Farey Gorou 3 (Ti, WEIRS)
Bonkor (Ti, MB)	Tanda (Do, WEIRS)		Foneko (Ti, WEIRS)
Fanakoira (Ti, MB)	Akoukou (Ta, WEIRS)		Karta (Ti, WEIRS)
Gaigorou (Ti, MB)	Bourdi 1 (Ta, WEIRS)		Balideye (Do, WEIRS)
Kandoum (Ti, MB)	Bourdi 2 (Ta, WEIRS)		Koure Kobardeye (Do, WEIRS)
Husband (Ti, MB)	Chanyassou (Ta, WEIRS)		Malam Kadi (Do, WEIRS)
Sanam (Ti, MB)	Edir (Ta, WEIRS)		Roufai Kouara (Do, WEIRS)
Gombewa (Do, MB)	Edouk (Ta, WEIRS)		Tounga May Komso (Do, WEIRS)
Koré Bechemi (Do, MB)	Gadiyaw (Ta, WEIRS)		Downstream CRD (Ma, WEIRS)
Rouda Goumandey (Do, MB)	Grougoutourou (Ta, WEIRS)		Goumar (Ma, WEIRS)
Guidan Bado (Ta, MB)	Zongon Roukouzoum (Ta, WEIRS)		Kazazome (Ma, WEIRS)
Tarwada (Ta, MB)	Bakassombouba (Ma, WEIRS)		Sico-Niger (Ma, WEIRS)
Dan Lssa (Danja) (Ma, MB)	Beriberi (Ma, WEIRS)		Soura (Ma, WEIRS)
Rafin Wada (Ma, MB)	Iyataoua (Ma, WEIRS)	Small scale dams for which the period of storage lasts less than 6 months	Bartchawel (Ti, MB)
Tchidafawa (Ma, MB)	Kananbakache (Ma, WEIRS)		Hamagorou (Ti, MB)
	Koumchi (Ma, WEIRS)		Bouki (Do, MB)
	Magaagi Rogo(Ma, WEIRS)		Kalgo (Do, MB)
	Mili (Ma, WEIRS)		Koygolo (Do, MB)
	Roura(Ma, WEIRS)		Tchankargui (Do, MB)
			Toulmeye (Do, MB)
		Mark of the state of structure lower than 2	Aboka (Ti, MB)
			Djebou (Ti, MB)
			Tchantchergou (Ti, MB)
			Dan Gado (Ma, WEIRS)
		Objective of construction of water reservoirs at ends other than agricultural	Jaja (Ta, WEIRS)
			Bokologi (Ma, MB)
17	21	28	

（Ni:Niamey, Ti:Tllaberi, Ma: Maradi, Do:Dosso, Ta:Tahoua, MB: Small scale dam）

Chapter 4: Current state of the villages around water reservoirs and the constraints for their development

The categorization of the water reservoirs in chapter three was operated on the basis of the types of reservoirs, and use potential of the reservoirs in terms of agricultural use and also in terms of state of the structures and sand accumulation. In this fourth chapter the study the present situation of the villages surrounding the water reservoirs is done in the 5 regions, and the factors of constraint to the development, this study being necessary for the establishment of the "action plans for the endogenous rural development".

At the time of the study of inventory of water reservoirs, interviews on the situation of the villages and the use situation of reservoirs in the villages were carried out which, among the villages surrounding the water reservoirs (benefit villages) profited more of the reservoirs as regards agriculture. Within the framework of this study by interviews, the terms of "village surrounding the water reservoirs (benefit village)" were defined, of "site of water reservoirs" and "prevalent benefit village as regards agricultural use" in the following way:

Village surrounding the water reservoirs (benefit village): This term indicates a village in which people live and use the water resources of the water reservoir for agriculture, the animals or the daily life. They will from now on be indicated as "benefit villages of the water reservoirs"
Site of water reservoir: The unit consisted of the ground lodging the structure of the water reservoir, the area of the water reservoir (or flood) and the area in which the crops using these water resources are possible.
Prevalent benefit village as regards agricultural use: Village in which the peasants practising agriculture on the site of water reservoir are many.

Basing on the various studies carried out at the time of the first phase, and particularly on data concerning the use condition of reservoirs in the prevalent benefit villages, collected at the time of the study of inventory of water reservoirs, the present situation and the constraints to the development of the villages surrounding the water reservoirs were gathered in the following headings:

① Current situation of the practice of agriculture and constraints to development
② Current situation of marketing and constraints to development
③ Current situation of vulgarization and constraints to development
④ Current situation of the organizations and constraints to development
⑤ Use condition of reservoirs and constraints to development

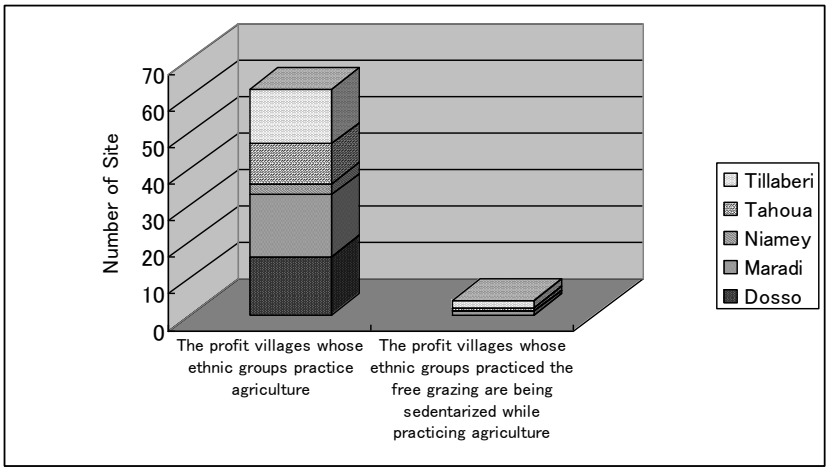
Now these various headings will be examined:

4.1 Current situation of the practice of agriculture and constraints to development

4.1.1 Ethnic composition of the prevalent benefit villages of the water reservoirs

The ethnic groups most represented among the prevalent benefit villages as regards agricultural use on the various sites of water reservoirs are the five following ethnic groups: The Songhay-Zarma ethnic group, the Haoussa ethnic group, the Peuhle ethnic group, the Touareg ethnic group, and the Dendi ethnic group. Among these ethnic groups, Zarma, Haoussa and Dendi are ethnics groups at the origin living mainly of agriculture, while Peuhls and the Touaregs live of breeding on free grazing land. In the last years, the reduction in the pasture lands made difficult the continuation of the free grazing, and the cases of nomads being sedentarized and practising agriculture are in increase. As shown in figure 4.1 (1), there are only 4 prevalent benefit villages out of 66 in which

ethnic groups which practised the free grazing are sedentarized and practise agriculture. The 4 reservoirs concerned are those of Edouk in Tahoua region, Mari and Tchatchergou in Tillabery region, and that of Bokologi in Maradi region. However, in the future, the extension of the arable lands will reduce spaces of pastures, it can be forecast that the cases of nomads being sedentarized to live of agriculture will be only increasing.



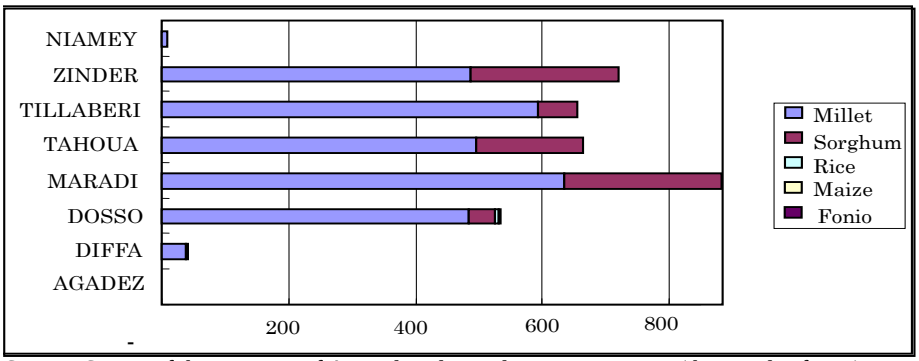
Source: Results of the study of inventory of the water reservoirs by the mission of the study

Figure 4.1(1) Ethnic group of the prevalent benefits villages in the 66 reservoirs

4.1.2 Rainfed agriculture

Current situation of the cereal production in the zone object of the study, these are the tendencies as regards consumption of cereals in the zone object of the study in the following way: Whereas it is the production of millet and sorghum which is invariably self-consumed in rural area, people living in towns eat much of rice and pastes, which almost always depend on the importation. In other words, while the agricultural activities practised in rural area aim at 100% food autonomy, people in towns have food practices which do not base on national agriculture, and this tendency is accentuated year after year.

Figure 4.1(2) presents the productions region per region area of main cereals in 2003. It is noted that millet and sorghum alone account for 99.7% of the whole cereal productions. The government also obviously concentrated its efforts on these two speculations, and research, starting with the National Institute of the Agronomic Research of Niger (NIARN) and the International Crops Research Institute for the Semi Arid Tropic (ICRISAT), develops in particular some new varieties and new farming techniques.



Source: Statics of the Ministry of Agricultural Development (thousands of tons)

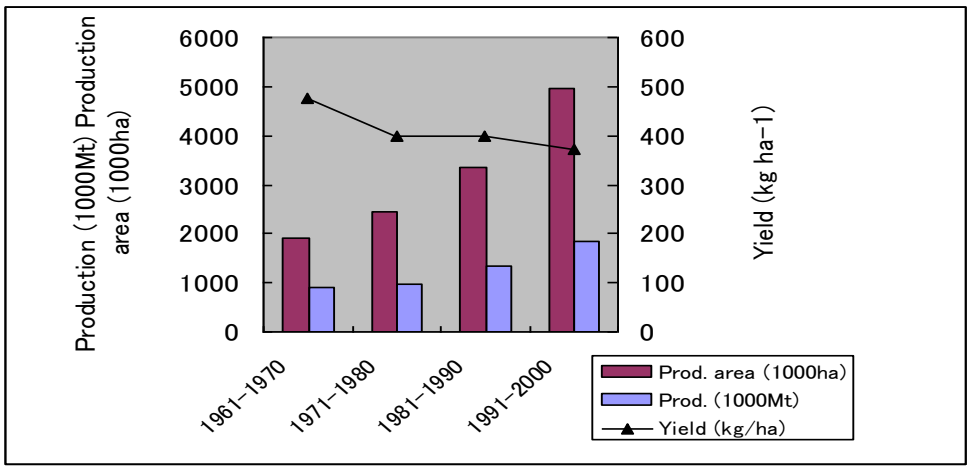
Figure 4.1(2) Cereal productions region per region in 2003

Millet, which is the most significant cereal in the zone object of the study, is almost entirely produced through rainfed agriculture during the rainy season. The institutes of research thus engaged in research aiming at variety improvement and the increase in the productivity, which made it possible to combine the extension of the cultivated surface areas with an increased productivity. Table 4.1 (1) compares the years 1983 and 2003 and shows that in spite of the more or less significant variations due to drought, in the twenty years space, the surface areas cultivated increased of more than 80 %, and harvests doubled more. However, as shown in figure 4.1 (3), the yields tend to decrease on the long term.

Table 4.1(1) Extension of the production and improvement of millet productivity in Niger

	1983	2003	Rate of increase
Cultivated surface areas (hectares)	3, 135,550	5, 771,293	+ 82.1 %
Production (tons)	1, 298,345	2, 744,908	+ 111.0 %
Yield (tons per hectare)	0.41	0.47	+ 11.4 %

Source: Final results of the crop year, Direction of the Food crops of the Ministry for the Agricultural Development

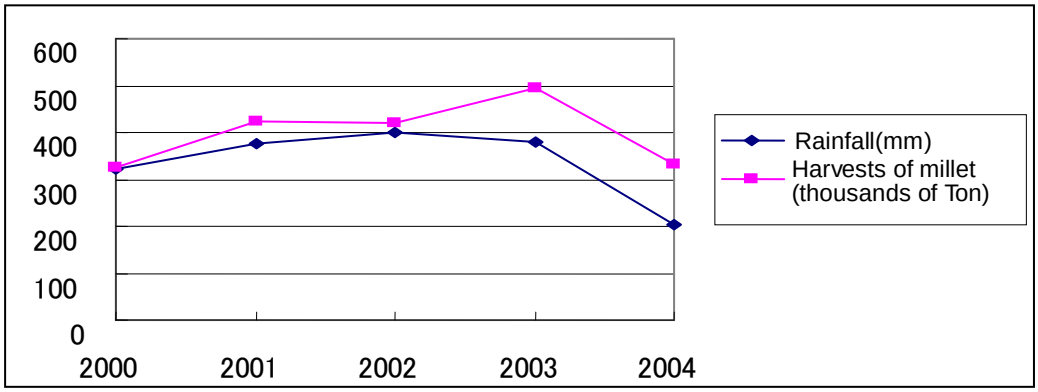


Source: FAO STAT 2004

Figure 4.1(3) Millet cropping areas and yields evolution

It has been shown in figure 4.1 (4) the relationship between rainfall and harvests of millet in Tahoua region. It was observed that these harvests vary significantly with rainfall. In addition to the decrease in rainfall quantities, rainfall distribution in [1]time and space is the source of additional difficulties.

[1] Rainfall distribution in time: situation of rainfall spacing, particularly at the beginning of the rainy season. This situation induces a big risk of losses of seeds after sowing. This leads to repeat sowing, but the short cropping period causes insufficient harvests.
Spatial rainfall distribution: During the short period drought of year 2004, data collected from certain places do reveal any tendency to drought. This is due to the fact that rainfall was concentrated to certain places inducing a situation in witch we have drought on one side of the hill and flooding on the other side.

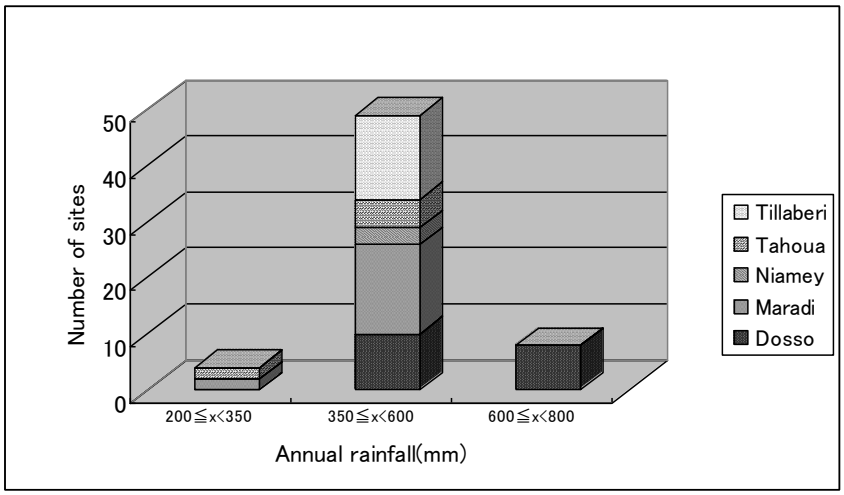


Sources: National meteorological station/ statistics of the Ministry of Agricultural Development

Figure 4.1(4) Relations between rainfall and harvests of millet in Tahoua region

Thus, cereal production, firstly that of millet depends above all of rainfall. Millet and sorghum was the subject of various variety improvements, of the introduction of new techniques, and some results were obtained on from the research, but if the necessary quantity of rainfall is not ensured, these assets lose all their direction. In other words, as regards rainfed agriculture, to ensure stable water is a significant problem.

According to results' of the study of inventory of the water reservoirs, annual rainfall on the level of the 66 reservoirs of the study varies between 200 and 800 mm. According to NIARN, the regular production of the millet requires a rainfall quantity of 400 mm. In addition, there are recently varieties which emerge with a rainfall quantity of 350 mm, we operated a classification of the zones according to rainfall by creating a first category going from 350 mm or more to less than 600 mm, this rainfall allowing a good growth of millet, and two other categories: less than 350 mm and 600 mm or more. As shown in figure 4.1 (5), it is noted that 47 sites out of the 61 which were the subject of the study, i.e. 80 % approximately of them, are included in the category going from 350 mm or more to less than 600 mm. The sites experiencing rainfall quantity equal or higher than 600 mm are 8 that all located in Dosso region.



NB: These 61 reservoirs represent the 66 reservoirs of the study area; we have not data concerning the 5 remaining reservoirs (Akoukou, Chanyasou, Gadiyaw, Grougoutourou and Jaja)
Source: Results of the study of inventory of water reservoirs by the study mission

Figure 4.1(5) 61 sites of water reservoirs per region and per category of rainfall quantity

Within the framework of rural development plans in Niger, and particularly in the field of agricultural management, some supports are already put in work by other financial donors, in particular in terms of introduction of new varieties resistant to drought, supply of fertilizers and pesticides, conservation of soil fertility through the organic contribution of manure. However, if these introductions of techniques are carried out on the basis of insufficiently reflected decision, if only there is a lack of rainfall they will fail and the project is paralysed, this implies the loss of the funds engaged by the populations and their demotivation. It is necessary, as assisting partners, to sufficiently consider this point.

Actual case 1
The voice of the peasants
Site: ZONGON ROUKOUOUM (Tahoua region)/Village of origin: ROUKOUZOUM/ Male (54 years) cultivated Surface area: approximately 6 ha/ Crops: Mixed cultivation (millet and sorghum) /Period of sowing: At the end of May 2006
Type of land property: Individual possession by heritage/Objective of the rainfed agriculture: subsistence farming, it is rare that the production is for sale.
Harvest envisaged: If the conditions are good, 200 to 250 bunches, if they are unfavourable, from 60 to 70 bunches. (These quantities correspond to 1 to 3 tons and half after threshing.)
Conditions for cropping: the success or the failure of the rainfed agriculture, millet, etc depends mainly on rainfall.
Agriculture other than the rainfed agriculture: Previously crops onion during the dry season, but now stopped. The years of insufficient harvests, gone for migration.
Question: A part form rainfall, what are the other factors conditioning the cropping during rainy season?
Answer: There are many small problems, but no matter what one does, if it does not rain, nothing can be done.
Q.: Have you think of introducing drought resistant varieties?
A. Not me, but many persons try it. Finally, the years when there was a drought, there was almost no difference. If funds are invested and that we do not observe a difference, the funds are wasted. Therefore, me, I am happy like that.
Q. Did the rise of the underground water table due to the construction of the dam have an effect on rainfed agriculture?
A. It is said that for a part, moisture (in soil) increased and that cropping is easier, but on another side, the cropping became difficult with the excess of moisture (flood).Millet fields were transferred around the flooded area, on the hills, and in the previous fields, We crop tomatoes (Flood recession farming).
Q. You say that you previously practised gardening, but what are the negative factors which led you to stop?
A. As the piece of land is far, it is not easy to go there (depreciation).Lack of information on the market, farming techniques. Instability of the market price and marketing.
Q. Do these constraints have a direct effect on your life?
A. If harvests are bad; it becomes essential to find incomes during the dry season. I cannot feed my family with gardening which is unstable.

4.1.3 Dry season agriculture

(1) Irrigated agriculture

Table 4.1 (2) presents for year 2003-2004 the surfaces area used for irrigated agriculture in the areas object of the study, as well as the number of sites and producers concerned. From this table the following conclusions came out:

- In Dosso region, the average surface area used for irrigated agriculture per site and per producer is low, and the farmers are done on a small scale.
- The extent of the sites is significant in Tahoua region, just like the average surfaces area per producer that the establishment of irrigated agriculture, as well as the mechanization of irrigation equipment is relatively advanced there. The prosperous of flood recession farming[2] is assumed to be a factor of increase in the average surface area.

[2] During an interview investigation carried out in Tahoua region, answers indicated that the surface area of the arable lands by one producer with irrigation using a swamp was about 0.05 hectares.

- The average surface areas are significant also in Tillabery region, but in a context of population density, migration, lack of interest tested for gardening, it is difficult to affirm that the establishment of the irrigated agriculture in this region is as advanced as in Tahoua region.

Table 4.1(2) Surface areas used for irrigated agriculture per region (2003-2004)

Region	Number of sites	Cultivated surface areas	Number of producers	Average surface area (ha)	
				Per site	Per producer
DOSSO	244	2,879	16,880	11.8	0.17
MARADI	120	3,245	9,726	27.0	0.33
TAHOUA	308	16,498	34,289	53.6	0.48
TILLABERY	434	15,149	29,469	34.9	0.51

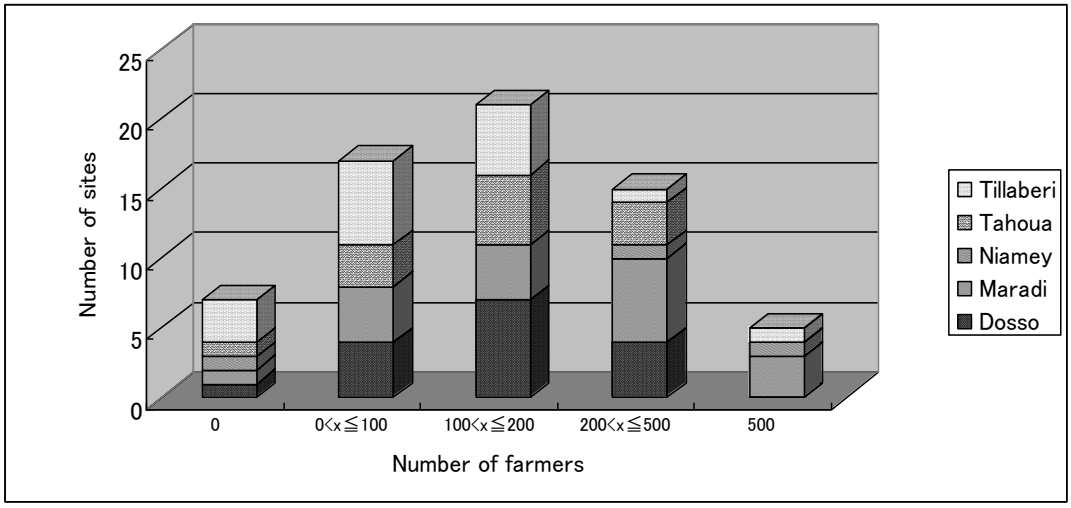
Source : Preliminary evaluation of dry season irrigated agriculture 2003-2004/Direction of food crops of the Ministry of agricultural Development

The characteristics of each region as regards irrigated agriculture were analyzed on the sites of water reservoirs. The sites of the 66 water reservoirs were classified into categories according to the number of farmers, the acreages, the acreage per person, the rate of surface area really cultivated compared to the irrigable surface area, and represented in the form of graph the number of sites of each category, region per region, in figures 4.1(6) to 4.1 (9).
Starting from these graphs the following points were elucidated:

- In Dosso region, the sites for which the acreages are among 0 hectare and those for which they are of 10 hectares to more are 7 in number for each one of these two categories, and they thus represent 87 % of the whole of the 16 sites object of the study in Dosso region. In addition, the sites for which the really cultivated surface areas represent 0 % of the surface areas usable for irrigated agriculture are 7 in number, and the sites for which the really cultivated surface areas represent less than 50 % of the surface areas usable for irrigated agriculture are 8 in number, which represents for the total of these two categories 93 % of the total. The sites for which the number of farmers ranges between 100 and 200, and for which the exploited area per producer ranges between 0 and 0.1 hectare are in great majority. It is deduced from it that the acreages on the sites of water reservoirs of Dosso region are of small extent and that each farmer is done on a small scale, on a model of subsistence farming. Moreover it is supposed that the functionality of the reservoirs not being satisfactory (see chapter 3); the agricultural development is not carried out in conformity with the plans of irrigated agriculture of the water reservoirs.
- In Maradi region, the sites for which the acreages range between 10 and 50 hectares are 6 in number, those for which they range between 50 and 100 hectares are 5 in number, and together, these two categories add up 64 % of the 17 sites object of the study in this region. In addition, the sites for which the really cultivated surface areas represent 50 to 100 % of the surfaces usable for irrigated agriculture are 7 in number, and the sites for which the really cultivated surface areas represent more than 100 % of the surfaces usable for irrigated agriculture are 5 in number, which represents for these two categories 70 % of the total. The sites for which the number of farmers is equal or higher than 200, and for which the exploited surface area per producer range between 0.1 and 0.5 hectare are in great majority. Therefore it is deduced from that the acreages on the sites of water reservoirs of Maradi region are of significant extent, the farmers are cultivated with the main objective of marketing of the production, and the agricultural development is almost undertaken in accordance with the plans of irrigated agriculture of the water reservoirs.
- There are 3 water reservoirs of the small scale dam type in Niamey region. For one of them, that of Sorey, as an owner monopolized the whole of the zone in which irrigated agriculture is possible and practices mango cropping, gardening is not practiced by several farmers. The acreages around the reservoir of Kongou Gorou reach the significant figure of 200 hectares, the acreages around the reservoir of Tondibia Gorou are of an average extent (50 hectares) and on

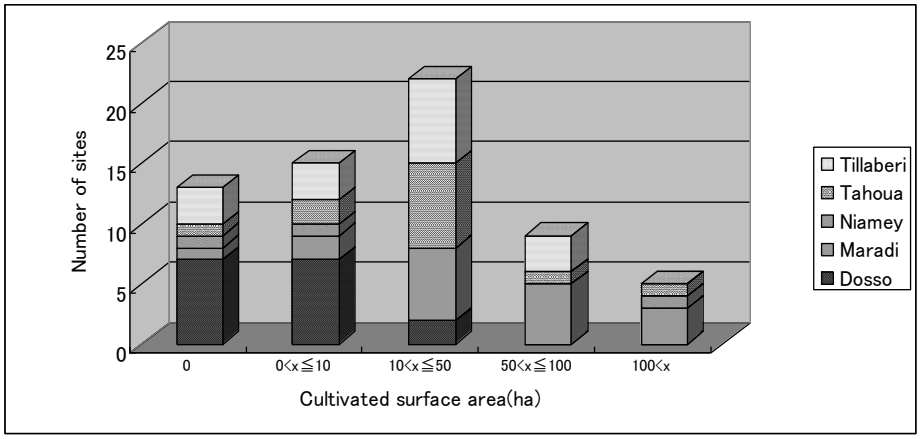
these two sites, a typical intensive agriculture of the proximity of the large cities is practiced there due to the significant assets offered by the town of Niamey. Thus it is advance that, in these two sites, the agricultural development is undertaken in accordance with the plans of irrigated agriculture of the water reservoirs.

- In Tahoua region, the sites for which the acreages range between 10 and 50 hectares are 7 in number, which represents 58 % of the 12 sites object of the study in this region. In addition, the sites for which the really cultivated surface areas represent from 50 to 100 % of the surfaces usable for irrigated agriculture are 6 in number, and the sites for which the really cultivated surface areas represent more than 100 % of the surfaces usable for irrigated agriculture are 2 in number, which represents for these two categories 66 % of the total. The sites for which the number of farmers is equal or higher than 200, and for which the exploited area per producer ranges 0.1 and 0.5 hectare are in large majority. It is deduced from it that the acreages on the sites of water reservoirs of Tahoua region are of average extent, that the farmers are cultivated with the main objective of marketing of the production, and that the agricultural development is almost undertaken in accordance with the plans of irrigated agriculture of water reservoirs.
- In Tillabéri region, the sites for which the acreages range between 10 and 50 hectares are 7 in number, which represents 43 % of the 16 sites object of the study in this region. In addition, the sites for which the really cultivated surface areas exceed 50% of the surfaces usable for irrigated agriculture are 8 in number, which represents 50 % of the total, but on another side, there are 4 sites which are not cultivated. The sites for which the number of farmers ranges between 100 and 200, and for which the exploited area per producer range between 0 and 0.1 hectare are in large majority. It is deduced from it that the acreages on the sites of water reservoirs of Tillabéri region are of average extent, that the farmers are cultivated with the main objective of marketing of the production, and to suppose that the functionality of reservoirs not being satisfactory (see the categorization of the reservoirs in chapter 3), for half of reservoirs of the region, the agricultural development is not carried out in conformity with the plans of irrigated agriculture of water reservoirs.



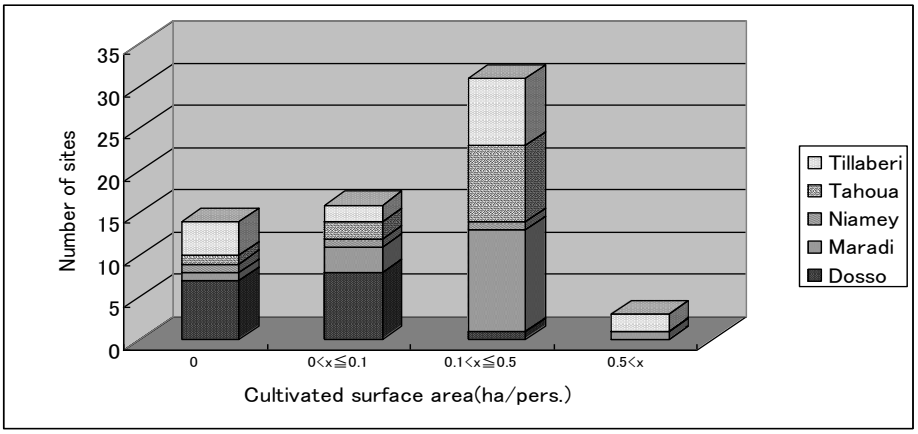
NB: 66 sites a part from that of Molia actually in construction for which no data is obtained
Source: Results of the inventory study of the water reservoirs carried out by the study mission

Figure 4.1(6) Numbers of farmers per region on 65 sites of water reservoirs



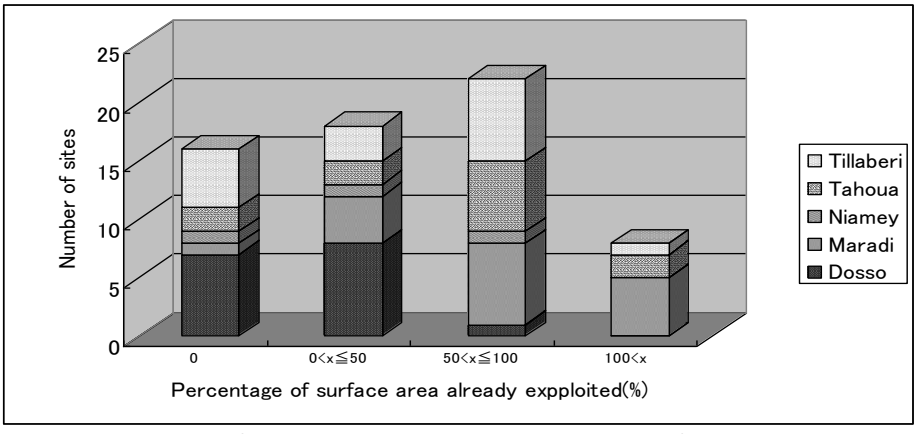
NB: The sites of Danja and Molia were not considered because of the lack of data
Source: Results of the inventory study of the water reservoirs carried out by the study mission

Figure 4.1(7) Surface areas exploited per region in 64 sites of water reservoirs



NB: 66 sites excluding that of Molia and that of Danja actually in construction for which no data is available
Source: Results of the inventory study of the water reservoirs carried out by the study mission

Figure 4.1(8) Surface areas cultivated per farmer in 64 sites of water reservoirs, region per region



NB: 66 sites excluding those of Molia and Danja actually being constructed for which no data is available
Source: Results of the inventory study of the water reservoirs carried out the study mission

Figure 4.1(9) Percentages of surface areas already exploited in 64 sites of water reservoirs, region per region

Irrigated agriculture takes two forms according to the type of water reservoir. The first form, which is found around the small scale dams, consists in using the zone downstream of the dam and irrigating using the water of the dam. The other, which was found around the weirs, is practiced around the zone of flood recession farming using the subsoil waters which come up from the weir. Although there are more or less significant differences between these two forms of irrigated agriculture concerning the irrigable surface areas and the modes of irrigation, for the other aspects of cropping methods, they are basically the same. The characteristics of the irrigated agriculture in the zone object of the study are as follows:

- The irrigation by channels is generally practiced
- There are traditional wells and concrete modern wells, but as regards pumping out, many peasants use buckets or water-bottles to draw water.
- In result of this manual drawing up, there is some little dimension pieces of land that approximately 5 are considered to be a limit for the watering activity.
- Thanks to financial backers like NAPSSI (National Association for the Promotion of Small Scale Irrigation), the motor pumps, the manual pumps and the pedal pumps are partially diffused, but the producers are confronted to significant problems to get the fuel, and to have access to the technicians and the necessary parts for the maintenance of the pumps. These difficulties are particularly sensitive in the distant rural areas.
- As regards irrigation by motor pump, the method known as "Californian" which uses PVC buried pipes is recommended.
- Whereas in Senegal, the introduction of performing varieties (for example the F1 varieties) is actively being done, in Niger, the use of seeds produced is encouraged, and even some institutes of research like ICRISAT organizes training on seed production intended for the general public.

(2) Flood recession farming

The method consists to increase the zone of flood by means of a weir to stimulate the underground infiltration of water upstream of the weir and to raise the water content of the ground, and to sow or replant according to the shrinking of water. This mode of cropping is also practiced under natural conditions in the plains of flood of ponds and rivers. The crops are sweet potato, tomato, okra, pigeon pea, cowpea, etc.

These are the characteristics of flood recession farming:

< Positive points >

- As the watering activity is no longer done, with little labour it is possible to cultivate to a significant extent.
- Women can easily practice these cropping.
- With the specific flood and the force of flow, the superficial soil layer is renewed preventing from salt accumulation, while the rains allow the contribution of organic elements from surrounding heights.
- Secondly there is also a fall of the risk of appearance of diseases due to the impoverishment of the soil. It is also hoped for a reduction in the investments in pesticides, fertilizer, seeds, etc through the seed production by farmers, and the renewal of the soils.
- This farming mode is basically close to the extensive agriculture, and quality is not good, but as the exchanges practiced on market consider first the quantity compared to quality, a demand exists for the processed products, in particular dried vegetables, and the products of low quality are sufficiently marketable.

< Negative points >

- The rate of withdrawal of subsoil waters and soil moisture depends strongly on pedology and topography, and it is thus difficult to envisage the effective cropping period (the risks of draining during the second part of the cropping period are significant)

- In general, as regards flood recession farming, since it is necessary to resist the drought and the fall of the level of the water table, we dig deep holes (30 to 40 cm) to replant, which facilitates the appearance of damage to the growth caused by the lack of sun rays or the excess of moisture at the beginning of cropping (reduction in quality, reduction in harvests)
- Techniques with weak investment and poor yield are already established, and there are considerable probabilities that the introduction of new techniques do make only the investments to increase without any advantage (the possible improvements are extremely limited).

4.1.4 Constraints as regards management of agriculture

According to interviews' of 20 peasants carried out at the time of studies on field, the constraints as regards management of agriculture are as follows (answers common to many questioned peasants):

- It is not possible to acquire the inputs (fertilizer, pesticides, etc.) at the desired moment. The irrigation equipment being insufficiently functional, there is no sufficient water.
- There is no knowledge on the diseases and the measures to be taken against them.
- New varieties and new techniques have always been introduced, but they fall, and as the reasons of this failure are not understood, we do not continue and we return to the previous varieties and techniques.
- The necessary information is not available
- The seeds produced by farmers are of bad quality (defect of maturity, mode of conservation, infections etc.)

To this question: "What is the difference between urea which is a fertilizer often used and the artificial fertilizers composite (N-P-K, etc.)"posed to measure basic knowledge of the peasants as regards agricultural management, the majority of the expressed opinions said "There no difference (I do not know) "or" the urea works well, composite fertilizers are bad ", but in an advanced site on which the establishment of onion cropping is well improved, (the site of Guidan Ider of the Inputs Project) the peasants actually all answer "urea has an immediate effect, and the onions grow fast. With compound fertilizers, the onions grow less quickly but there are quite firm onions, which are preserved better "thus going until indicating the difference to the level of the productions.

Moreover, for the question "Do you think that it is suitable to use pesticides and artificial fertilizers?" a part from the advanced site, the majority of the questioned peasants answer affirmative and seem to think: "In the case I could gain some (that is not possible, mainly for economic reasons), I would like to acquire some as much as possible". Conversely, in the advanced site, the peasants make the distinction between the inorganic fertilizers, composite fertilizer and organic fertilizes (mainly farm yard manure), and the concept of soil fertility preservation is partially understood.

Among the constraints described above, the insufficiency in absolute quantity of irrigation water was quoted, but to the question "Do you do some water economy?", all the questioned persons answered" not ", the majority of them justifying this response by saying that" if there is an economy of water harvest will drop ".

Thus, the introduction of new adapted techniques is confronted to significant differences in terms of comprehension and fundamental knowledge on crops, between the villages in which the establishment is well advanced and those in which it is late and these differences are found in the differences in productivity at the end.

On the basis of this information we classified in the following way the constraints to which agriculture (in general) in the zone is confronted:

- It is necessary to arrange the irrigation equipment, but even in the sites where the equipment is introduced, the problems caused by the introduction of materials which do not correspond to wide extent of cropping and the problems of maintenance remain numerous.
- The self production of seeds is excellent from the economic point of view, but on the other hand, these seeds have a low resistance to the diseases, what was partially the source of serious reductions in harvests.
- The concept of water economy is not very widespread on the sites, and the modes of cropping with water economy are difficult to practice with the present use of the open channels.
- It is urgent to stabilize the supply and to lower the prices as regards materials and inputs, but the introduction of methods of effective use of pesticides and fertilizers is not practiced simultaneously.
- The peasants do not have knowledge as regards harmful insects and treatment.
- Moreover, they lack of the minimum necessary basic knowledge on crops which would make it possible to understand the points referred to above.

< Points asking for a particular attention >

①As the contributions in terms of new techniques and new varieties induce a fall of the desire for progress to the peasants if their effect is not perceptible, and as they can represent an economic load for themselves, they should be handled with care.

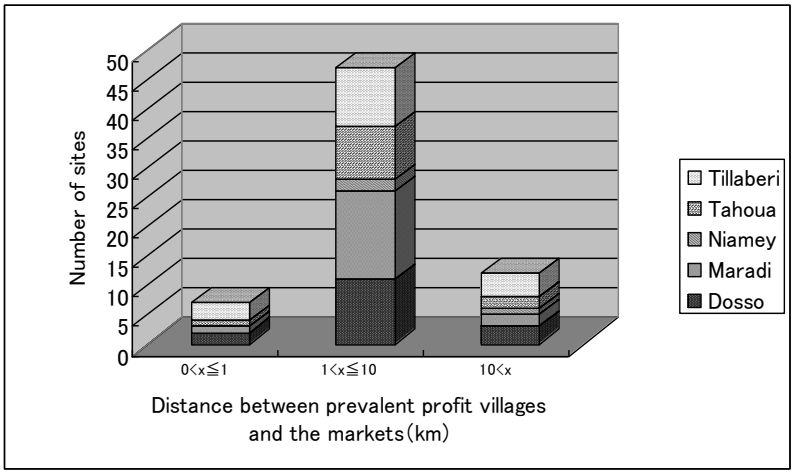
②To introduce knowledge, it is necessary to give the explanations by using a comprehensible language even for the illiterate peasants.

③Although not appearing among the constraints enumerated above, the inorganic fertilizers and the non controlled use of irrigation water can have a considerably harmful effect on the environment, And it is thus necessary to exert an active supervision that how to use their.

4.2 Present situation of marketing and constraints to development

4.2.1 Outdistance market and numbers sites of works of water reservoir

As the distance between the market where the productions can be marketed and the sites of water reservoirs are an element significant to take into account as regards marketing, figure 4.2 (1) presents the relations of distance between the prevalent benefit villages as regards agricultural use of the water reservoirs and the markets. These distances were divided into three categories which are: In the village (1 km and more), 2 hours of walk to more (from 1 to 10 km), more than 2 hours of walk (more than 10 km).According to the graph, the villages which have a market in the village represent 10 % of the total, those for which the market is at two hours of walk and more represent 71 %.Thus approximately, 8 out of 10 of the prevalent benefit villages of the water reservoirs have a market allowing the marketing of the productions of reservoirs at a distance reach by foot. However, it is the supply and the demand that decide if the transactions are done or not, and the presence of a market does not automatically guarantee a profitability from the sale of the productions.



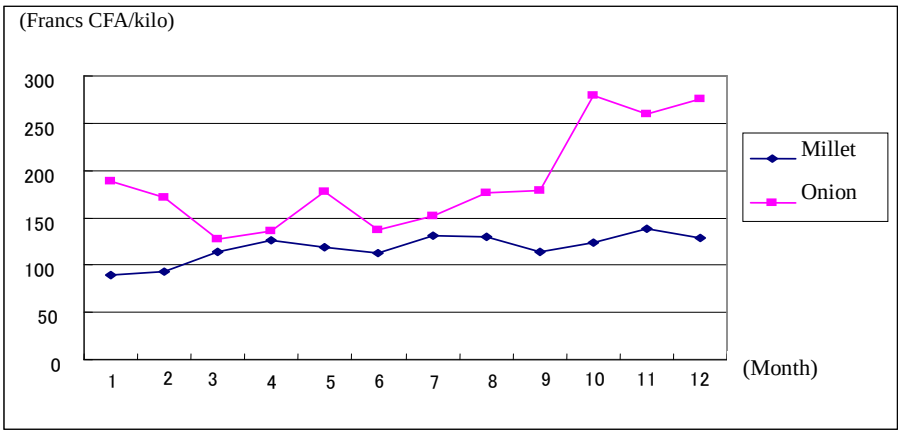
Source: Results of the inventory study of the water reservoirs carried out by the study mission

Figure 4.2(1) Number of sites per category of distance between the prevalent benefit villages and the markets, region per region, for all 66 the water reservoirs.

4.2.2 Current situation of marketing

Among the agricultural productions in the zone object of the study, the onion is a production which is sold well in Niger and abroad and which is of a very good profitability. Its cultivation is particularly concentrated in the southern zone of Tahoua region, but it is also largely cultivated in other zones. Onion cultivation is done in general during two seasons, the first season going from September to January, and the second from January to April. The period between April and August sees the rainy season succeeding heat, and is not favorable for onion cultivation which is very sensitive to heat and moisture. Moreover during the rainy season, work concentrates on the rainfed cultivation, in many places those of millet and sorghum and in certain zones those of corn, rice or of cowpea etc.

Figure 4.2(2) represents in the graphical form the evolutions over the year of the price of millet and onions by the producers, and it is seen there that the prices of onion, which is hardly preserved during the rainy season, go up in second half of the rainy season, in September-October, that this rise culminates by January, right before the first harvest, and that the lowest prices are recorded in April, during the second harvest.



NB: The price of millet in the town of Maradi was retained (Maradi region), where millet production is most abundant, and the price of onion sold by the producers in Tsernoua in Tahoua region, where onion production is most abundant

Source: Annuaire des prix des produits agricoles 2004/Système d'information sur les marchés agricoles (SIMA)

Figure 4.2(2) Evolutions year round of the price of millet and onion on producer's level (2004)

This graph does not show it, but the interviews on field indicate that in early January, it sometimes happens to the peasants to claim 45.000 to 50.000 francs CFA for a bag of 80 to 100 kilos of onions, i.e. a price equal or higher than 550 francs CFA the kilo. Moreover, just like in Japan, the variations of the prices of vegetables are significant, and it is not rare to pass in a few days from simple to the double, to even multiply the price by 3 or more. At the time of the purchase of the food products, i.e. at the time of their sale from the point of view of the producers, the one that is well informed is able to carry out advantageous negotiations. Thus for the peasants who produce in zones far away from the large axes and who do not have means of movement; this point strongly does not suit them. On the sites considered as advanced, in addition to the advantages due to the excellent geographical conditions and the presence of warehouses for the conservation, through registering in books of the last transactions and data on the buyers, information is capitalized and used for the following negotiations.

On another side, among the constraints to profit cultivation centered on gardening, the fact that a local market (near the site) is not yet developed. In other words, as the capacities for absorption of the supply in vegetables around the site are limited by the weakness of the involvement of vegetables in the local food practices, it is frequent to have possibility for sale only towards the distant markets. In this case the sale depends on the professional buyers and it becomes impossible to implement the cultivations in a planned way.

Actual case 2

Within the framework of the Inputs Project, a support is brought to the construction of warehouses for the conservation of harvests and to the activities of conservation of harvests by the organizations of populations. The warehouses which we visited are built by the populations with materials provided by the project. They were built in theory traditionally. According to leaders' of the groupings practicing the activity, there was already an operation of conservation of onions and an operation of conservation of millet. These two operations aimed at optimizing the sale (waiting for the rise of the prices), but, mainly because of water from rainfall leakages in part of the warehouse, they failed. The peasants, firstly the leaders react as follows:

"The two failures which we knew left of the debts to many peasants, but I think that they have allowed us in the same time to understand the real advantages and disadvantages of this system. We had a number of discussions to know if we were going to continue or not. At the beginning, many were of the opinion that it was necessary to stop, but contrary, the failures which we knew allowed us to understand the problems well, and we will be able to make a success next time", In addition the organizer which supports the same grouping (an agent of the Ministry of the Agricultural Development, currently carrying on its activities with the support of SNV (Duchland Development Organization) expresses him self as follows:

"Since the peasants had made some debts, at the beginning of the discussions, the idea to stop all prevailed. However, the causes of the failures were released little by little, some certainties were done on what it was necessary to do, and the peasants understood that they could do all that on their own level. The peasant confidence in them on the contrary was reinforced."

4.2.3 Constraints to marketing

Basing particularly on the results of field surveys which we undertook until now, the following constraints to marketing were released:

- The infrastructures and the means of collection of information which would make it possible to optimize the transactions are insufficient.
- The local markets (on or near the sites) as regards productions of the profit cropping such as vegetables are not yet arranged, and we cannot hope for a stable consumption.

Among these constraints, those concerning the installation of equipment (infrastructures) of marketing brings us, within the framework of our study, to aim so that "for the infrastructures requiring some investments, on the basis of examination of the present situation of the site and of its possibilities, plans are established by the organizations of populations, and that these plans are carried out in collaboration with other financial backers". Moreover, there are high probabilities that many infrastructures of marketing are heavy infrastructures, and are not realizable with the only

funds of the populations (roads and tracks, arrangement of markets, equipment of conservation, etc.).In other words, this point must be included in the improvement of the capacities as regards establishment, execution of plans of organizations of populations, rather than considered in terms of constraint to marketing.

Actual cases 3 the purchase of the productions by the local tradesmen

For the sites whose access is difficult due to the distance to the major roads, some local tradesmen play the role of intermediaries between the buyers of the productions and the producers. These tradesmen make an estimate of harvest before even the installation of the crops and sign with the peasants some cropping contracts at low prices. The prices proposed are definitely lower than those generally practiced at the time of purchases in villages of easy access, and in February 2006, an onion bag was sold at 7000 francs CFA in a village giving on a tarred road, while the tariffs of the contracts signed in a village of difficult access were a few 3000 francs CFA.

Riding these lines we could think that they are merchants without scruples which press the peasants, but the fact that the difficulties of access prevent from ensuring the stable way of sale is also valid for the merchants. We can however think that they are in a somewhat advantageous situation vis-a-vis the peasants, insofar as they have their own distribution network, and that they are accustomed to the trade.

What do the peasants think about now? As the local tradesmen agree to advance them on the amount of the contract, they can devote these funds to the acquisition of inputs and the maintenance of their family. Moreover, they do not have to face the risk to have to sell their production themselves. It is said that among the tradesmen some reflect part of their profits on to the producers if these productions were resold at a handsome price.

It is thus observed that what could at first sight be regarded as an farmer by the tradesmen can, if the thing is dug, being described like a rational system adapted to the situation of the two parts. However, as it seems that there are also tradesmen whose practices are really close to the exploitation, it is necessary for all to analyze and check the things.

4.3 Present situation of extension and constraints to development

4.3.1 Number of the extension agents

There was no more recruitment of civil servant in Niger since 1992, there was the satisfaction to recruit specifically some agents under contract, and the number of agents of the Ministry of Agricultural Development is also on a tendency of reduction.[3] Table 4.3 (1) and figure 4.3 (1) present the evolution of the number of agents of the Ministry of Agricultural Development from 1999 to 2002. The agents of the basic extension agents' level (categories B1, B2, C1) represent about half of the whole of the agents of the ministry. In the 5 regions which are the subject of the study, the number of the basic extension agents tends to drop, but this tendency is particularly marked in Tillabery and Tahoua regions.

Table 4.3(1) Evolution of the number of agents of the Ministry of Agricultural Development between 1999 and 2002

Year		1999	2000	2001	2002
Total numbers of agents of the Ministry of Agricultural Development		1,241	1,648	1,410	1,121
Basic extension gents	Total of the 8 regions of the study	615	754	656	542
	Dosso region	85	81	69	45
	Maradi region	94	116	105	83
	Niamey region	28	38	17	19
	Tahoua region	136	110	103	78
	Tillabery region	88	96	77	55

Figures calculated on the basis of data from the Administrative and Personnel office of the directorate of Administrative and Financial Affairs of the Ministry of Agricultural Development

[3] The government decided to take the recruitment of civil servants in 2006.
The council of ministries decided that recruit 2000 civil servants in July 14 2006,30% would be of category A, 60% of category B, and 10% of categories C and D. (Newspaper" The Sahel" July 17, 2006)

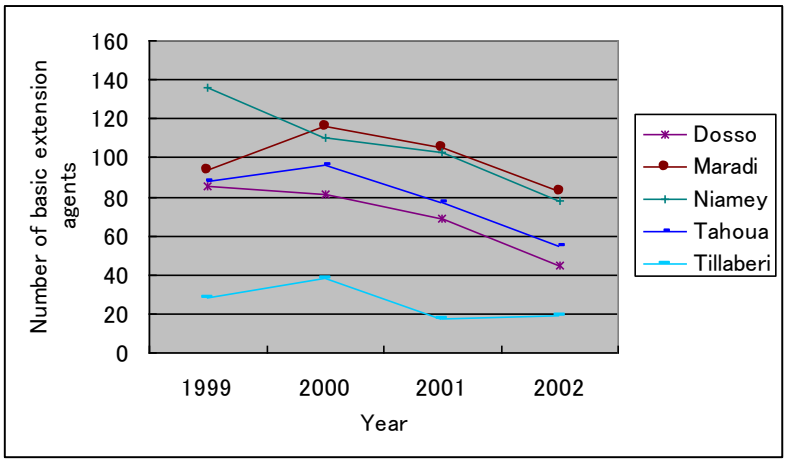


Figure 4.3(1) Evolution of the number of basic extension agents in the 5 regions object of the study

The basic extension agents are distributed according to districts' which are an old administrative division of the territory (these districts do not correspond to the communes installed since 2004). These extension agents are not replaced after the holidays of post office due in particular to their departure in retirement, and many are the stations which exist but in which nobody is affected. The situation of assignment of the basic extension agents in July 2006 is presented in figure 4.3 (2). Niamey region a part, the situation of assignment of the extension agents is insufficient, in particular in Tahoua region where the number of occupied stations is less than 40 %, and this situation makes that difficult to affirm that the extension system is sufficient.

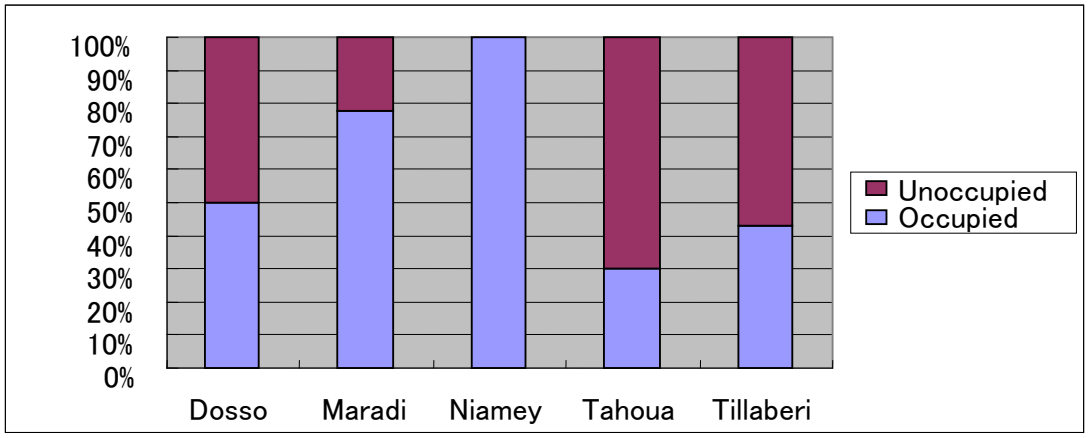


Figure 4.3(2) Situation of assignment of basic extension agents of the Ministry of Agricultural Development

4.3 2 Relationship between the villages and the extension agents

If the case of Niamey region is put aside, which is particular insofar as it is about the capital of the country, and if the 4 regions are thus compared, the average number of villages covered by an extension agent is on average of 30 villages in the zone of the study, and there is no many differences from one region to another. However relating the comparison on the average surface area per extension agent, the average surface area covered by an extension agent in Tahoua region is of 2.362 km², that is to say four times as much as in Maradi and Dosso regions, and twice as much as in Tillabery region, it means that an agent of Tahoua region is responsible alone of a very wide zone.

Table 4.3(2) Relationship between the number of basic extension agents and the number of villages in region of the study area

Area	Number of basic extension agents	Number of villages (administrative villages)	Surface area (km²)	Number of villages per extension agent	Surface area covered per extension agent (km²)
Dosso	45	1,444	33,844	32	752
Maradi	63	2,264	41,796	36	663
Niamey	16	12	255	1	16
Tahoua	48	1,581	113,371	33	2,362
Tillabéri	59	1,735	97,251	29	1,648
Total	231	7,036	286,517	30	1,240

Source: Results of the general census of the population of 2001:The number of villages is calculated by adding the data of the general census with the population of 2001.The number of agents popularizes is that of the agents of the Ministry for the Agricultural Development of the classes B1, B2, C1 in 2004.

4.3.3 Extension activities

The main activities of the basic extension agents are concentrated on the data acquisition for the statistics mater in particular of cereal productions. They collect these data near "contact groups" or near "contact producers". The contact producers are mainly landowners or great peasant families. The extension activities are also by principle exerted towards the contact groupings and the contact producers. However, lack of funds for displacement, the significant extent of the zones covered by the agents make that the technical supervision is not carried out actively. The peasants who profit, neither directly, nor indirectly of the supervision of the basic extension agents are appointed under the term of "Not supervised Producing Village"

It is frequent that the technical supervision in the zone of responsibility of the agent is carried out only within the framework of a service financed by a project of the financial backers, and it was perceive on the level of the government services an attitude which consists in undertaking the extension activities if a special budget is set up for that. In addition, the distributions of seeds within the framework of emergency aid are also ensured by the basic extension agents.

4.3.4 Constraints to extension activities

The four great constraints to extension activities in the study area are:

① lack of contacts of the basic extension agents with the peasants in terms of technical extension
- The tracks of access to the villages are not arranged, and the basic extension agents have difficulties in going in the villages (especially during the rainy season)
- The total number of basic extension agents is insufficient, and at the same time, the travelling expenses which are allocated to them are limited.

② lack of functional extension support i.e. Audio-visual equipments

③ lack of receptivity of the peasants towards the techniques
- Their literacy rate is weak
- Their comprehension of the concepts necessary for the acquisition of the techniques (in particular the concepts of surface area and distance) is insufficient, which limits the communication of the techniques.
- The peasant organizations are insufficient
- As the peasants do not have own capital stocks, and as the unit of micro credit are not sufficiently functional, the funds for agricultural management are lacking.

④ lack of organized process as regards extension
- The exchanges between basic extension agents are insufficient.
- The coordination with the NGO is insufficient.

4.4 Present situation of the organizations and their constraints

4.4.1 Present situation of the organizations

Among the organizations of populations in the rural areas of Niger, there are all kinds of forms, but they are divided into two great types according to their objectives, with on one side the organizations of individual interest and on the other the organizations aiming at the interest of a community as a whole. Here are now the differences between these two types of organizations:

Table 4.4(1) Type of organizations and their characteristics

Type of organization	Characteristics	Examples of organizations
Organizations of individual interest	These organizations undertake activities turned towards the improvement of the incomes of the individuals. The number of recipients in the community is limited.	Agricultural cooperatives, pastoral co-operatives, female, associations, cooperative of irrigation management, land property unions, management of the micro credit, cereal banks, etc.
Organizations aiming at the interest of a community as a whole	These organizations aim at the interest of a community as a whole, through education, health, water, the natural resources management, etc. The number of recipients in a community is extremely broad.	School management committees, health committees, Water management committee, committee of natural resources management, village development committees, etc.

A detailed study was undertaken on the organizations in a total of 16 neighboring villages of the water reservoirs in the study area, through a "socio-economic study of the villages" and individual interviews, and the total number of existing organizations noted is 96. In the villages having few organizations, there were only 2 of them, in the most provided villages, 10 organizations were found, and the average number of organizations per village was 6.

Among those, there were 26 organizations of individual interest, and 67 organizations of Community interest, and it is seen that the number of organizations of individual interest is significant. However the number of members per structure is less significant for the organizations of individual interest. The most numerous organizations are those in connection with agriculture and represent 19.8 % of the total. Numbers of them are particularly active as regards grouped purchase of inputs: seeds, fertilizer, pesticides. The following category is that of the organizations of credit for women which represents 14.6 % of the total. Coupled with the other organizations targeted on women, particularly the female organizations of income generating activities (7.3 %) it was obtained a significant percentage which represents the quarter of the total. That is due to the fact that many financial donors target the women.

Generally, many of organizations in Niger are created at the request of the administration or the financial donors, and for all the organizations it is not certain that they were created on the initiative of the populations.

There are then the organizations in connection with education, particularly the school management committee, which represent 11.5 % of the total, and the groups of young people which represent 7.3 % of them. These groups of young people inherited the tradition of Samaria[4] which exists for a long time, and many of them aim at the mutual support. The villages having a village development committee represent 2.1 % (2 villages).These two VDC (Village Development Committee) were created with the support of financial donors, mainly the Community Action

[4] **Samaria:** It is the organization which unified youth without distinction of sex and ethnic group. The establishment purpose is to support mutual help soul by being engaged in public-benefit work, and has contributed to school construction etc. Now, each political party created young people's association very politicized, Samaria is an organization of only a name.

Program (CAP) of the World Bank. There is also among the minority organizations an association of land management, an association of natural resources management, an association of blacksmiths, an association of barbers, etc.

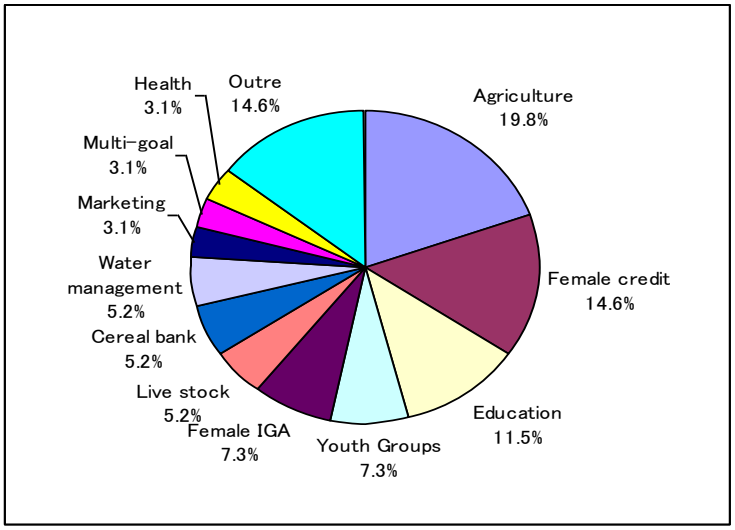


Figure 4.4(1) Category of existing organizations in the 16 surrounding villages of the water reservoirs

The objectives, the activities and the characteristics of the main organizations are as follows:

Table 4.4(2) Objectives, activities, and characteristic of the main organizations

Type of organization	Objectives of the creation of the organization	Content of the activities	Characteristics
Agricultural cooperatives	Improvement of the incomes and increase in the food production of the members	Grouped purchases. They permit to acquire the inputs: seeds fertilizer, etc at advantageous prices Mutual saving. The saved funds permit to build or acquire the irrigation equipment (It is frequent that the populations deal with part of the expenses and that the remainder is ensured by the financial donors) Function of focus. The fact of creating an association facilitates obtaining financings. There is a satisfaction with weak rates of refunding. It is easier to obtain supports of the financial donors	The organizations are created according to the type of cultivation (rice, gardening, onions, etc.)
Female associations	Improvement of the life of the women	In the greatest number of cases, microfinance female incomes generating activities (cattle fattening, etc.) Activities of sensitizing	Many of these associations are supported by financial donors.
School management committee, associations of parents of pupils	To improve the school living conditions of the children	Adjustment and improvement of the infrastructures (classrooms with thatched roofs, toilets, offices, chairs) Improvement of the quality Purchase of materials (paper, handbooks) Activities of sensitizing	These organizations gather not only the parents, but also the teachers.
Groupings of women	Many of these groupings aims at the mutual support	Social activities Organization of events	Like the Samaria as traditional groupings
Pastoral cooperatives	Improvement of the incomes of the members	Grouped purchases of inputs and materials Management of the pastures land Function of the focus	
Management of cereal banks	Food safety	Purchase of cereals Storage of cereals	Many of these organizations are created with the incited by financial donors.
Water management	Management of water facilities	Management and maintenance of the water facilities	It is frequent that a price is required for each drawn bucket or can of water, and that the money thus collected is used for maintenance.

Among the 96 organizations, there are 64 of them (66.7 % of the total) which presented their rules of procedure to the commune (before from the Ministry of Interior) and obtained an official recognition. 67 organizations (69.8 % of the whole of the studied organizations) state to have established a plan of activities. The majority of the organizations hold of the meetings in general assembly, and the meetings of the executive members. The number of organizations that hold the general assemblies during which all members join together to exchange is 79 (82.3 % of the total). The frequency of the general assemblies makes it possible to divide the organizations into two categories: The organizations of individual interest which meet in general assembly every month, and the organizations which hold a general assembly 2 or 3 times per annum. The organizations for which the executive members hold meetings represent 79.2 % of the total.
The main executive members, for any organization, are the president, the secretary and the treasurer. A part from them, in certain cases there are some of the members responsible for the foreign relations or the members responsible for the communication.

In addition, 71 organizations (74 % of the unit) collect contributions. The collected amounts differ according to organizations', but those of some of them (particularly women organizations) which collects from 50 to a few hundred francs per week to grant loans to each of their members in turn, collect thus amounts relatively higher than the others. The "collection of the contributions" and the "frequency of the meetings" can be indicators to detect if an organization is active or not. There are 12 organizations (12.5 % of the total) which do not collect contributions and do not hold of meetings. There are some strong chances that the activity of these organizations is in lethargy.

These studies were undertaken in villages of Haoussa, Zarma and Touareg ethnic groups, which are the most represented in Niger, and we did not detect particular disparities according to the ethnic group. Table 4.4(3) presents situation of the organization in village around water reservoirs.

Table 4.4 (3) Situation of the organization in village around water reservoirs

Village	Main ethnic groups	Region	Name of the organization	Content of the activities	Recognition	Registering	Rules of procedure	Regular meetings of GA	Meetings of the executive members	Collect of contributions	Plans of activities
Bechemi	Zarma	Dosso	SMC	Management of the school	0	0	0	8 times/year	9 times/year	100 F/month	0
			Bechemi	Mutual support	0	0	0	5 times/year	1 times/month	50 F/member	0
			Grouping Tachidakanka TallouBawa	Gardening, groundnut cropping	0	0	0	1 time/month	1 times/month	400 F/month	0
			Grouping Fada Zoumounki	Gardening, credit	0	0	0	3 times/month	1 time/week	250 F/member	0
			water management committee	Activities of health and hygiene	0	0	0	1 time/week	1 time/week	X	X
			Grouping Lahiya Assoumame	Groundnut oil, cattle fattening	0	0	0	3 times/month	1 times/month	100F/week	0
Tchankargui	Zarma	Dosso	Abdoulkadi Grouping	Agriculture, breeding	0	0	0	1 time/year	4 times	1,000 F/member	0
			Grouping Wafa Kaye	Credit for women	0	0	0	1 time/year	1 time/month	0	0
			Bonkarey Grouping	Literacy	0	0	0	1 time/year	1 time/month	0	0
			SMC	Management of the school	0	0	0	2 times/year	1 time/month	200 F/pupil	0
			Health committee	Management of the problems of health, purchase of medicines	0	0	0	2 times/year	1 time/week	800 F/sick	0
			Committee of the cereal bank	Purchase and sale of cereals	0	0	0	2 times/year	1 time/month	1,000 F/household	0
			Water management committee	Management of water	0	0	0	1 time/month	1 time/month	200,000 F	0
			Gakassiney Grouping	Credit for women	0	0	0	1 time/month	1 time/month	2,500 F/member	0
			Grouping Intelligence	Income generating activities	0	0	0	1 time/month	1 time/month	500 F/member	0
			Grouping Anfani	Income generating activities	0	0	0	1 time/month	1 time/month	1,500F/member	0
Simiri	Zarma	Tillabéri	Grouping dogoney	Agriculture	0	0	0	2 times/year	12 times	2,000 F/year	0
			Wafakey Grouping	Credit for women	0	0	0	2 times/year	12 times	According to the capacities of saving	0
			Health committee	Activities in connection with health	X	X	X	3 times/year	52 times	0	X
			Village Development committee	Bank of cereals, sale of cereals	0	0	0	1 time/year	24 times	Irregular	0
			SMC	Management of the school	0	0	0	3 times/year	9 times	100 F	0
			Grouping of young people	Lately created	X	X	X	No information	No information	No information	X
			Pastorale organization AREN	Purchase of inputs for breeding	X	0	0	1 time/year	1 time	1000 F/person	0
Boubon	Zarma	Tillabéri	Cereals bank	Purchase and storage of cereals	X	X	X		X	UNICEF	0

			SMC	Management of the school	0	0	0	1 time/year	18	0	0
			Health committee	Activities in connection with health	0	0	0		X	0	0
			Water management committee	Management of a water tower	0	0	0	2 times/year	X	0	0
Ader Naga	Haoussa	Tahoua	Agricultural cooperative	Promotion of the agricultural activities	X	X	X	0	0	0	X
			Pastoral cooperative	Prevention of conflicts	X	X	X	0	0	X	X
			Association of the masons	Establishment of implementation plans	X	X	X	0	0	X	X
			Female grouping	Saving	X	X	X	0	0	334,000 F	0
			Organization of lands management	lands management	X	X	X	0	0	50,000 F	0
Akoukou	Haoussa	Tahoua	Female grouping	Credit	0	0	0	1 time/month	No information	0	0
			SMC	Management of the school	0	0	0	3 times/month	2 times	0	0
			Association of the cereal bank	Operation of the cereal bank	0	0	0	3 times/month	3 times	0	0
Amba will roura	Haoussa	Tahoua	Female grouping Alhéri	Saving	0	0	X	0	0	0	0
			Female Grouping Aldalci	Saving	0	0	X	0	0	0	0
			Female Grouping Dankon Zumuci	Saving	0	0	X	0	0	0	0
			Male grouping	Dry season agriculture	0	0	X	0	0	0	0
Bourdi	Haoussa	Tahoua	Union of tradesmen Alkawali	Trade and breeding	0	0	0	0	0	0	0
			Female grouping	Changes of mentality of women	0	0	0	0	0	0	0
			Female Cooperative Assousou Wadata	Saving（Credit ）	0	0	0	0	0	0	0
			Female Grouping Amana	Saving	0	0	0	0	0	0	0
			Female Grouping Assoussou	Saving	X	X	X	X	X	X	X
			Female grouping	Adults literacy	X	X	X	X	X	X	X
			Agricultural cooperative	Promotion of the agricultural activities	X	X	X	X	X	X	X
Chang nassou	Haoussa	Tahoua	Grouping Niya da kokari	Bank of cereals	0	0	0	3 times/year	3 times	13,000 F	0
			Grouping of young people Hadin Kai	Cultural activities	0	0	0	4 times/year	2 times	21,500 F	0
			Grouping RAAYI DA KOWA	Natural resources management	0	0	0	3 times/year	7 times	X	0
			Grouping of small trade	Small trade	X	X	X	3 times/year	2 times	X	X
			Grouping of management-maintenance of drinking water	Management-maintenance of drinking water	0	0	0	3 times/year	3 times	X	0
			Grouping MMD	Bank of cereals	0	0	0	4 times/year	5 times	24 bags (of 50 kg ）	
			Grouping Tchika Alkawali	Credit and small trade	0	0	0	3 times/year	3 times	50,000 F	0
DaN Gao	Haoussa	Tahoua	Agricultural Grouping	Investments and support as	X	X	X	X	No	13,000 F	X

				regards agricultural machinery					information		
			Female grouping Niya da Kokari	Income generating activities	0	0	X	X	No information	228,800 F	X
Edir	Haoussa	Tahoua	Peasant association	Development of sources of income for the peasants	X	X	X	0	X	X	X
			Pastoral association	Preservation of pastures	X	X	X	0	X	X	X
			Association of the blacksmiths	Supply of equipment and materials	X	X	X	0	X	X	X
			Female grouping	Development of sources of income	0	0	0	0	0	250 F/week	0
			Association of barbers Wanzam	Sensitizing, trainings	X	X	X	X	X	X	X
			Association of young people	Support for work	X	X	X	X	X	X	X
Edouk I	Touareg	Tahoua	Tounfanana	Dry season agriculture	0	0	0	4 times/month	1 time/month	0	0
			Timidria	Sensitizing, banks of cereals	0	0	0	1 time/month	2 times/month	0	0
			AREN	Agriculture, banks of cereals, breeding	0	0	0	3 times/month	1 time/week	X	0
			Tidjit	Dry season agriculture	0	0	0	1 times/month	3 times /month	0	0
			SMC	Management of the school	X	X	X	1 time/month	2 times /month	0	0
			Association of water facilities management	Management-maintenance of the water facilities	X	X	X	2 to 3 times/year	1 time/month	X	0
			Committee of cereal bank Tamafra	Purchase of fodder and essential items	0	0	0	2 times/year	1 time/month	0	0
Edouk II	Touareg	Tahoua	Tidit	Dry season agriculture	0	0	0	4 times/year	1 time/month	0	0
			Timidria	Activities of sensitizing	0	0	0	3 times/year	3 times/year	0	0
			Youth	Sportive and cultural activities	0	0	0	3 times/year	2 times /month	0	0
			Chiizada	Dry season agriculture	X	X	X	X	No information	X	X
			Tambari	Rainfed agriculture	X	X	X	X	No information	X	X
			SMC	School management	0	0	0	4 times/year	1 time/month	0	0
			Potal	Breeding	0	0	0	1 time/year	1 time/year	0	0
Gourgoutoulou	Haoussa	Tahoua	Association of parents	Meetings of sensitizing	X	X	X	X	0	5,500 F	X
			Association of the young people	Common Income generating activities	X	X	X	X	X	X	X
			Association of peasants	Search for supports	X	X	X	X	X	X	X
			Gardening association	Search for supports	0	0	0	X	0	0	0
			Association of the marabouts	Fishing	X	X	X	X	X	X	X
			Association of the women	Mobilization of the women	0	0	0	0	0	0	0
Guidan Maibou di	Haoussa	Tahoua	Association of the peasants	Development of means of production	X	X	X	0	0	0	X

			Pastoral Association	Safeguarding of animal health	X	X	X	0	0	0	X
			SMC	Mobilization of the parents of pupils	X	X	X	0	0	0	X
			Association of craft industry	Search for supports	X	X	X	0	0	0	X
			Association of the young people	Community work	X	X	X	0	0	0	X
			Female grouping	Income generating activities	0	0	0	1 time/month	0	0	X
Roukou zoum	Haoussa	Tahoua	Village Development committee	Bank of cereals	0	0	0	1 time/month	1 time/month	30,000 F	0
			Amana Grouping	Credit, small trade, pastures	0	0	0	3 time/year	1 times/year	25,000 F	0
			Hankouri Grouping	Gardening	0	0	0	2 times/year	3 times/year	-	
			SMC	School management	0	0	0	2 times/year	3 times/year	75,000 F	0
			Female Grouping Alheri Allah	Pastures land for cattle	0	0	0	2 times/year	2 times/year	120,000 F	0
			Zoumounta Grouping	Dry season agriculture	0	0	0	2 times/year	2 times/year	126,000 F	à
			Grouping Niya da kokari	Dry season agriculture	0	0	0	2 times/year	2 times/year	246,000 F	0

NB: For sampling purpose, we consider the ethnic composition in Niger. Concerning the entire territory of the country, the main ethnic groups are Haoussa(55.4%), Zarma-Songhay(21%), Touareg (9.3 %), Peuhls (8.5%), the other ethnic groups represent 6% of the population, but it is extremely rare in Niger that some Peuhls form a village alone, and in most cases they live in the hamlets as minority ethnic group.(For instance, out of 16 villages, we find 10 villages in which they live but are minorities). For this reason we decided to not consider the peuhl villages in the sample. We therefore, based on the percentage of ethnic groups in relation to the entire population, retained 10 haoussa majority villages, 4 Zarma-Songhay majority villages and 2 Touareg majority villages.

4.4.2 Constraints to the organization

When discussing with Niger counterparts on the factors of constraint as regards organization, the following problem was raised: The organizations have always been installed, they depend on the support of the financial backers, and there are practically no autonomous activities of the populations for village development.
A seminar of management of the project cycle (project cycle management = PCM) was held and an analysis of the problems was carried out leading to the following problems:

Table 4.4(4) Problems of the organization (Results of the seminar of the project cycle management)

Problems of the organization (central problem: The activities of the organizations for village development are not carried on in an autonomous way
• Nobody understood that we can have more significant activities when organized • The creation of the organizations is not based on population needs, and these populations do not understand well the objectives of the organization. • There are organizations in which the transparency is not assured. • There is alack of funds for the activities and the capacities as regards management of the funds are weak • Some persons who do not have the confidence of the populations are selected as persons in charge. • The minority groups are not represented among the persons in charge and the representative ness is not assured. • The capacities of the leaders (read-write, accountancy, facilitation, management) are weak. • Since the villagers do not have confidence to each other, we do not obtain the payment of the contributions. • There is no analysis of the problems, establishment, execution and management of plans, carried out in an autonomous way, based on the free initiative of populations. • According to the ideas of the financial backers, all kinds of organizations are installed in a disordered way. • The durability after the departure of the financial backers is not assured. • The follow-up of the organizations by government services etc is not carried out in a durable way.

N.B.: Established by the mission of study on the basis of result of the seminar of management of the project cycle with the counterparts.

4.5 Use condition of reservoirs and constraints to development

4.5.1 Use condition of reservoir

The water resources of water reservoirs are used by populations of the neighboring villages of the water reservoir (benefit villages) for agriculture, animal watering, fishing, and the domestic use. Figure 4.5 (1) presents the villages which profit from the water resources of the water reservoirs and, among these villages, those which use these resources for agriculture. Dosso region put aside, the majority of the benefit villages of the other regions use the water resources of water reservoirs for agriculture, but in Dosso region, the benefit villages making an agricultural use are less than half. The reasons are that in the small scale dams water reservoirs are insufficient or that in the weirs, the flood is insufficient, which in both cases makes impossible the use for agriculture.

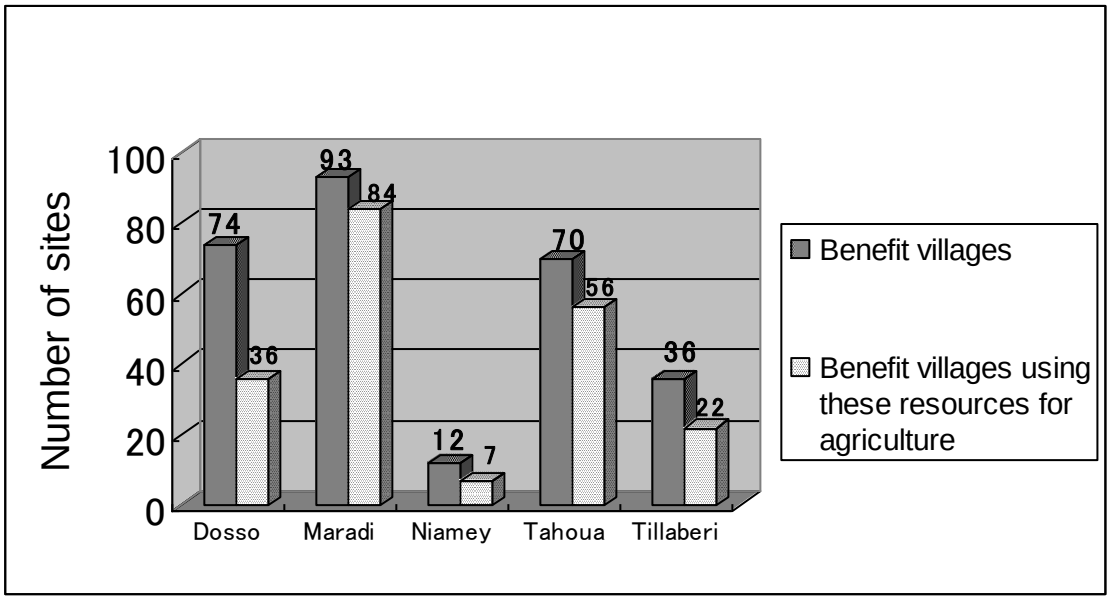


Figure 4.5(1) Situation of the benefit villages of the 66 water reservoirs per area

4.5.2 Problems of development of the arable lands

Figure 4.5 (2) gives the results of an investigation authorizing the multiple answers on the problems of the use of the water reservoirs, investigation which related to 62 reservoirs, namely the 66 reservoirs object of our study, subtracting the two reservoirs of Jaja and of Boukologi which were built for animal watering, and the two reservoirs of Molia and Zongon Roukouzoum for which data could not be collected insofar as they were in the course of construction. This graph shows that the most significant problems quoted are the lack of water and the lack of arable lands. There is also the damage of animals, the problems of tenure. The lack of water in Dosso region, and the lack of arable lands in Tillabéri, Tahoua and Maradi regions are often quoted. The lack of water in the water reservoirs of Dosso region is also related to the results presented in figure 4.5 (1), and can be allotted to choices of inadequate sites for the construction of the reservoirs (see chapter 3).

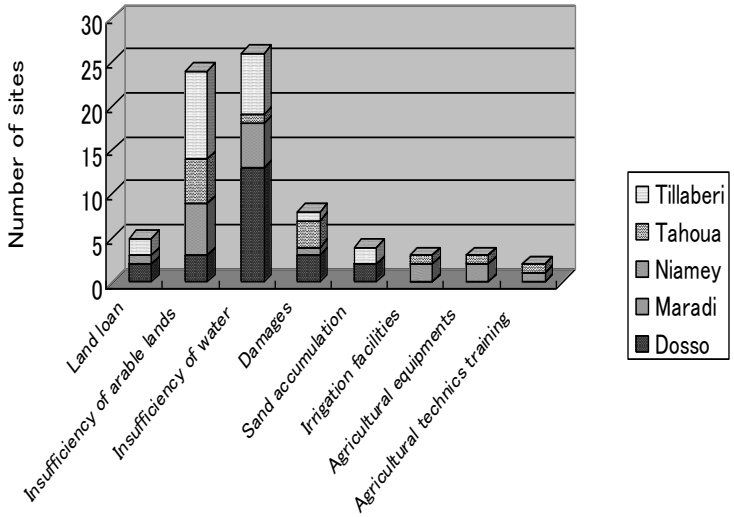


Figure 4.5 (2) Arable lands development problem on 62 water reservoirs, region per region

Chapter 5: Analysis of the constraints to the development and selection of the countermeasures

Based on the existing documents and data, TFP/NGO's interview, and field works (study on the current state of water reservoirs, on rural society), it was analysed that government orientations in terms of rural development and the current conditions, the problems existing at the level of reservoir sites and their beneficially villages, are described from chapter 2 to chapter 4. After that it was analyzed and proposed the countermeasures chosen in the action plan. Based on the proposed draft action plan, the pilot project was implemented. And then, the results of the pilot project were reflected to the establishment of action plan.

5.1 Outcomes of the analysis of the constraints to the development

The study team held a seminar of Project Cycle Management (PCM) in collaboration with the counterparts, talking of the problems to implement and to develop the village development actions by populations themselves. The outcomes of the survey of the problems which block the implementation and the development of the village development actions by the populations themselves were summarized in table 5.1(1).

For this seminar, the problems which block the implementation and the development of the village development actions by the populations themselves are summarized into three points: a) A sufficient organization is not assured, b) The populations (organizations) have neither the methods nor the capacities necessary, and c) The supervision and the support exerted by government services in the villages are poor, and the seminar concluded that the following measures should be taken: a) Correction of populations organization, b) Reinforcement of the capacities of the populations and introduction of the necessary methods, and c) Reinforcement of the current extension system and reinforcement of the capacities of the extension agents.

Table 5.1(1) Summary of the outcomes of PCM

Problem	Analyze problems	Measurements	Concrete contents of measurements
• Suitable organizations are not installed • Appropriate workers are not assigned • The organizations are not provide with rules	• Suitable organizations are not installed	• Correction of the organizations	• To create the organizations only when the populations understood their direction. • Election of persons in charge suitable to the role they must play • Establishment of rules
• The funds of the organizations are not managed as it should be by the leaders. • The leaders lack of capacities (reading and writing, management, motivation) to lead the organizations • The populations do not sufficiently understand the need for the organizations • A self supervision/self-assistance of populations is not really practiced (stimulating villagers, midwives, etc.) • The establishment, the execution, the follow-up-evaluation of activities plans by populations is problematic. • Even if the organization of the populations decides something, the villagers do not respect this decision • The degree of ownership of the populations in relation to the organizations is poor • The contributions of the populations to the funds of activity of the organizations are weak. • The populations cannot reach information they need	• The populations (organizations) have neither the methods nor the necessary capacities	• Reinforcement of the capacities of the populations and introduction of the methods necessary	• Activities of sensitizing: Visible publicity of the advantages of the organization (exemplary cases, etc.) • Election of persons in charge who can be regarded as representatives of the populations • Integration of an approach which consists as much as possible in implying people in the activities of the organization • Training on literacy and accountancy • Analysis of problems, establishment, execution and management of plans based on the free expression of the villagers. • Focusing on small scale activities which the populations can carry out. • Sensitizing on the importance of the transparency • Creation of meetings allowing the organizations of populations of several villages of similar natural conditions to meet regularly, and to exchange on the progress report of the activities, and on the measures taken to solve the encountered problems. • Installation of methods that the populations will be able to continue to apply themselves.
• The government services agents cannot cover their zone • The approach of the government services does not correspond to the situation of the villages • The strategy of communication of the government services towards the villages does not correspond to the current situation of the villages • The follow-up of the activities by the agents of government services is not always assured. • The populations cannot make requests for support to the financial backers	• The supervision and the support exerted by government services in the villages are weak	• Reinforcement of the current extension system. • Reinforcement of the capacities of the extension agents	• Make up of a support system to the population's organizations by government services • Harmonization between financial backers within the RDS • Meetings of financial backers at the regional level

5.2 Results of the analysis of populations needs

We carried out interviews on constraints in terms of village development in the prevalent villages benefiting of the 66 water reservoirs, by separately questioning the men and the women and asking them to quote five constraints. We will find the results of these interviews in figures 5.2(1) and 5.2(2)

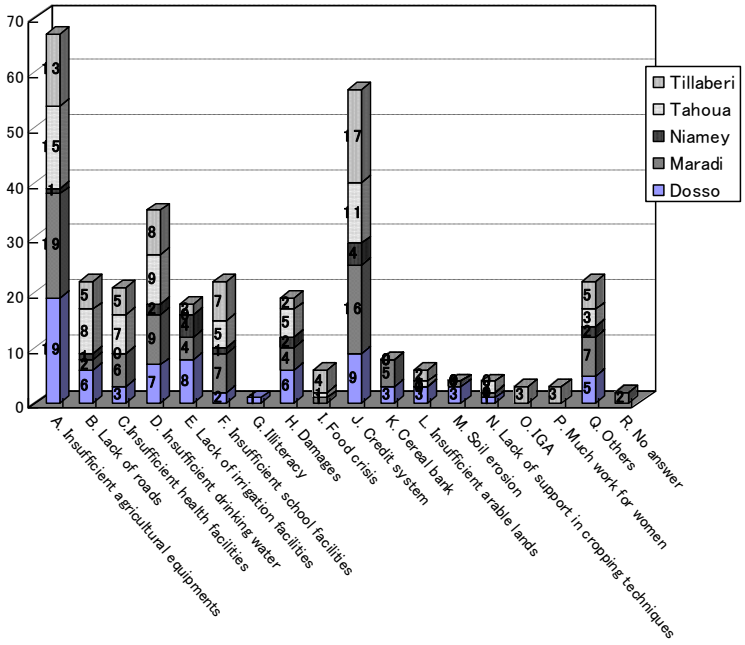


Figure 5.2(1) Constraints to development according to men

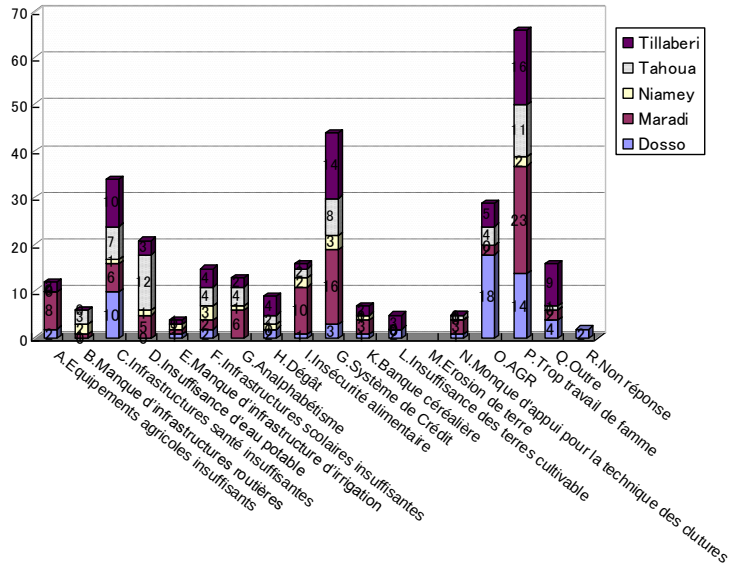


Figure 5.2(2) Constraints to development according to women

Considering these two figures, it is clear that the constraints to development have significant disparities according to the gender. These disparities result from the differences like the day life roles played by men and women. Concretely these various constraints to development and measures to solve them were examined.

(1) Constraints to development according to men and measures to solve them

The constraints to the development generally quoted by men are the lack of agricultural inputs which would make the production to increase, these are fertilizers, pesticides, seeds and others, and secondly the food crisis. That is due to the fact that men have the responsibility to provide their family with food. In response to the first constraint that is the lack of agricultural inputs, it is integrated in the action plan the sensitization at the advantages of the grouped purchases which the organization makes possible. Moreover, it introduces agricultural systems of micro credit to allow the acquisition of inputs through their financing.

Concerning the second constraint of food shortage, it is necessary to implement an integrated approach. It must concretely act to improve the land productivity and the work productivity, in terms of prevention of the attacks, introduction of improved varieties, improvement of the soils, conservation of the arable lands, prevention of animal intrusions, and arrangement of irrigation equipment. Moreover, it is organized trainings to sensitize on the philosophy of risk management (system of mutual support) to face the small scale droughts which occur once every 5 years. In addition, it is envisaged some training on incomes generating activities to compensate for the food shortage by increasing the non agricultural incomes.

(2) Constraints to development according to women and measures to solve them

The constraint to development generally quoted by women is the significant workload. It is understood by there that for women, dehusking and crushing of millet, fetching water and fire wood collection are significant loads. The graph does not specify it, but the detail of the 59 answers quoting the significant workload break up into 52 answers related to crushing, 6 on fire wood collection, and 1 on fetching water. The time spent for fire wood collection increases gradually because of the reduction in the available fire wood these last years. It is deduced from the introduction of mills to reduce the work of crushing, but it should be done carefully. This prudence is necessary because requires a starting investment of 4 million CFA (2 million for the hall, 1 million for the machine, and 1 million for training) and, the expenses of maintenance are also not guaranteed if the number of users is not significant.

To reduce the time devoted to fire wood collection, there is the introduction of improved hearth cooking stoves. The improved cooking stoves are either made up of metal or banco, but in both cases, it is relatively easy to get materials in rural area. The improved cooking stoves made up of banco can be built by housewives, while the construction of metallic cooking stoves requires techniques and particular tools, and it is necessary to technically train the blacksmiths in the villages. The action plan, consequently envisages the introduction of improved cooking stoves made up of banco constructed with materials available in the villages, and which are realizable with easiest training.

The second constraint to development quoted by women is the lack of a system of credit. It is said that when men obtained some cash money, it is frequent that they use it for their traveling expenses, but that women often use this money for the acquisition of daily food products and for the expenses of the education of their children. For this reason, in many cases, the increase in the availability of income generating activities for women contributes directly to the improvement of population life. Consequently, it is planed the introduction of micro-credit systems allowing the availability of funds to women for income generating activities, and actions of support to women incomes generating activities.

The third constraint to village development expressed by women is the lack of health facilities. Among the 38 answers in connection with the lack of health facilities, most people quoted the lack of maternity hospitals and midwives (20 answers). In the action plan, the construction of maternity

hospitals and health centers are not planned, because the expenses at the beginning are significant, and management-maintenance is problematic, but actions for the reinforcement of knowledge in health and hygiene are planned. For instance, to raise cattle and to prepare the meals at the same place, there are many infectious diseases by the reason. Consequently, to prevent these contagious diseases, training about the necessity of keeping the inside of a house clean is performed.

5.3 Governmental orientations as regards rural development

Within the framework of this study, outcomes of dialogues with Niger counterparts and the structures concerned, it resulted in the conclusion that it is necessary to engage in actions of village development by the villagers themselves which involve activities of sensitizing to promote the comprehension of the populations concerning the actions of high degree of general interest the need of witch is not sufficiently perceived by populations, such as the actions in terms of health and hygiene, or the actions of preserving the environment. Consequently, among the fast actions highly effective promoted by the administration on village level, the activity expect an infrastructure building was arranged to the table 5.3(1).

Table 5.3(1) Implementation of community fast actions highly effective promoted by the administration at the village level

Texts	Measurements	Concrete contents of measurements
RDS	Agriculture Preservation of the environment Live stock raising	Application of the rural code Water and soil management Erosion control Biological diversity Promotion of tree plantations Consideration of environment in agriculture and live stock raising Installation of corridors for animal passage Arrangement of equipment for animal watering
Decennial plan of development of education	Education	Increasing the literacy rate (especially for women)
Health development plan	Health	Improvement of the nutritional situation Activities of sensitizing in health and hygiene Participation of the populations in the activities of health and hygiene
National policy of social development	Gender	Support to women socio-economic activities Support to women's autonomy Equal access for both men and women to production factors (lands, investments, materials and inputs) Family planning

5.4 Results of the analysis of problems and countermeasures

Based on the above analysis, the measures were selected according to four criteria with setting firstly the farmer's organization as indicated in table 5.4 (1).

① Measures considering the capacities of persons concerned by the villages development projects as the officials (central, regional), the extension agents, local leaders and inhabitants needs
② Fully considering the "feasibility", the measures cost will be low (aiming at "zero cost") and should be realized by the inhabitants
③ Measures highly contributing to basic human needs (BHN) considering education, health (hygiene) and the reduction of woman household works
④ Measures witch bring to expect the best results in case of organizational engagement.

Table 5.4(1) Results of the analysis of problems and countermeasures

	Problems		Measures	
Measures to problems of obstacles to rural development	Problems not solved		Measures not considered	
	Problems to solve	• State services supervision and assistance to villages is weak.	Measures to be taken	• Reinforcement of the existing extension system • Reinforcement of the capacities of extension agents
		• The organization not adapted. • The methods and the capacities necessary to villagers (organisations) do not follow		• Best adaptation of the organisation • Reinforcement of populations capacities and introduction of methods their require
Content of the government actions	Problems not treated		Measures not considered	• To develop the bio-diversity • Adjustment of watering infrastructure for animal • Family planning
	Problems to be treated		Measures to be taken	• Management of waters and lands • Application of the rural code • Prevention of erosion • Promotion of tree planting • Consideration of the environment in agro-pastoral activities • Installation and or rehabilitation of tracks for animal movement
				• Improvement of women literacy rate • Improvement of nutrition • Sensitization on hygiene and health • Participation of villagers to health and hygiene activities • Assistance to socio-economic activities of women
				• Support to women initiatives • Equal access to men and women for production factors
Measures in responses to population needs	Problems not treated	• Developments for the use of water in the reservoirs are insufficient. • The level of techniques for livestock raising is low • There is no primary and secondary schools • There is no SMC • There is no general health center • There is no infrastructures in the village	Measures not taken into account	
	Problems to be treated	• The level of agricultural techniques is low • Investments in agriculture are insufficient. • There is no cereal bank • The environment is deteriorated. • The self sufficiency is not possible. • Many damages caused by animals • There is no pasture	Measures to consider	• Improvement of agricultural techniques • Improvement of techniques for agricultural management • Conservation of arable lands (agro-forestry) • Adjustment of pastoral zones as measures against damages caused by animals.
		• The water reservoirs sites are not organised.		• Organization of reservoirs users • Reinforcement of capacities in maintenance of reservoirs
		• The sources of non agricultural incomes are limited. • No credit system		• Assistance to income generating activities • Introduction of a system of turning saving and credit
		• The knowledge of health and hygiene is weak. • Adult's illiteracy rate is high. • Much time to collect fire wood		• reinforcement of knowledge in health and hygiene • reinforcement of capacities in reading and writing • Introduction of improved cooking stoves

5.5 Composition of the pilot project

On the basis of measures selected in point 5.4 "results of the analysis of problems and selected measures", each measure was planned as project in draft action plan as presented in table 5.5(1). These actions were checked out by the pilot projects and the result was reflected finally in the action plan.

Table 5.5(1) Composition of the pilot projects

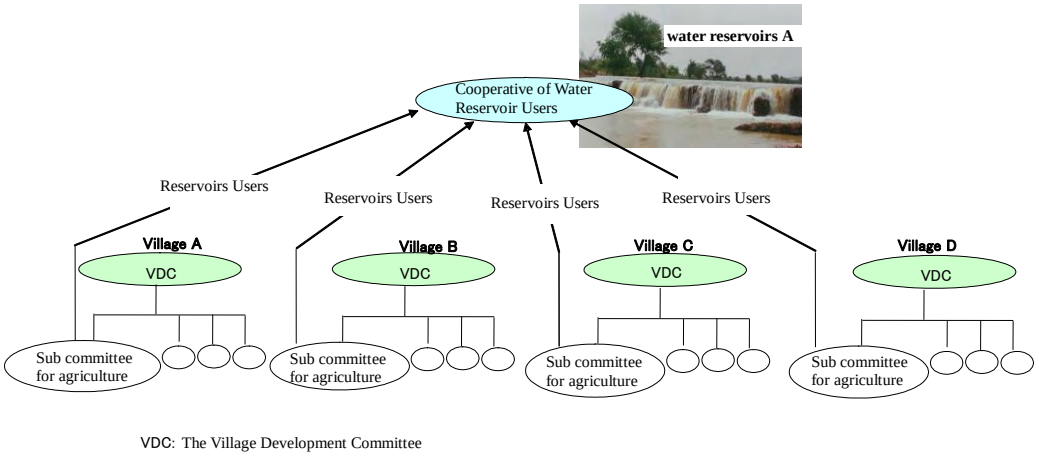
Type of action	Target	Action	Project	
Minimum package	Level of the official services	Actions of reinforcement of the support system for the populations by the official services	Project of reinforcement of the means of work for the basic extension agents	
			Project of reinforcement of the capacities of the basic extension agents	
			Project of installation of a system of capitalization and share information	
	Level of the sites of the reservoirs	Actions of reinforcement of the capacities of the reservoir users in management of the actions	Project of support to the installation of the reservoir users organizations	
			Project of support for the reinforcement of the capacities of the executive members of the cooperatives of reservoir users	
			Project of reinforcement of the capacities in maintenance of the reservoirs	
			Project of installation of a system of information flow and share of the techniques between recipients	
	Level of the villages	Actions of reinforcement of the capacities of the populations in management of the actions	Project of support for the organization of the populations	
			Project of support for the reinforcement of the capacities of the executive members of the organizations	
small scale Integrated projects	Level of the sites of the reservoirs	Actions of improvement of the incomes	Project of improvement of the agricultural techniques	1. Basic notions on the crops, plant health prevention
				2. Introduction of the ecofarms
				3. Introduction of improved varieties
			Project of improvement of the agricultural management techniques.	
			Project of experimentation of the introduction of rice NERICA	
			Project of introduction of fish farming	
			Project of reinforcement of the capacities in maintenance of the irrigation equipment	
			Project of conservation of the arable lands	
			Project of prevention of the damage caused by the animals	
			Project of support to income generating activities	
		Actions of improvement of the life condition	Project of reinforcement of capacities in reading and writing	
			Project of reinforcement of knowledge in health and hygiene	
			Project of introduction of the improved cooking stoves	
	Level of the villages	Action of improvements of the incomes	Project of introduction of a system of saving and turning credit (tontine)	

5.6 The major change between the draft action plan and the action plan

The objective of the study at the beginning in November 2005 is « The establishment of the action plan for the implementation of a participative rural development project with the support of the government and NGOs ».The rural development means, this development is not only for agro-sylvo-pastoral; it includes the development of all sectors including the improvement of life conditions. Consequently, the action plan concerns two areas which are the vaporization of reservoirs and the rural development of villages benefiting of the reservoirs. The method of rural development in the AP established in this study could also be adapted to villages not having these reservoirs; these villages constitute the majority of villages in Niger. Moreover, during the implementation of the action plan, a system will be installed for rural development in which the

populations play the main role, in which will be implemented not only the infrastructures arranged within the frame work of the SPPR, but also all natural , social and economic resources available in the villages.

Based on this orientation, the draft of the action plan presented in September 2006, fixed the intervention zone of the so action plan consisting of all the sites of water reservoirs constructed during the Phases I and II of the SPPR and also the profit villages. Concerning the draft of the action plan, for the purpose of the valorisation of reservoir and rural development, the cooperatives and VDCs will be installed. The plan proposes the set up of a cooperation system as indicated in table 5.6(1). The VDC through it sub committee for agriculture, plays for villagers the role of extension of different new technique acquired at the level of the Cooperative of Reservoir Users, supposing that the members of this sub committee for agriculture are also members of the cooperative.



VDC: The Village Development Committee

Figure 5.6(1) Relationship between the Cooperative of Water Reservoir Users and the Village Development Committee.

However, the result proved according to the pilot project, it is very difficult to establish the relation between the VDC and the Cooperative because having different objectives and interests as proposed by the draft action plan. Moreover, much of persons concerned with this study suggested thinking on the contents of the action plan specific to the valorization of the reservoirs. Consequently, it was proposed a system of collaboration between the cooperative and the VDC in which the role of the VDC will be limited to the actions of fight against soil degradation in September 2008.But, following the reflexion on the contents of the draft action plan in February 2009, it was judged that time and the financings will be more effective if the contents of the action plan are focused on actions of agricultural development centered on the valorization of the water reservoirs. As a result, establishment of VDC was not included the action plan.

Chapter 6: Basic Concept of the Action Plan

6.1 Context of the establishment of the Action plan

Since independence in 1960, the rural sector regularly constituted the socio-economic basis of Niger. 82 % of Nigeriens currently live in rural area, and the rural sector represents 41 % of the gross domestic product (2001), and 39 % of the annual amount of exports. If uranium is removed, the rate of occupying to the annual export value of same rural sector will become 88 %.

Nevertheless, the development of the rural sector is very late, and the social indicators in rural area are all largely in withdrawal compared to the urban area, particularly concerning the access to a potable water, primary education, health. That result from a drastic limitation of the investments in infrastructures agreed since independence in favor of the rural area, in spite of its socio-economic importance.

Viewing such a situation, the President of Republic H.E. Mamadou Tanja, with the objective of poverty reduction in rural area, implemented the "Special Program of the President of the Republic" (SPPR). It is said that life condition facilities such as classrooms, health centers, well and drillings for drinking water, and production facilities, particularly the water reservoirs, arranged within the framework of this program, made significant improvements in the life of the rural populations. However, part of the water reservoirs, was confronted to problems of site, work, organization of users, even though these equipments were not always sufficiently implemented. In particular, the fact that installations were carried out without a system of management of the use by the recipients being set up is a significant factor for the absence of progress in the current use of the reservoirs.

The present action plan initially proposes to reinforce the capacities of the recipients in management of the execution of the actions, which includes the edification of a unit of management and use of installations, then to conceive and implement various actions through the valorization of the reservoirs.

6.2 Objective and basic elements of the plan

6.2.1 Objective of the plan

The Study started in November 2005 with the objective of “establishing clearly an action plan to implement and to provide actions of rural development carried out by the populations by the transmission of farmer to farmer, with the support of government services and the NGO.” The draft action plan was establish with this objective in September 2006. Then, the pilot projects were carried out from October 2006 to June 2009, in order to establish the action plan that proves and reflected the content of the draft action plan.

Consequently, the objective of the action plan has finally been corrected to be "To implement and to provide actions of agricultural development carried out by populations, centered on the valorization of water reservoirs through farmer to farmer transmission, with the support of government services", in the targeted region.

A point that is different for the objective of survey and the action plan, and the reason for change is as in the following table.

Table 6.2(1) Reason of change of the objective of survey and the action plan

	Difference point	The reason for change
1	Support of government services and the NGO→Support of government services	Most booklets that are needed for the implementation of the action plan were established during the pilot phase. It is expected that government services will be able to carry out the training retained in the action plan with the established booklets. That is why the NGO services are not needed.
2	actions of rural development carried out by the populations →actions of agricultural development carried out by populations, centered on the valorization of water reservoirs	In the time of the beginning of survey, the farming development was thought more as important. Therefore, it has been planned in the draft action plan, the installation of village development committee, the cooperative of reservoir users, with collaboration between these 2 organizations. However, it became clear during the execution of the pilot projects that it very difficult to have a kind of collaboration between these 2 organizations. Therefore, it was judged that more importance should be done on the valorization of water reservoirs through the installation of reservoir users cooperative. That is why the objective has been modified:【actions of agricultural development carried out by populations, centered on the valorization of water reservoirs】was changed.

6.2.2 Basic elements of the action plan

(1) Starting year and horizon of the plan

The reference year of the plan is fixed to 2009, ending year of the pilot project. The actions will start in 2010, and the horizon of the plan is fixed to 2015, the same year as for the plans upstream Poverty Reduction Strategy and Rural Development Strategy.

(2) Number of reservoirs and number of villages of the action plan

There were, in August 2009, 66 reservoirs meant to be part of the targets of the action plan, namely the 64 existing reservoirs and the 2 reservoirs (Zongon Roukouzoum and Guidan Bado) whose building work was to be completed in a few years. For 26 of these reservoirs arising from the category 3 and which should cease functioning in the near future because of sand accumulation or the state of the facilities, it is not necessary to wait for the implementation of a rural development undertaken by the populations which is centred on the valorization of the water reservoirs. In addition, the actions are already carried out through the pilot projects for 4 reservoirs of Tahoua region (the reservoirs of category 1 of Guidan Bado, the reservoir of category 2 of Edouk and Bourdi I, and reservoir of category 3 of Jaja, built for a pastoral use). That gives a total of 30 reservoirs which will not form part of the targets of the action plan. 36 reservoirs are thus retained as target reservoirs for the action plan, namely the remaining 35 reservoirs in categories 1 and 2, and reservoirs of Bokologi, of category 3 but used for the watering of the animals.

In the action plan, the term of "villages surrounding the water reservoirs" is used in the direction of villages in which peasants used at the date of June 2006 the water of a reservoir with an agricultural aim. However, in the case of water reservoirs built with other aims rather than agricultural, the villages which were regarded as recipients during the establishment of the plan of construction of the reservoir are regarded as bordering villages. Under these conditions, the number of villages targeted by the action plan, as indicated in the following table, is of 159 villages.

Table 6.2 (2) Number of works and villages target action plan area by area

Concerned regions	Total number of water reservoirs	Total number of profit villages
Dosso	6	23
Maradi	12	60
Niamey	3	12
Tahoua	8	44
Tillabery	7	20
Total	**36**	**159**

Source: Study team (2008 for the number of villages in Tahoua region, 2006 for other regions)

6.3 Basic orientation for the establishment of the plan

The objective of the action plan is "To implement and to provide actions of agricultural development carried out by populations, centered on the valorization of water reservoirs through farmer to farmer transmission, with the support of government services". Based on the content of this objective, the basic orientation was defined for elaborating the action plan and is based on 4 points: "Self development", "Management of the sites by the peasants", "Installation of Peasants Demonstration Fields ", "Redefinition of the role of extension agent and collaboration with the local government". The detailed contents of the basic orientation are presented as follows:

6.3.1 Self development

The self development[1] of population is the main orientation in order to achieve the objective that is to implement and extend the rural development by population themselves. The peasants in Niger up to now, they haven't tackled sufficiently and continually with the problems of development by themselves. It is popular that, while the some assistant from the government donors and NGO etc. are continuing, they also continue some activities. However once the assistance stops, the activities of peasants also tend to stop. To use continuously the small reservoirs which were newly constructed as rural resources, the peasants need to change their mind to continue the activities of rural development and life condition improvement after the initial outside assistance. For this purpose it should be make the peasants to become aware that they are the main actors of development of the small reservoirs, and also to imply themselves continuously in the agricultural development. It is also necessary to introduce a mechanism by which the local populations can be capable to analyze the situation of small reservoirs, to choose the measures to be taken, to carry out and manage them. In this case of utilize the small reservoirs, due to the individual actions are very limited, that is why, it is essential to promote of establishing the peasants organization. This peasant organization synthesizes the problems identified by farmers related to the development of its activities and analyzes the potentialities. It is from the outcomes of this analysis that the development plan of the activities will be established by distinguishing the realizable actions with peasant's own financial and physical resources. It should focus initially on the realization of the actions by peasants in an interdependent way. With the experiment "of carried out alone the plan they established", the peasants will gain confidence in themselves as executants for the development of their activities and will be able to establish further plans. That is to say self development is advanced.

6.3.2 Management of the sites by the peasants

[Management of the sites by the peasants] explains the orientation of elaboration of Action Plan related to the purpose of "To implement and to provide actions of agricultural development carried

[1] "Self development" means that peasants act by themselves for their development without waiting outside assistance, that is to say, the peasant think and act by themselves. As the basic orientation, "self development" means to facilitate and cultivate the peasants who think and act by themselves.

out by populations, centered on the valorization of water reservoirs". In order to use continuously the small reservoirs those are newly constructed resources, it is necessary not only to make a plan to proper use of farmland and water resource, and its implementation but also to make countermeasures against the problems which also newly created after the construction of the reservoirs. Actually the number of beneficiaries tends to increase after the construction of the reservoirs, but farmers do not care land property problem or water use right problem caused by increase of beneficiaries. If these farmers continue to exploit the sites in a disordered way, in the future this situation will create problems between farmers. In addition, many reservoirs built within the framework of the special program of president present problems (sand accumulation, deterioration of reservoir etc.) which worsen with time. This is why, it is necessary to face urgently these problems, to ensure the durable valorization of resources on these sites. This requires the installation of the cooperative and the basic land property committee for a durable valorization of the resources (arable land and water etc.) on the sites. The role of the cooperative and the basic land property committee is shown as follows;

(1) The role of the Cooperative

The establishment of the cooperative will be implemented with the following orientation.

① Do the selection of executive members with the transparency based on the independence and responsibility

② Introduce the democratic mechanism which ensures the number of representatives proportioned to the numbers of beneficiaries in each related villages.

In order to assure above mentioned orientations, we facilitate the peasants to choose reliable leaders, to clarify the role of each members and to inspire the initiative and the responsibility of each member. The roles of the cooperative are as follows;

(a) The valorization of water reservoirs

They elaborate a plan to use water and farmland resources, and implement, monitor and evaluate it. With relating to this, it will be set up an information system on the prices of the agricultural products and agricultural inputs bank. The cooperatives also will be in charge of the management of these systems as well as management of equipments and materials acquired within the framework of the other activities (for instance, motor pumps etc.).

(b) Effort to increase the member of cooperatives

When they establish the cooperatives, usually every beneficially doesn't become member. Therefore when agricultural equipments are sold or lent, by setting the different price between members and non members, they can appeal the merit of member to non member and promote them to be member. They apply different prices however they sell and lend the equipments to non member. It makes possible to extend the benefice of agricultural development to neighboring villages of reservoir.

(c) Countermeasures against the problems of the number of farmers tending to increase:

The exploitable surface areas and the water resources are limited. In the future, there will be the need for the set up of a system of limitation of the number of farmers of the site. The cooperatives consequently, must discuss during GA and with complete freedom, of the current state of arable land use and use of water resources during the execution of AP; that will permit the members of the cooperative to become aware of the current situation and the need for the control of the number of farmers of the site. In the event of need, it is necessary to determine the rational number of farmers of the site in collaboration with the administrative authorities of the communal, departmental or regional level for a profitable exploitation.

(d) Countermeasures against the problems of management and maintenance of the reservoirs: Currently, many reservoirs do not have any mechanism of management and maintenance. This is why, many reservoirs comprising an earth dyke collapsed. For a beginning of degradation of the dam, there is the possibility of rehabilitation by farmers themselves. Therefore, the cooperative should be in charge of setting up a mechanism of management and maintenance of the reservoirs. But in the event of difficulty in the rehabilitation by farmers, the cooperative requires the support of the service of rural engineering in charge of the reservoirs.

(2) The role of the Basic Land Property Commission (BLPC)

The BLPC is a rural organization installed when required by government which bears management of the resources (land, water, etc.) in a village level, and involves mainly the chief of village as President. Although the government is promoting the installation of BLPC, data in 2006 gave a national establishment rate of approximately 15%. Moreover, more importance has been given to the installation of BLPC without considering the natural resources management aspect. That is why in most villages, the idea of natural resources management is insufficient. Consequently, the BLPC have following roles in collaboration with the cooperative;

(a) Countermeasure against land property problem:

Currently, farmers who wish to exploit the site can do it as owner or by asking an agreement or by paying expenses of hiring of piece of land from the owners. The number of farmers with times will increase and that is likely to cause conflicts between them. A control in the use of arable lands will be carried out by the BLPC in collaboration with the cooperative.

In the event of difficulty the BLPC requires the arbitration of the communal land Property Commission (CLPC), Departmental (DLPC) and regions permanent secretariat rural code.

(b) Countermeasure against the problems of use of water resources:

In Niger, there is the right of use of water for the perimeters only arranged. The sites of reservoirs built within the framework of the Special Program are not concerned by this measure. This is why, farmers on the sites are not aware of the right to use water from the reservoirs and use it in a disordered way without any control. But, in the event of intensive use of the water of the reservoir with time, there will be much of risks of conflicts. This is why; it is proposed the sensibilization of farmers on the significance of water use control. The cooperative should be in charge of the control of the right to use of water. The cooperatives will organize meetings with the users of water (farmers, stockbreeders…) during which it will be discussed in an objective way of the use condition of water resources on the site through view point's exchanges. The objective of this meeting is that all users understand the situation on the current use of water freely through opinions exchanges. In the event of difficulty of coordination, the cooperative requires the arbitration of the local land property Commission (BLPC), communal (CLPC), departmental (DLPC) and regions permanent secretariat rural code to serve as intermediary in solving water use problem.

(c) Countermeasure against the problem of damage caused by the animals:

Before the construction of the reservoirs, the actions to face these land property problems and conflicts between farmers and stockbreeders were not programmed. Currently, there are problems in this field on the level of certain sites. To prevent these problems so as to implement the land property, it is necessary to set up the BLCP on the level of the villages housing the sites. The cooperative and the BLCP must cooperate to bring effective solutions to these problems by the installation of the passage corridors and demarcation of the pasture lands.

6.3.3 Installation of "Peasants Demonstration Fields"

"Peasants demonstration fields" explains the orientation of elaboration of Action Plan related to the purpose of "..... through farmer to farmer transmission," and means the concrete way.

The Peasants Demonstration Fields will be supplemented by practical meetings of demonstration of agricultural techniques on the level of the pieces of land of the "key farmers" to facilitate the comprehension and the conviction of other peasants.First stage: the extension agents transmit the agricultural techniques to the "key farmers" in the "peasant's demonstration fields". Second stage: the "key farmers" must inform other interested farmers on the techniques on their own pieces of land which will constitute some demonstration sites. Thereby, a ripple effect can be produced to the agricultural development of not only at water reservoir site level but also village surrounding the water reservoirs. The principles of the Peasants Demonstration Fields are as follows:

- For the practical training course, one CDA can supervise only 20 persons to facilitate the transmission of the techniques. That is why the number of participants will be limited to 20 persons. Each participant to the training becomes a key person and promotes the technical spread between farmers.
- Selection of farmers who have the will to acquire new techniques, having agricultural pieces of land and inputs. The selected farmers "key farmers" must commit themselves to transfer the techniques acquired to other interested farmers. This method has the merit to allow the effective application of agricultural techniques and to increase the demonstration effects

6.3.4 Redefinition of the role of the extension agent and collaboration with the local government

(1) Redefinition of the role of the extension agent

The action plan envisages that the regional directions of the agricultural development, the departmental directions of the agricultural development, the agricultural districts are responsible of the actions on their respective levels, considering therefore an importance to the assigned extension agents on the level of the commune to play the key role in animation on peasants level.

Within the framework of the implementation of the action plan, it will be requested from the extension agents to play fully their role of facilitation, i.e. to develop a will in the users of the reservoirs to face the various problems to which they are confronted, to sensitize them to engage and solve their problems using their own initiative, to carry out a follow-up of the activities after the establishment of the reservoirs valorization plan. The current work of the extension agents is centered on the forecasting study of the agricultural production particularly that of millet and sorghum which are the main cereals and they achieves only partially their mission of origin, that is the transfer to the villagers of the agro-sylvo-pastoral techniques which they master.

In the action plan, the capacities of facilitation of the extension agents will be reinforced on animation particularly in listening peasants and the checking out of received information so that they can fully play their role of facilitation. That allows these agents to strengthen their main mission work of technical support to the peasants. Figure 6.3(1) presents composition of facilitation

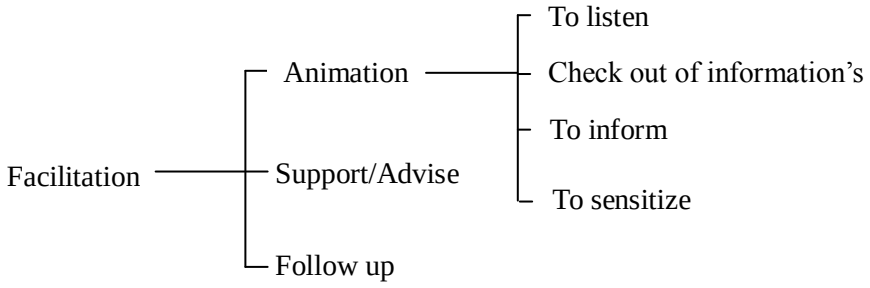


Figure 6.3(1) Composition of facilitation

(2) Collaboration with the local government

For the ownership and the implementation of the contents of the action plan after its execution, the State must provide the expenses of follow-up of the site by the extension agents, the expenses for the installation and the operation of a framework of dialogue at various levels (communes,

departments, regions). Within this framework, during the execution of the action plan, we must work with local government especially communes in regarding the following points:

- To establish the contents of the support to populations in collaboration with the concerned communes
- For the implementation of the plans of valorization of the reservoirs, to establish collaboration relations with the concerned branch services (environment, livestock, health, education, etc....): before starting any type of activity. And it is necessary to inform the concerned service to have its approval for implementation. Also to report the result to the related communes.
- During trainings, it will be asked for participation of one representative of the community concerned
- As regards collaboration, to particularly share the information between the concerned structures such as regional governor, departmental prefect and mayor.

Through these activities it is necessary to convince communes while implementing the action plan to share the necessary cost for monitoring by extension agent after finishing the action plan.

6.4 Method of implementation of the AP

Before the implementation of the action plan it will be realized an environmental evaluation, as an baseline study, not only for the purpose of renewal of existing data but also for the purpose of gathering other data not available (data related to women work load for instance, resource management situations such as water, land, and vegetation) concerning the reservoirs. By utilizing these data, the constraint factors of the agricultural development around the reservoir will effectively be analyzed for them to be taken into consideration in the execution of the action plan at the level of each site.

For the efficient implementation of the AP on the level of each site of water reservoirs (Weirs and small scale dams), the 3 points "reinforcement of capacities of reservoirs users in self development", " improvement of incomes and living conditions of reservoirs users", "implementation of the AP stage per stage" will be used as follows:

6.4.1 Reinforcement of capacities of reservoirs users in self development

Within the framework of the AP, the cooperative of user of water reservoir will be set up and the BLPC created for the durable valorization of the resources on the site. These two structures will work out, carry out and ensure the follow-up and the evaluation of their activities with their own means. This intervention axis will concern all sites of the AP and will consist to bring a support to peasant organizations and the administration. Thus, the three following stages will be followed to the level of all the sites:

- 1st stage: to support government technical services by the reinforcement of the capacities of the extension agents (support for animation, the support/advise and the follow-up: reinforcement of the sharing information system of the government services, training in various fields of agricultural development and logistical). At this stage, the extension agents will be trained or recycled in the field of sensitizing and follow-up over 3 months approximate period.
- 2nd stage: it is initially necessary to inform, sensitize farmers on the sites about the need for an organization, after organizing them and making them establish the reservoirs valorization plan (which will consider the maintenance and the durable management of the site) on the basis of their own resources. At this stage, it will be set up the cooperatives which will work out a plan of valorization over a period of three months
- 3rd stage: Installation of some BLPC at the level of the villages whose reservoir is located on their terroirs. At the same time of execution of the 1st and 2nd stages, the extension agents will

identify the villages housing the site of the reservoir so as to check the existence and the functionality of the BLPC in these villages. The BLPC will be set up where ever they do not exist and to proceed to the reinforcement of their capacities if they do not function well. The natural resources (water, land, and a forest) management plan established by the cooperative for the valorization of the reservoir will be discussed with BLPC for execution.

Considering all above, it is necessary to take into account the two following points:

(1) Support to the management of the sites and the maintenance of the reservoir

For the effective use of a site, the problems, charging organization to carry out the projects and to provide the equipments and materials as indicated in the table 6.4(1):

Table 6.4 (1) Support to the management of the sites

Problems	Organizations in charge	Content of the actions, nature and destination of the equipment and materials
the problem of the number of farmers with tendency to increase,	Cooperative	Installation of reservoirs users cooperatives
Management and maintenance of the reservoir	Cooperative	Training on the maintenance of reservoirs (equipments and materials for the rehabilitation of the cooperative's reservoir)
the land property problem	Cooperative and BLPC	Installation of BLPC for the management of natural resources
water problem	Cooperative and BLPC	Installation of BLPC for the management of natural resources
the damages on reservoir level	Cooperative and BLPC	Installation of BLPC for the management of natural resources (equipments and materials for the installation of corridors of passage, pasture lands and agricultural zone)

(2) Collaboration between the cooperative and the BLPC:

In the AP, the cooperatives gain profits. The BLPC are organizations of public interest in the village which do not basically produce cash profit. This is why, it is necessary to create a mechanism through which the cooperative will support the activities of the BLPC with the profits it gains. For example, for the delivery of the land property acts, the cooperative can deal with the printed papers form.

6.4.2 Improvement of incomes and living conditions of reservoirs users

The main problems of the farmers on the sites are the lack of agricultural inputs such as pesticides, improved seeds and the lack of experience in terms of agricultural techniques etc. Providing a support to establish the cooperatives facing these problems, it is hoped for the reinforcement and sustainability of the will to establish the cooperative, to act for the development of peasant's activities and an improvement of their incomes. Therefore, it will be provided a support of technique of valorization of reservoir by using the diffusion method "peasants by the peasants" taking into account of the specific needs for each site.

Since the natural, socio-economic and topographic conditions differ for each site of reservoir in the zone of the action plan, the needs for development also vary according to the sites. Consequently, the actions to be carried out in the various sites will be proposed in the form of menus entitled "improvement of incomes and living condition of the reservoir users", by taking into account of the needs of each cooperative. This section concerns all agro-sylvo-pastoral activities that can be realized at the level of each site according to it's specifically.

To give the cooperatives a sense of responsibility and to lead them to adapt the actions, they must deal with the labor, the local equipments and materials, a financial contribution and an availability of a land within the framework of the improvement of incomes and living conditions of reservoirs

users. The actions for the improvement of incomes of reservoirs users whose conditions will not be met by the cooperative will not be carried out.

The improvement of incomes of reservoirs users within the framework of the AP for instance does not concern, the construction of new roads or tracks, repairs of the reservoirs and the adjustments of water use facilities requiring some large investments, etc. For these actions, a support for the reinforcement of the capacities as regards the establishment of requests will be given, so that the cooperatives of users can address financing requests near other support structures.

The execution procedure of actions for the improvement of reservoirs users till the popularization of the techniques between peasants is detailed below:

- In the event of training on the techniques, the executive members of the organization call a general assembly to nominate the persons to train "key farmers". The organizations will analyze their potentials in term of human resources, then will select the "key farmers", able to diffuse the new techniques learned during trainings. The selection criteria of the "key farmers" are: (1) must commit themselves in diffusing the new techniques acquired to other farmers, (2) to be ready to practice the activity after the training, (3) to agree to be sanctioned by the cooperative if he is known to be guilty of non respect of the two points above. To consider the women and the young people in the selection of the participants to the training. The "key farmers" will be trained and they will deal with the self supervision.
- The execution of the trainings will be adapted to the method of "Peasants Demonstration Fields" which constitutes the basic orientation. Consequently, it is necessary to carefully use documents understood by the peasants having few capacities as regards reading and as far as possible containing some images and pictures. Take also care that these documents are immediately available for the peasants when they need some.
- After the training, the trained people "key farmers" make the office of the cooperative to call a general assembly. The diffusion of information on site level can be ensured by the members of the cooperative having attended the general assembly. The farmers interested by the new techniques can come near the "key farmers" to acquire them. The techniques on which the "key farmers" are trained must be shown to other interested peasants (farmers on the site and inhabitants of the neighboring villages). Sensitizing will be done during visits of individual or collective observations.

6.4.3 Implementation of the AP stage by stage

In order to continue the peasants' activities by themselves after finishing the three year action plan, the achievement degree of "Self development" is important key factor. As a method to measure the achievement degree of "Self development" the following items will be evaluated at the end of first year.

Related to reservoirs valorization plan, whether the plans which can be realizable by peasants themselves are included or not? Whether the responsible persons, budgets and executing periods are adequate or not? The maintenance plan for reservoirs and the plan for damage by animals are essential because related training would be finished by then.

Once the above mentioned plans are judged adequate the project office propose the menu of activities for improvement of incomes and living condition and their condition for approval, then the cooperatives study the activities based on the condition. After that, the cooperative apply the activities to the project office and after the examination and approbation by the office, the activities will be implemented.

As the condition of approbation, a physical, material and financial contribution will be requested. In the case of non respect of contribution by the cooperative, all the support of activities for

improvement of incomes and living condition will be suspended, and meanwhile, the cooperative must bring solutions to the problems.

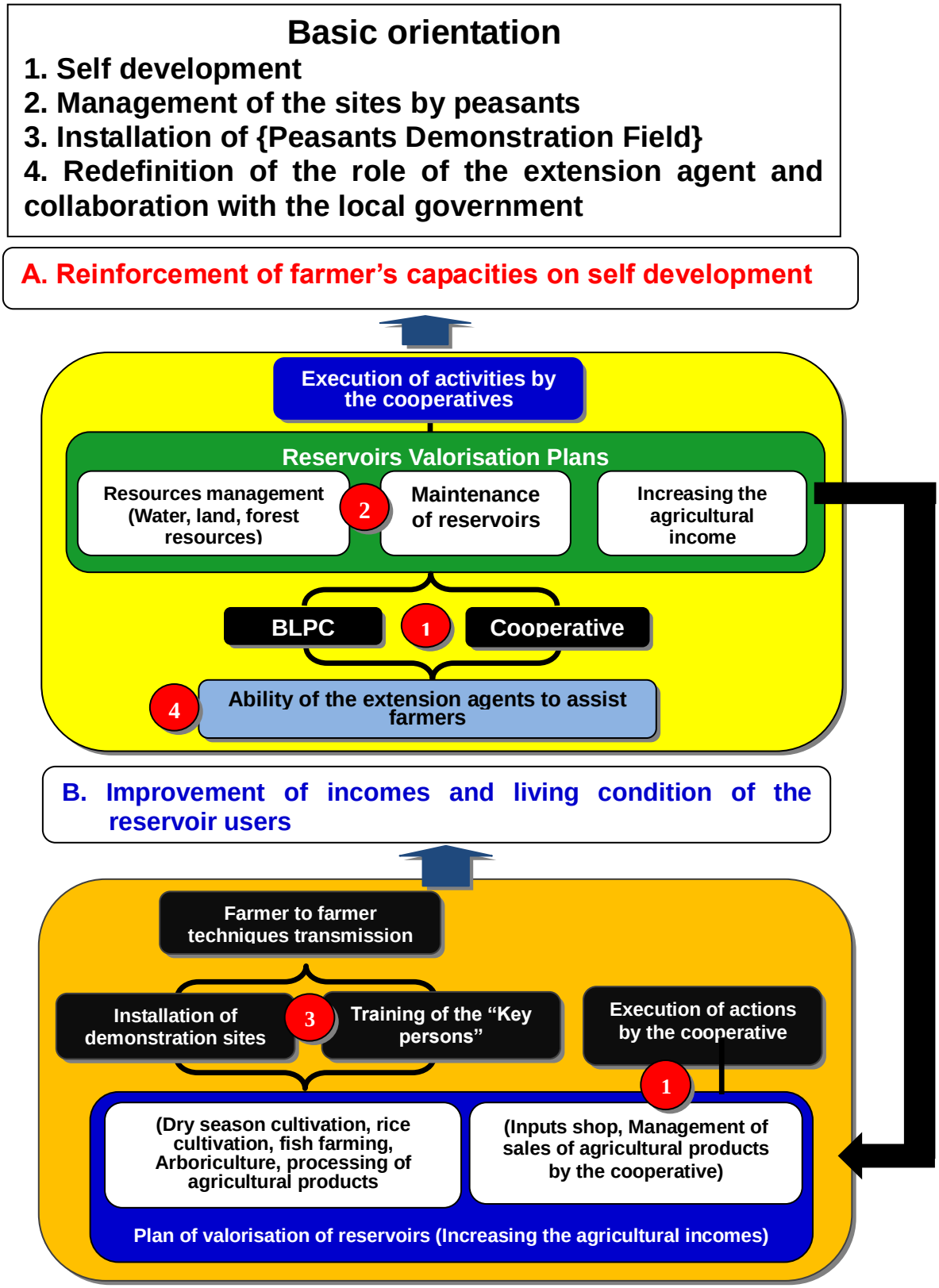


Figure 6.4 (1) Implementation of the AP stage by stage

Chapter 7 : Content of the action plan

7.1 Process of identification of the actions within the framework of the action plan

The basic study carried out before the starting of the study made it possible to identify the real problems of the farmers on the reservoirs sites. Some solutions were adopted in the form of pilot projects in order to face these problems. These pilot projects were tested on the level of the four sites of the study each one following its specificity and its potentialities. The experimentation of the pilot projects made it possible to see the feasibility and the profitability of each action selected in order to take into account the results in the action plan. At the end of this experimentation, it was retained the actions to be implemented within the framework of the execution of the action plan. These actions are presented in item 7.2 below.

7.2 Composition of the action plan

The actions retained in the action plan on the basis of result of the implementation of the pilot projects and the Effectiveness of actions are presented in table 7.2(1) below:

Table 7.2(1) Composition of the action plan and effectiveness of actions

Components	Objectives	Sub-components	Activities	Effectiveness of actions (Result of a pilot project)
A. Reinforcement of capacities of reservoirs users in self development	To reinforce farmer's capacities for the valorisation of reservoirs	A1. Reinforcement of capacities of basic extension agents	• A1.1. Equipping of basic extension agents • A.1.2. Reinforcement of capacities of basic extension agents in organizing reservoirs users • A.1.3. Installation of a system of distribution of information	• Currently, the support brought by the basic extension agents as regards animation near the farmers is evaluated on the scale of the year. But if it is carried out with even more intensity (several times per week), it will contribute to better supervise the farmers • The number of year of experiment varies from one extension agent to another. But, the various organized meetings made it possible to put at the same level these agents due to a good capitalization and a good distribution of goods and bad examples, within the frame work of their farmer's supervion activity • Collaboration between the cooperative and the technical services makes it possible more effectively to carry out the actions of development by the government and the NGO
		A2. Reinforcement of farmer's capacities in planning, execution, follow-up and evaluation of actions for the valorisation of reservoirs	• A2.1 Installation of cooperatives of the reservoirs users • A2.2 Training on the establishment, execution, follow-up and evaluation of reservoir valorisation plan (RVP) • A2.3 Training on the maintenance of reservoirs • A2.4 Installation of BLPC for the management of natural resources • A2.5 Training on struggling against sand accumulation	• Reinforcement of the activities of the cooperatives for the durable valorization of the reservoirs • Valorization of the reservoir water use (domestic, watering and irrigation) • Prevention of the problems of damage caused by the animals on the plots on the level of the reservoirs sites. • Maintenance of the functional reservoir
B. Improvement of incomes and living condition of reservoirs users	To increase the incomes and improve the living condition of farmers on the reservoirs	B1.Intensification and diversification of dry season cultivation	• B1.1 Training on gardening techniques • B1.2 Reinforcement of irrigation system	• Increase in the yields of vegetable production (Cabbage 1.7 times, Lettuce 2.9 times, Tomato 1.6 times, Onion 1.7 times, Carrot 1.9 times) • Increase in the possibilities of productions of vegetables and reduction in the departures in migration
		B2. Installation of inputs shops		• Increasing the availability of agricultural inputs (seed, fertilizers and crop protection products…) at sites level
		B3. Support to the management of the sale of agricultural products		• Possibility for the farmers of negotiating the selling prices with the tradesmen, and increase in the incomes of the farmers. • Increase in the incomes of the farmers through the control of the sale
		B4. Introduction of rice cultivation		• To increase the productivity of the sites with obtaining a yield of 6.5 t/ha for rice production • Diversification of food, sources of income and of farmer's production

Components	Objectives	Sub-components	Activities	Effectiveness of actions (Result of a pilot project)
		B5. Introduction of Fish farming		• To increase the productivity of the sites: to obtain 4t/year of fish on reservoir of Guidan Bado (water surface 13ha minimum). The selling price of a kg was fixed 750CFA, therefore it can be estimated a benefit of 3 million F CFA per annum. • Diversification of food ,the sources of income and farmer's production
		B6. Introduction of fruit growing		• It can be estimated the selling price of a grafted plant to 750CFA – 1,500CFA and the fruits from 200CFA – 500CFA the kg • Diversification of sources of incomes and of farmer's production
		B7. Introduction of improved seed varieties for rainfed cultivation		Yiels of the improve varities vary from 840 to 1,320 kg/ha for millet and 560 to 1,100 kg/ha for sorghum on the sites of Bourdi I and Guidan Bado whereas it is of 400 kg/ha for the local varieties.
		B8. Support to the processing and conservation of the agricultural products		• The processing of agricultural products facilitates the conservation ,the transport and permits to sell at profitable prices • To make the agricultural productions profitable
		B9. Support to Micro finance of tontine type		It has been installed 78 tontine groupings which mobilised some 5,619,220 F CFA (in february 2009), this forms the source of credit for the famers at villages level
		B10. Training on animal health and feeding		• Improvement and diversification of farmer's incomes through animal production
		B11. Training on the improvement of knowledge in health and hygiene (diseases related to water)		• Valorization of the reservoir water resources use (domestic, watering and irrigation) • The reserver's water can use sanitarily.
		B12. Introduction of improved cooking stove		• Conservation of the forest resources and reduction in the working time of women

7.3 Detailed contents of each activity of the AP

The programming of the activities was made on the basis of one site. The first month corresponds to the month of starting of the activities of the project and not January. This is why, it is necessary to adapt the chronogram of the activities to the suitable periods.

In addition, being given the significant volume of the activities of monitoring, each CDA must adapt the chronogram to its own work schedule.This must be discussed preliminary with the cooperatives.

To carry out a durable development by the villagers, it is important that they are convinced of the contents of the activities in order to raise their ownership and take in charge a part of the expenses of the activities.

When the contribution of the populations is raised, the population adapts more the infrastructures and/or the techniques used. Unfortunately, the level of the income of the populations in the target zone is very low, consequently it is impossible to start the new activities with a high rate of financial contribution.
For that, by taking account of these 2 elements, the rate of the financial contribution of the populations was given on the basis of following principles:

1) For the activities relating to the reinforcement of the capacities of the rural populations (such as the trainings), the contribution of the populations will not be required.
2) As regards the activities requiring the use of local materials such as earth blocks, those will be the responsibility of the populations.
3) The activities of public interest such as the soil conservation around the reservoir and the maintenance and the repair of the reservoir will be dealt with by the population with regard to simple work.
4) Concerning the activities which directly touch the incomes of the farmers with beneficial effects, they will be dealt with at 100% for the techniques locally known (fertilizer) but not for the locally unknown techniques which will be introduced (rice Nérica, pisciculture).
5) The tools and materials which will be used collectively will be dealt with at 20% by the cooperative. This charge is collected before training starts.
6) The conditions of well digging that the user of a well pays a usage fee. The project office determines the setting of a usage fee after talking with the CDA and the cooperative.

The financial contribution of the populations will be mobilized within the cooperatives of the reservoirs users , and will be used as funds of cooperatives activities (including starting funds for the system of purchase and sale in common of the agricultural inputs (Inputs Project)).

The contents of each action of the AP are as follows;

7.3.1. Component A: reinforcement of capacities of reservoir users in self development

Objective of the sub-project A: To reinforce farmer's capacities for the valorization of the reservoirs

Sub- component 1: Reinforcement of capacities of the basic extension agents
A1.1. Equipping of the basic extension agents

Objective: To improve the conditions of follow-up of the activities by the basic extension agents
Conditions to fulfil: CDA, DDDA in charge of the supervision of reservoirs usable for agriculture (categories 1,2) or the breeding (category 3).
Methodology:

- The motor bikes will be bought and they distribute to the CDA. And the CDA will be trained on the small maintenance of the motor bikes. The training will be organized on the level each region and will gather all the concerned CDA
- However, it will be regularly carried out by a specialized mechanic, the maintenance of the motor bikes and the fuel will be placed at the disposal of the CDA throughout the project. The CDA records the motorbike operation data (the distance, the object of follow-up and contact person) in the forrm. And when to pay for a cost of fuel, this forrm is verified for a suitable management. Moreover, it will be carried out a training on motor bike driving for the laymen. The training will proceed during 1 day.
- The CDA will carry out the monitoring of the activities of the cooperative (1 time per week and site) and of the BLPC (from time to time to get informed of the operation and management of the BLPC and to bring a support of needs to the members).
- In addition, it will be placed at the disposal of the DDDA the fuel for the supervision of the activities at the rate of one mission per month and site. However, the DRDA can possibly go on the sites when necessary.

Equipment and materials: The list of the equipments and materials is presented in appendix AP1

Program of execution of the training (at the starting of the project)

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A 1.1 (1)																																				
A 1.1 (2)																																				
A 1.1 (3)																																				

A1.1. (1) training on motor bike driving (for the laymen) and the small maintenance of the motor bikes
A1.1. (2) regular maintenance of the motor bikes of the CDA
A1.1. (3) Support of the DDDA for fuel and lubricant

A1.2 Reinforcement of the capacities of basic extension agents in organizing reservoir users

Objective: To reinforce the capacities of the basic extension agents as regards animation, management of their work and in various techniques

Conditions to fulfil: CDA, DDDA in charge of the supervision of reservoirs usable for agriculture (categories 1,2) or the breeding (category 3).

Methodology:

1st stage:

Training to the extension agents (CDA and DDDA) so that they take knowledge of the base concept of the action plan. In addition, the organization specialist of the project acts as a lecturer, and explains by utilizing a final report:

- Total presentation of the project to DRDA, DDDA and CDA: 1 day
- Training on organising: 1 day
- Presentation of the guides on the installation of the cooperatives and the establishment of the plan of valorization: 2 days
- Presentation of the other guides of training: 1 day

2nd stage:

Detailed diagnosis of the sites by the extension agents to facilitate the real training requirement: Interview of the understanding about the content supported in the past and the present condition by administration, a donor and NGO at each site. 1 day ; data collection: Once a week during 1 month

Equipment and materials: The equipment is included in those of the various training

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A 1.2 (1)			■																																	
A 1.2 (2)				■																																

A.1.2 (1) To make the extension agents aware of the action plan

A.1.2 (2) Detailed diagnosis of sites by the extension agents

A1.3 Installation of a system of share of information

Objective: To share information with the various official services and/or the technical and financial partners

Conditions to fulfil: CDA, DDDA , DRDA in charge of the supervision of the reservoirs usable for agriculture (categories 1,2) or the breeding (category 3)

Methodology:

- Participants in the monitoring meetings: DRDA,RDE/FAD, RDTA/CD, RDL/AI, Regional Permanent Secretariat Rural Code, DDDA, CDA, Rural engineering, Rgional service of cooperative action and promotion of rural organisms; the meetings will be held at the level of each region and will be chaired by the DRDA (Once each 2 months).They aim to share information for better managing the activities on the level of the sites.
- Participants in the Consultative Committees: participants in the monitoring meetings , TFP and other projects, ONG, representatives of the communities and the representative of Governor. The Consultative Committees will be held at the level of each region (Once a year).The Consultative Committees aim to share information, to harmonize the interventions and to seek collaboration with other projects, ONG and the decentralized communities for the valorization of water reservoirs.

Equipment and materials: There is no equipment and material for the training.

Program of execution of the training

Activities	First year												Second year												Tgird year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A 1.3 (1)					■		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
A 1.3 (2)								■										■								■											

A1.3 (1) Monitoring meeting
A 1.3 (2) Consultative committees

Detailed methodology:

Some monitoring meetings will permit to the extension agents to present the state of progress of the extension plan and monitoring which they defined. These meetings will form the core of the system of extension. They will be held at the regional level, the CDA in charge of the reservoirs and the other persons concerned will meet under the direction of the regional director of agriculture, they will discuss problems encountered during the supervision of the populations in the implementation of the plans of valorization of the reservoirs, the solutions to be brought, and will share their experiences. To establish, realize, monitor and evaluate their own plan of extension will permit to the CDA to become aware that they are responsible for the system of extension. Their capacities will be improved through these activities (see figure 7.3(1))

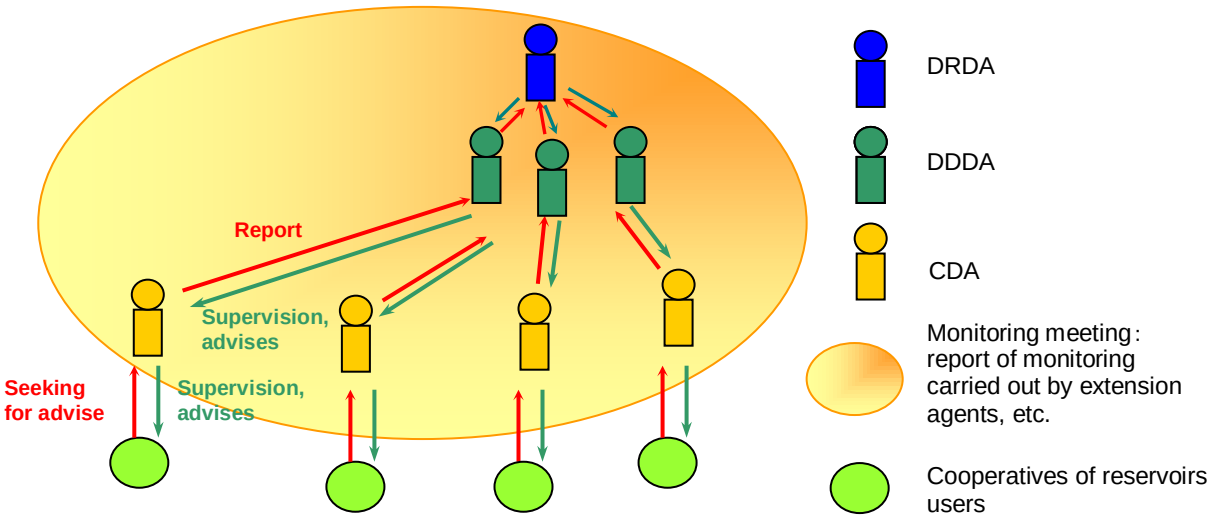


Figure 7.3(1) Extension system connecting government services and the reservoirs users

The role of the main actors from government services is presented as follows:

(1) Chief of District of Agriculture (CDA):
It is the basic extension agents that are in direct connexion with the rural populations near whom they will play the role of organizer, will ensure the monitor and the support-advise for the activities identified and planned by the installed peasant organisations. They are also charged to account for the course of the activities to the mayors of the concerned communities. They bring also a technical support to the villages in collaboration with the farmers groups of the respective villages where necessary. In addition, when a defect is in the annual balance sheet (gathering of financial resources, accountancy management, etc.) CDA guides this cooperative through suggestions and proposal for Improvement. They must also take care of the respect of the provisions in application particularly concerning the transmission in communities of the annual balance sheets of farmer's cooperatives.

(2) Director of Department of Development of Agriculture (DDDA):
They will be charged to supervise the basic extension agents i.e. the CDA to bring a technical, methodological support to them and to solve certain problems also exceeding their capacities. In addition, they must ensure the coordination of the activities in their zone of intervention, i.e. on a departmental scale, and account for the course of the activities to the prefets. The DDDA are charged to bring the technical support to farmers of the sites where necessary, to ensure the evaluation of the activities and to train the farmers.

(3) Director of Region of Development of Agriculture (DRDA):
They will be charged to chair the two monthly meetings of monitoring, to coordinate the activities on a regional scale and to account for the progress report of the activities to the governors of their zones of intervention.

(4) Persons in charge of the regional services of the cooperative action and the promotion of the rural organisms:
They will be charged to set up the cooperatives of the reservoirs users and other peasant organizations. They will have also to train the persons in charge of these organizations so that they can fully play their roles.

Component A2 : Reinforcement of farmer's capacities in planning, execution, follow up and evaluation of actions for the valorisation of the reservoirs
A.2.1 Installation of the cooperatives of the reservoirs users

Objective: Installation of the organization of the farmers.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).
Methodology:

- Before installation of the cooperative, inform the chief of villages using the reservoirs on the utility, the aim and the objective of the reservoir and the cooperative trough the CDAs during the detailed diagnosis (fourth month)
- Information/sensitization of the farmers by RSCA/PRO (Region Service of Cooperative Action/ Promotion of Rural Organisms): To explain the need for the set up of an organization for the valorization of the reservoir water resources (1 day), the attention of the farmers will be drawn to the fact that the organization which will be installed must be opened to all men like women wishing to adhere to it; it will also be specified that the work of the women contributes much on the incomes of households and food self-sufficiency
- Identification of the farmers and their villages of origin (by farmers) as well as the terroir covering the site during 5 days (considering an average of 5 villages per site).
- Support to the installation of the cooperative by RSCA/PRO (1 day), one week after the information/ sensibilisation of farmers
- Training of the executive members of the cooperative by RSCA/PRO: Goals and objectives of an organization, management of an organization (4 days),
- Follow-up of the operation of the cooperative by RSCA/PRO (1 day): It will be organized some missions (each 6 months) to assess the operation of the cooperative; During this mission, a diagnosis of the cooperative will be carried out as regards its members, its organs, its leaders and of its operation in a general manner.

***NB*:** The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipments and materials: There is no equipment and material for the training.

Program of execution of the project

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A2.1 (1)						■																														
A 2.1 (2)						■																														
A 2.1 (3)						■																														
A2.1(4)						■																														
A2.1 (5)						■																														
A2.1 (6)									■						■						■					■						■				

A 2.1 (1) Information of farmers by the CDA
A 2.1 (2) Sensibilization of users by the RSCA/ PRO
A 2.1 (3) Identification of farmers,their villages of origine and also the areas covring the site
A 2.1 (4) Installation of the cooperative
A2.1 (5) Training of the cooperative's executive members
A2.1 (6) Monitoring of the operation

Detailed methodology:
All the users of water reservoirs, the farmers, the pastors, etc, can be members of the cooperative of the reservoir users. This makes that there is no limitation of the number of farmers per site, but

however for the farm requirement it should not exceed the cultivable surface area.The delegates of the reservoir users are democratically elected (in general, one delegate for 10 users) village to village, and the general assembly (GA) which gathers all the delegates thus elected is the single decision-making organ of the cooperative. These delegates then select in their centre the persons in charge for the executive committee, as well as a representative of each village to constitute the executive committee. The roles of the executive committee are to establish and monitor the plan of valorization of the reservoir, to regularly exchange information with government services and to ensure the administrative management of the cooperative of the reservoir users. The number of the executive members should not exceed 30 persons in total to allow an active management. The role of the representative of each village within the executive committee is to progressively inform the users of their village on work of the executive committee.(see figure 7.3(2))

NB: Some dramaticSketches will be presented to the users to help them better choose the most qualified delegates.

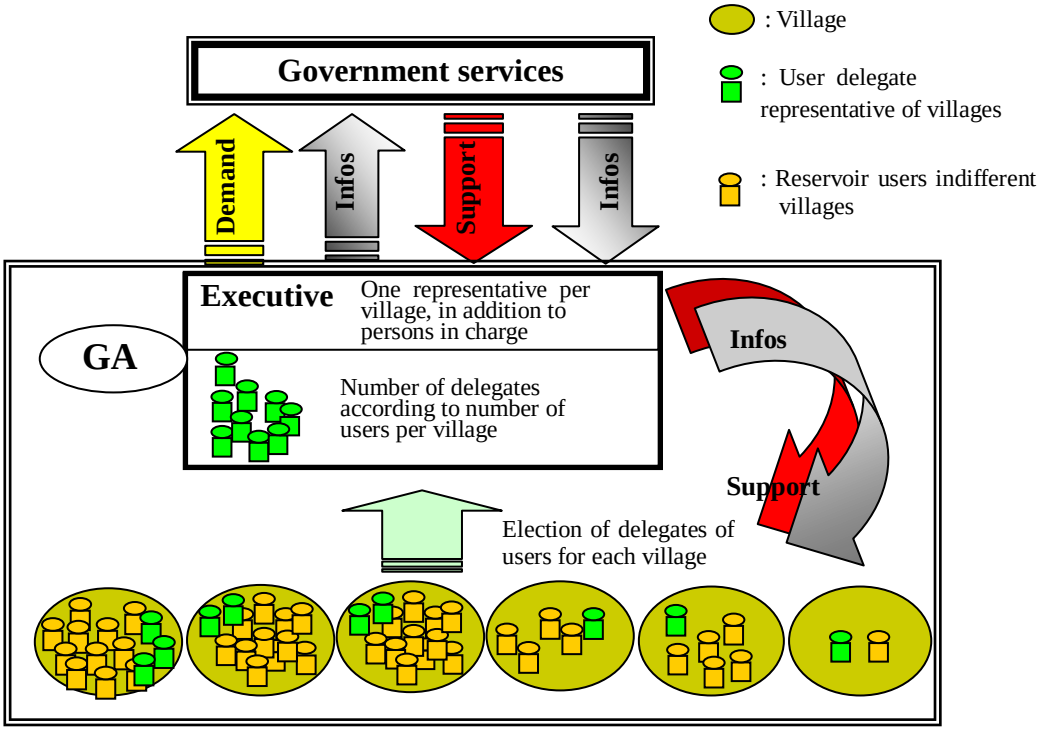


Figure 7.3(2) Composition of the cooperatives of reservoir users, and relationships with government services

As shown in figure below, a cooperative of water reservoir users is made up of the following organs: The general assembly, the executive committee and auditors. It is set up some sub-committees for the management of the specific activities. The executive committee is composed of a president, a vice-president, a secretary-general and his assistant, a treasurer (for which it is necessary to privilege the persons who can read and write) and its assistant and a secretary to information plus his assistant and of one delegate per village representative of the users of the reservoir of each village. The cooperative of the water reservoir users can also set up the specialized sub-committees as mentioned in the figure below. But the sub-committees will vary according to use conditions of the reservoir in the various villages. The members of the various sub-committees are selected among the users of the reservoirs according to the use which they make of the reservoir and their role. The project of plan of valorization of the reservoir is established on the initiative of the executive committee, by coordinating the activities of the various sub-committees.

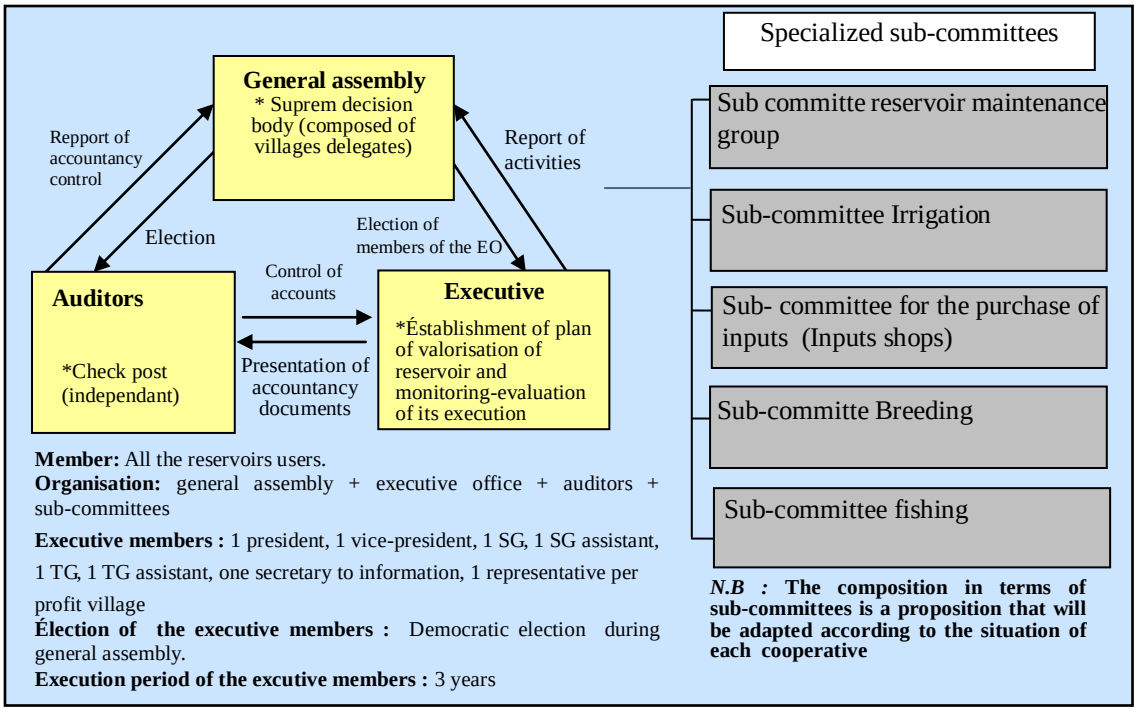


Figure 7.3(3) Composition of cooperatives of the reservoirs users (proposition)

A.2.2 Training on the establishment, execution, follow-up and evaluation of reservoir valorisation plan (RVP)

Objective: einforcement of the capacities of the farmers as regards planning.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).
Methodology

- Training will relate to the development, the execution, the monitoring and the evaluation of a plan of valorization of the reservoir by RSCA/PRO (3 days)
- Training on the techniques of negotiation by RSCA/PRO (3 days)

***NB*:** The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: There are no equipment and materials for the training.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A2.2 (1)							■																													
A2.2 (2)								■																												

A2.2 (1) Training on planning (establishment, the execution, the monitoring and the evaluation of a plan of valorization of reservoir)
A2.2 (2) Training on the techniques of making request files

Detailed methodology:
The executive committee of the cooperative of the reservoir users synthesizes the problems involved in the valorization of the reservoir and analyzes the potentialities. It is from these results that the plan of valorization of the reservoir is established. The plan is then validated by the general assembly which gathers the delegates representatives of the reservoir users from each village.

The reservoir valorisation plan will be established while distinguishing: a) realizable actions with the only financial and physical resources of the users themselves, and b) actions to be realized on the basis of external support. The focus will be initially laid on the realization of the actions of the a) type in priority. With the experience "to have carried out alone the plan that they established", the users will gain in confidence in themselves as executants of the development of the reservoir and will be able to look for the execution of new plans. Within the framework of the action plan, it is expected that the actions of the b) type will be able to be carried out if the cooperatives manage to become dynamic by carrying out in priority the actions of the a) type.

The actions of the b) type are those which the users cannot carry out with their only financial and technical capacities. These actions can be contained or not in the action plan on one hand. It can be quoted like example of action not taken into account in the action plan: new roads or tracks, significant repairs of the reservoirs, adjustment of infrastructures of water use, etc. For these actions, a support for the reinforcement of the capacities as regards development of requests will be brought, so that the cooperatives of users can address requests of support near other structures.The procedure of execution of the support for the establishment of the plans of valorization of the reservoirs is presented in diagram 7.3(4) below:

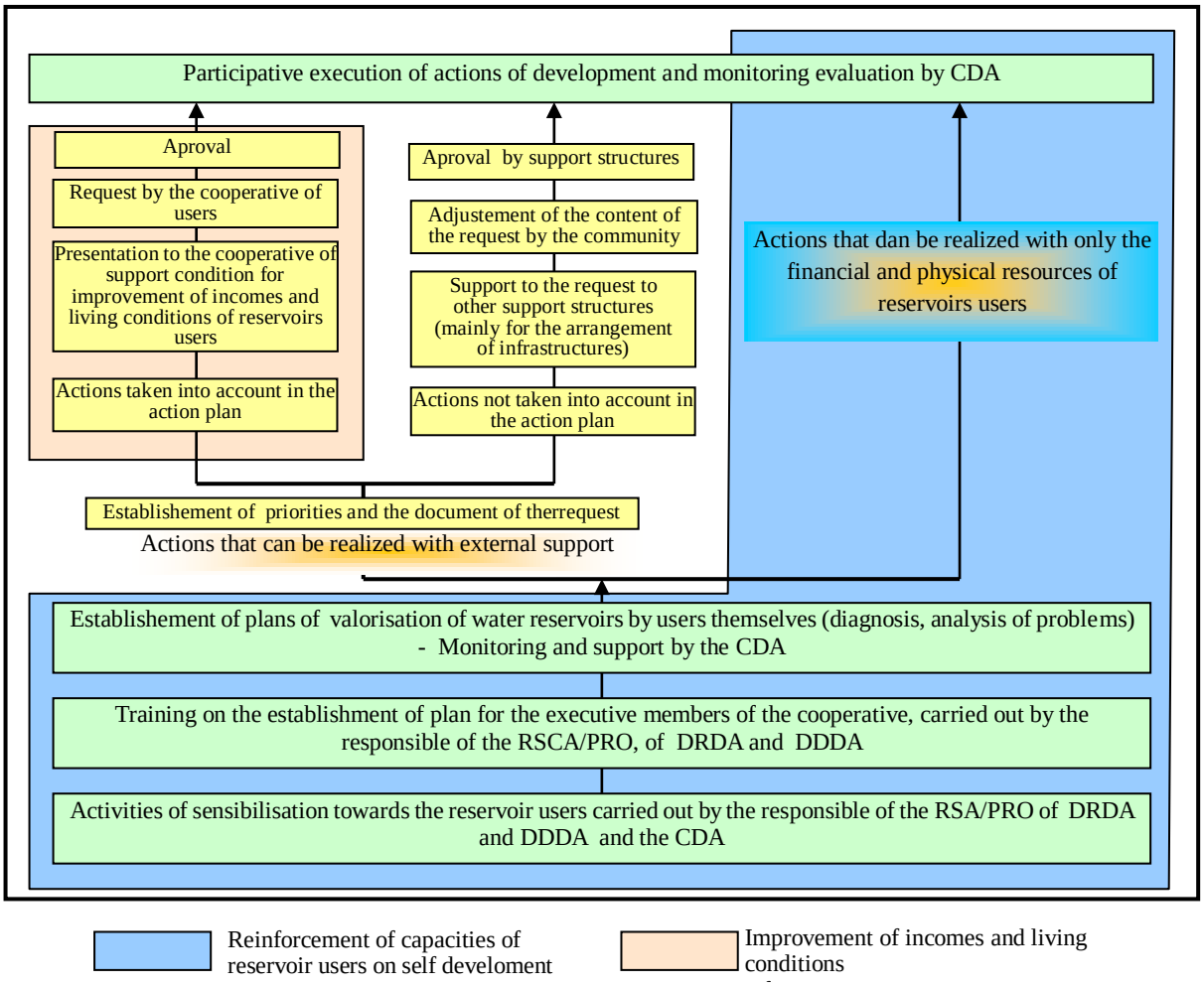


Figure 7.3(4) Procedure for the establishment of the reservoirs valorization plan

A.2.3 Training on the maintenance of the reservoirs

Objective: o contribute to the good management of the sites through the reinforcement of the capacities of the farmers in the field of the maintenance of the reservoirs.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).
Methodology

- Support to the installation of the squad of maintenance and training on the techniques of maintenance of the reservoirs by staff of the Agricultural engineering departments service. (1jour)
- Support to the establishment of the plan of maintenance which practical actions will be led to the level of the reservoir by staff of the Rural engineering departments service (1 day)
- Small possible rehabilitations by cooperative: It will be carried out with the need for small rehabilitation on the level of certain reservoirs for approximately 1 million F CFA per site. Cost of the small scale repair by the farmer (Expense that buys the cement, the gabion.etc.)

***NB*:** The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: They will be determined according to the needs for small rehabilitation.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A2.3(1)									■																											
A2.3(2)									■																											
A2.3(3)																■													■							

A2.3(1) Training and installation of squad for the maintenance of the reservoir
A2.3(2) Establishment of the first plan for the maintenance and practical actions
A2.3(3) Little rehabilitation

A.2.4 Installation of BLPC for management of natural resources

Objective: Taking of measurements of prevention of the conflicts between the various actors.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or the breeding (category 3).
Methodology

- Information of the engineering departments in charge of the rural development (Agriculture, live stock raising, Environment), the Departmental Land Property Commissions (DLPC) and the concerned communes by the staff of Regions permanent secretariat rural code: for the presentation of the activities to be realized and the objectives aimed at through the process of land property securing (2 days)
- Support of the installation of the Basic Land Property Commissions (BLPC) by the staff of Regions permanent secretariat rural code: One commission will be installed on the level of each village concerned by the terroir of the site (sites situated in pastoral zones not concerned) which do not possess a BLPC (1 day per village); it is chaired by the chief of village
- Training of the members of the existing and newly installed BLPC by the staff of Regions permanent secretariat rural code: The members of these commissions will be trained on the contents of the Rural Code, its objectives and especially its mission of prevention of the conflicts between the rural operators and on the techniques of installation of the pasture land (construction of anti erosive works, plantation of tree and sowing of herbaceous…) mainly for the sites with pastoral vocation (2 day per village); Some copies of land property transaction forms will be placed at the disposal of the trained BLPC, and the method of entry of form is explained.
- Dialogue meeting: it gathers in addition to the Members of the BLPC of the villages concerned by the terroir of the site, Regions permanent secretariat rural code, DLPC and Communal Land Property Commissions (CLPC), the agents of the engineering departments concerned by the rural development. It has to be determined during this meeting the measures to be taken on the level of each site to secure the land (1 day per site)
- Support of the identification, delimitation, materialisation and/or rehabilitation of the animals passage corridors and other service areas by the staff of Regions permanent secretariat rural code: this stage constitutes the implementation of the measures adopted during the dialogue meeting (2 days); the demarcation and/or rehabilitation of the animals passage corridor and other services areas will be carried out by the cooperative. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the equipments and materials is presented in appendixAP1

Program of execution of the project

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A2.4 (1)																																				
A2.4 (2)																																				
A2.4 (3)																																				
A2.4 (4)																																				
A2.4 (5)																																				

A2.4 (1) Information of officials in charge of the rural development and the concerned communes
A2.4 (2) Official installation of BLPC
A2.4 (3) Training of the members of the existing and newly installed BLPC
A2.4 (4) Dialogue meeting
A2.4 (5) Identification, delimitation, materialisation and/or rehabilitation of corridors for animal passage and other services

A2.5 Training on struggling against sand accumulation

Objective: Reinforcement of the capacities of the farmers in terms of the protection of the areas and the fight against the sand accumulation in the reservoirs

Conditions to fill before the execution of the training: Reservoirs usable for agriculture (categories 1,2) or for livestock raising (category 3).

Methodology: Training of 25 persons per site in 2 stages:

1st stage in February:

RDE/DDE/FAD (Regional Direction of Environment/ Departmental Direction of Environment and Fight Against Desrtification)for the training,2 days (1 day of formal training and 1 day practises for the nursery and the anti erosive works).With this stage, the farmers must set up the small scale nursery and identify the sites of the plantations for the rainy season. If the site requires the installation of the anti erosive works, they must also start to be made as from this period. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials

The contents of the training are presented as follows:

- Installation of small scale nurseries for plant production: However it will be discussed with the cooperative of the need to install or not the nursery at the level of the site;
- Agro-forestry: trees plantation, protection of natural regeneration; in this place the cooperative must be engaged to ensure the maintenance of the reservoir and the production of plants
- Conservation of Soil Water /Defence and Restoration of Soil (CSW/DRS): construction the anti erosive works (the eyebrow ridges, trenches, stone ridges, embankments, Zaï, dry stones wall, dunes fixing)

2nd stage in July:

RDE/DDE/FAD for the training,1 day of practical on the plantation. The seedlings produced on the level of small scale nurseries will be used for this purpose.

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the equipments and materials is presented in appendixAP1

Program of execution of the training

Activities	First year												Second tear												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
A2.5 (1)														■																						
A2.5 (2)																			■																	

A2.5 (1) Formal training(installation of smallscale nurserie, construction of anti erosive works, treees plantation) and identification of sites for plantation

A2.5 (2) Practical training on tree plantation

7.3.2. Component B: Improvement of the incomes and living conditions of the reservoirs users

Objective of the component B: To increase the income and improve the living conditions of reservoirs users

Sub component B1: Intensification and diversification of dry season cultivation
B 1.1 Training on gardening techniques

Objective: Increase and the diversification of the gardening production
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2).
Methodology

- Installation of "peasant demonstration fields": identification of "key persons" and their plots, the training of the whole group will be carried out on the plot of one of the "key persons"
- DRDA/DDDA for the training, Training course (by demonstration method) on the basic techniques of gardening for 25 persons (3 days): period favourable after the rainy season at the beginning of the dry season campaign, the first day will be used for the theory and the two other remaining days will be practical. The cooperative must contribute to a total value of 20% of the costs of the materials
- DRDA/DDDA for the training, Training course (by demonstration method) on the prevention and the treatment of the parasites and diseases of garden crops for 25 persons (2 days): suitable period, during the dry season campaign. The cooperative must contribute to a total value of 20% of the costs of the materials

The topics which will be approached during these two training courses are:

1. The use of good quality seeds
2. Soil preparation (Ploughing, application of the organic manure and construction of blocks)
3. Techniques of nursery (soil preparation, sowing, watering and protection of the young seedlings)
4. Techniques of transplanting (period and spacing)
5. Cultural practices after transplanting (weeding/harrowing, use of organic and mineral fertilizers, watering and plant health protection)
6. Harvests (periods and techniques of harvests)

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the materials is presented in appendixAP1.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B1.1 (1)													■																							
B1.1 (2)														■																						
B1.1 (3)														■																						

B1.1 (1) Installation of « peasant demonstration field »
B1.1 (2) Training on the bsic techniques of gardening
B1.1 (3) Training on garden crop protection against parasites and diseases

B1.2. Reinforcement of irrigation system

Objective: To reinforce the effectiveness of the use of irrigation facilities.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2).
Methodology
1st stage:
When there is no well for used like an object for garden, sinking of one garden well for the cooperative to reinforce the irrigation facilities on the site. The cooperative will define the rules for the use of these wells and profits plots. The conditions of well digging that the user of a well pays a usage fee.
2nd stage:

- Training on the maintenance of a motor-driven pump and improvement of the irrigation networks by staff of the Agricultural engineering departments service: 25 persons (men and women) will be trained during 2 days: It will be placed at the disposal of the farmers a motor-driven pump if they did not profit from the project. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials
- Training on the use of a system of pumping out by animal haulage and the manual pump by staff of the Agricultural engineering departments service:25 persons (men only) will be trained during 7 days: this training will be theoretical and practical; it will be made the device of pumping out used with the animal haulage with the participants during the practical part. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the materials and equipment is presented in appendixAP1

Program execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B1.2 (1)																			■																	
B1.2 (2)																				■																	
B1.2 (3)																								■												

B1.2 (1) Sinking of two (2) garden wells
B1.2 (2) Training on the use of a system of pumping out by animal haulage and the manual pump
B1.2 (3) Training on the maintenance of a motor-driven pump and making of irrigation network

Sub component B2: Installation of inputs shops

Objective: To improve the productivity on the level of the sites by the diffusion of the techniques of grouped purchases, storage and use of the agricultural inputs.

Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).

Methodology

1st stage:

Support of the installation of the shop management committee by RSCA/PRO. The cooperative must moreover build a room for the input bank

2nd stage:

Training of members of the management committee by RSCA/PRO

- Training course on the management of a the agricultural inputs banks : 25 persons will be trained on the organization of the grouped purchase of the inputs (seeds, fertilizers, pesticides, fungicides, farm equipments…), their use, the storage and the management of the agricultural products and inputs. The persons to be trained must be the members who will be responsible for the management of the inputs bank which will be installed. The cooperative must take care of that to be so:4 days
- Training course on the techniques of collection, recording, diffusion and use of information related to the inputs and to the commercialization of agricultural produce: 2 days

3rd stage:

Monitoring of the operation of the input bank by RSCA/PRO

- Missions of diagnostic of the functionality of the inputs bank:1 day,
- Mission of implementation of the recommendations:1 day

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of materials and equipments is presented in appendixAP1.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B2 (1)																		■																			
B2 (2)																		■																			
B2 (3)																							■													
B2 (4)																						■														
B2 (5)																														■						
B2 (6)																															■					

B2 (1) Installation of the shop management committee

B2 (2) Training of members of the management committee on prouped purchase of inputs ,their use ,storage and the manangement of agricultural inputs and products

B2 (3) Training of the techniques of collection, recording, diffusion and use of commercial informations

B2 (4) Setting of 100 bags of fertilizers[1] at the disposal of the cooperative

B2 (5) Missions of diagnostic of the functionality of the inputs bank

B2 (6) Recycling of training

[1] It is the maximal quantity that can be carried by a truck (4t), and there is demand of enough 100 bags of ertilizers in a site. The fertilizers will be sold with the cash at a remunerative price, and the funds resulting from this sale will constitute a working capital for the inputs shop

Sub component B3: Support to the marketing of the agricultural products by the cooperative

Objective: To contribute to the profitability of the agricultural production of the sites.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2).
Methodology
Training on the marketing of the agricultural produce, DDDA for the training: the points to be treated "The basic concepts on management" and "The accumulation of information" (3 days). The cooperative must build the store for the storage

"The basic concepts on management": Training on the profitability, the production management, the quality control, marketing and distribution.

"The accumulation of information": Training on the accountancy and the methods of collection, recording, diffusion and use of the information (documents where the data on the crops are consigned, the sales, the markets)

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: No equipment to provide.

Program execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B3.1 (1)																	■																			

B3.1 (1) Training on the marketing of agricultural products

Sub component B4: Introduction of rice cultivation

Objective: To contribute to the increase and the diversification of the agricultural production through rice growing.

Conditions for the adoption of the project: Reservoirs usable for agriculture (category 3). And possessing soil suitable for rice cultivation

Methodology

The introduction of rice growing will be led in two stages:

1st stage:

Experimentation of rice growing on the level of the site

- In order to understand the tendency of the rice market around a site, a specialist of the riziculture who belongs to NIARN carry out a mission of prospection of the site for one day.
- Soil survey by a specialist of the riziculture who belongs to NIARN (during 1 day): Determination of the eco-pedological characteristics in order to identify the conditions for cultivation of a site: to appreciate the pedology, topography, the availability of water, the natural environment…
- Information/sensibilisation of farmers, choice of the participants in the training, to determine the conditions of development of the site and to identify the contact peasants for the test: 10% of farmers of the site will be surveyed during 1 day to appreciate the feasibility of the test and to identify the contact peasants for the test
- Training of the contact peasants on the execution of rice growing on the level of the experimental fields by a specialist of the riziculture who belongs to NIARN: Participants 6 persons per site (the interested women can join the persons to be trained) and heads of agricultural districts concerned during 3 days; a maximum of 5 varieties will be tested at a rate of 100 m^2 per variety and per person, that is a total of 0.3 ha per site; in addition to the cultivation of rice, it will be practically taught some brief techniques for the installation of nurseries and the experimental fields
- Support of the installation of the rice plantations for the identification and delimitation of the nurseries and the experimental fields by a specialist of the riziculture who belongs to NIARN: the farmers will provide the necessary labour and will be framed throughout the duration of installation:2 days. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials
- Mission of supervision of transplanting by a specialist of the riziculture who belongs to NIARN (during 4 days):This stage constitutes also a practical stage of the training because the farmers will better understand the techniques of road repair
- Follow-up of the test of the introduction of rice growing by a specialist of the riziculture who belongs to NIARN:4 missions of one (1) day each one will be organized.
- Monitoring of the harvest and data acquisition on the production (during 4 days): Will be organized also with this stage the test of preparation and tasting of rice.

2nd stage:

xtension of rice growing to the level of the site

If the test of the first year proves to be positive (obtaining good outputs, availability of farmers to continue rice growing), the second stage can follow. This stage is primarily intended for the recycling of the technical training which the specialist judged that practice of a participant has not followed and the brief techniques of damming up (25 persons). However, the number of rice growers and surfaces areas for rice at the second year must increase in number..

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the materials and equipment is presented in appendixAP1

Program execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B 4 (1)										■																										
B 4 (2)											■	■	■																							
B 4 (3)														■	■																					
B 4(4)															■																					
B 4 (5)																														■						
B 4 (6)															■																					
B 4 (7)																■																				
B 4 (8)															■	■	■	■	■	■										■	■	■	■	■			
B 4 (9)																				■																	

B 4 (1) Mission of prospection
B 4 (2) Soil survey
B 4 (3) Information/sensibilisation
B 4 (4) Training of the contact peasants
B 4 (5) Recycling of the trained peasants
B 4 (6) Installation of the rice fields
B 4 (7) Supervision of transplanting
B 4 (8) Monitoring of the test
B 4 (9) Monitoring of the harvest and tasting test

Sub component B5: Intoroduction of fish farming

Objective: Introduction of fish farming in the water reservoir.
Conditions before the execution of the activity: Reservoirs of the category 1 which retains water all the year.
Methodology: Training of 25 persons per site in 4 stages:

1st stage:

- Feasibility study by staff of NGO specialized for the training during 3 days: Study on the site will be carried out in order to plan the adjustment of the site of reservoir for fish stocking
- Information/sensitization of the villagers on fish stocking of reservoir by staff of NGO specialized for the training during 2 days: To sensitize the concerned villagers on the interest of fish production
- Adjustment of the site of fish stocking: Supply of the material of fish stocking and fishing (15,000 fry)
- Control fishing by staff of NGO specialized for the training: 2 missions of one day each to check the vitality of fish and introduced fries.

2nd stage:

- Training on the techniques of fishing and the maintenance of the equipment 6 days: To train staff NGO specialized for the training on the assembly of the nets and hooks, to train twenty five (25) participants to use the equipment of fishing and to sail on the water reservoir. These participants will be selected according to following criteria:
  - ✓ To be member of the cooperative or to have the access authorization to the water reservoir provided by the cooperative;
  - ✓ To be motivated;
  - ✓ To have the fishing equipment (net or hooks)
- Monitoring of fishing during the launching by staff of NGO specialized for the training: Organization and execution of a mission of follow-up at the time of the launching of the first fishing year (1 day)

3rd stage:

- Training on the marketing and the conservation of fish by staff of NGO specialized for the training during 3 days: Training (25) persons.They will be trained on conservation, the marketing and the quality of fish. The participants will be selected according to following criteria:
  - ✓ To be member of the cooperative or to be designated by the office of the cooperative;
  - ✓ To have a working capital to start the activity of fish trade (for the fish wholesalers).

4th stage:

- Monitoring/analysis of the statistical data by staff of NGO specialized for the training: One (1) mission to examine the evolution of the fish population and check some management measures.

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the equipments and materials is presented in appendixAP1

Program of execution of the activities

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B5 (1)																																				
B5 (2)																																				
B5 (3)																																				
B5 (4)																																				
B5 (5)																																				
B5 (6)																																				
B5 (7)																																				
B5 (8)																																				

B5 (1) Feasibility study
B5 (2) Information/sensitization
B5 (3) Adjustment of site for fish farming
B5 (4) Control fishing
B5 (5) Training on fishing techniques and maintenance of equipments
B5 (6) Monitoring of fishing during the launching
B5 (7) Training on marketing and conservation of fish
B5 (8) Monitoring/analysis of statitical data

Component B6: Introduction of fruit growing

Objective: To contribute to the increase and the diversification of the agricultural production by the introduction of fruit crop growing at the level of the sites.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) .
Methodology

- Mission of prospecting by the staff of DRDA
- Purchase of equipments and materials. The cooperative must contribute to a total value of 20% of the costs of the equipments and materials
- Information/sensitizing of the farmers by the CDA(1 day)
- Training of the farmers on arboriculture by the staff of DRDA (25 participants per site during 5 days): Production of seedlings in the nursery, grafting and maintenance work of an orchard, the training will be carried out on the plots of "key persons" who will be responsible of the maintenance of the plants
- Training on the pruning and the weaning of the grafted seedlings by the staff of DRDA during 1 day
- Monitoring and reinforcement of the training by the staff of DRDA (1 day)

The species concerned are: citrus fruits, mango trees, apple trees of the Sahel, papaw trees, guava trees and others depending on the specificity of each site.
NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of the equipments and materials is presented in appendixAP1.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B6 (1)																										■										
B6 (2)																											■									
B6 (3)																												■								
B6 (4)																															■					
B6 (5)																																		■		

B6 (1) Mission of prospection/ Information / sensibilisation of farmers
B6 (2) Purchase of plant materials
B6 (3) Training of farmers on arboriculture : techniques of plant production in the nursery, grafting, miatenance of an orchard
B6 (4) Training on prunning and weaning of grafted plants
B6 (5) Monitoring and reinforcement of the training

Sub component B7: Introduction of improved seed varieties for rainfed cultivation

Objective: To contribute to the increase and the diversification of the agricultural production of the sites.

Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).

Methodology:

- Establishment of the cowpea's support:5 days
- Translation of the support in languages (haoussa, tamasheq and zarma) to subcontract with the private sector: 20 pages
- Diffusion of new varieties of seeds (milet, sorghum and cowpea) to the choices of the farmers by the CDA (1 day): The project will place at the disposal of the cooperative a quantity (to be précised) of seeds of the varieties chosen by the farmers. It will be asked the farmers then wishing to acquire these seeds to buy them near the co-operative. The funds resulting from the sale will be versed to the inputs shop

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: The list of materials and equipments is presented in AppendixAP1.

Program of execution of the training

Activities	First yeare												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B7 (1)																																				
B7 (2)																																				

B7 (1) Production and translation of cowpea's support

B7 (2) Placing at the disposal of the cooperative of improved seeds

Sub component B8. Support to the processing and conservation of agricultural products

Objective: To contribute to the increase and the diversification of the sources of income of the farmers.

Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2).

Methodology

- Identification of the productions concerned by the CDA and the cooperative
- Improvement of a guide and a support specific to each activity by the staff of DRDA(5 days)
- Training on the specific activities to each activity by the staff of DRDA (25 participants per site during 2 days)

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: There is no equipment and material for the training.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B8 (1)																											■	■	■							
B8 (2)																														■						
B8 (3)																														■						

B8 (1) Identification of concerned productions
B8 (2) Establishment of specific guides and supports
B8 (3) Training

Sub component B9. Support to Micro finance of tontine type

Objective: To facilitate the access to credits to develop the income generating activities
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).
Methodology

- Training of CDA on tontine grouping, Credits office of the DSP/ MAD for the training (2 days)
- Information/sensibilisation of farmers on the need for the installation of tontine groupings by the CDA
- Installation of the tontine groupings between farmers of the same village
- The training of tontine grouping members (30 persons) will be carried out focussing on the use of funds for the valorization of reservoir. Credits office of the DSP/ MAD for the training. In case the number of groupings is significant, the other executive members of the coming groupings will work with the experience of those already trained (4 days). The farmers individually seek their own funds for the installation of the system of micro finance.

NB: The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: There is no equipment and material for the training.

Program execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B9 (1)																			■																			
B9 (2)																				■	■																	
B9 (3)																						■															
B9 (4)																						■															

B9 (1) Training of CDA
B9 (2)Information/sensibilization
B9 (3) Installation of tontine goupings between farmers from the same village
B9 (4) Training of the executive members of the tontine groupings

Sub component B10. Training on animal health and feeding

Objective: To improve the livestock farming at reservoirs level
Conditions for the adoption of the project: Reservoirs usable for the breeding
Methodology

- Identification of the need for CDA training
- Establishment of the support by the staff of service of the breeding: 5 days
- Translation of the support in languages (haoussa, tamasheq and zarma) to subcontract with the private sector: 20 pages
- Training of the farmers on the feeding and/or animal health by the staff of service of the breeding:bb25 persons during 3 days.

NB: The establishment of the support will be entrusted to a specialist in breeding

Equipment and materials: There is no equipment and material for the training.

Program execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B 10 (1)																																				
B 10 (2)																																				
B 10 (3)																																				

B 10 (1) Identification of need for CDA training
B 10 (2) Production of support
B 10 (3) Training

Sub component B11. Training on the improvement of knowledge in health and hygiene (diseases related to water)

Objective: mprovement of basic knowledge on diseases related to water of the villages using the sites.

Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or the breeding (category 3).

Methodology

Training of 25 persons on basic knowledge in the field of hygiene and health by the staff of service of health during 2 days

- 1st day: Training on the prevention of malaria
- 2nd day: Training on the prevention of diarrhoea

NB **:** The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: There is no equipment and material for the training.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B11 (1)																								■												

B11 (1)Training

Sub component B12. Introduction of improved cooking stove

Objective: xtension of the use of the improved cooking stoves.
Conditions for the adoption of the project: Reservoirs usable for agriculture (categories 1,2) or for the breeding (category 3).
Methodology

- Support to the preparation of local materials by the staff of the service of Environment (1 day)
- Training of 25 user stimulating villagers by the staff of the service of Environment (during 1 day):demonstration of construction of an improved cooking stove.

***NB*:** The details of the guides and supports will be used for the formation are presented in Appendix AP5.

Equipment and materials: There is no equipment and material for the training.

Program of execution of the training

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
B12 (1)																																				
B12 (2)																																				

B12 (1)Training of village organizers
B12 (2)Restitution of the training at village level

7.4.Other actions to be implemented

7.4.1. Preparation of the office and discussion with the MAD

It will be installed the office of the project in the following way:

- In Maradi:for the period of 2010 to 2012 for Tahoua, Maradi and Dosso regions
- In Niamey from 2013 for Dosso, Tillabéri and Niamey regions

Activities	First year												Secon year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA1 (1)																																				

AA1(1) Preparation of the office and discussion with the MAD

7.4.2 Environmental assessment

It will be carried out two environmental assessments during the operational phase of the project of each region.:

- Before the execution of reservoirs, no study was carried out on the environmental and social affects. Therefore, precise and detailed socio-economic data were not available for each site. This is why before the implementation of the action plan it will be realized an environmental evaluation not only for the purpose of renewal of existing data but also for the purpose of gathering other data not available (for example, data related to women work load for instance, resource control situations, such as water, land, and a forest) concerning the reservoirs. By utilizing this data, the constraint factor of the agricultural development around the reservoir will be effectively analyzed so that they may be considered in the execution of the action plan on each site level.
- An environmental assessment will be carried out at the end of the operational phase of the project which will constitute an evaluation of the achievements of the project. In case of a negative effect (management of resource such as water, land and a forest for example) appears during the implementation of the project, a concrete measure is proposed to face it.

The results of these studies will be discussed and approved by the representatives of the concerned.

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA2 (1)																																				
AA2 (2)																																				

AA2 (1) environmental assessment at the beginning
AA2 (2) environmental assessment at the end of the operational phase

7.4.3.Participation in the agro-sylvo-pastoral fairs

The fairs are large national meetings during which the agr-sylvo-pastoral products and the innovations in rural ares are presented. They are organised every year by the Ministries in charge of rural sector. To more show its activities and to enhance their promotion, the project will participate to the agro-sylvo-pastoral fairs that will be organised.

Activities	First year												Secon year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA3 (1)													■												■											
	Fourth year												Fifth year												Sixth year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
	■												■												■											

AA3 (1) Participation in the fairs

7.4.4.Participation to meetings of the regional consultative committee

There are some regional consultative committees of dialogue gathering all the intervening partners in rural area of each region. The project will take part regularly in the activities of these frameworks of dialogue not only for taking part in animation, but also benefitting from these meetings to make known more its activities to the actors of development and also to collect near them some information on the level of the concerned regions

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA4 (1)							■										■													■							

AA4 (1) Meeting

7.4.5 Missions of supervision of the Directorate of the Studies and Programming of the Ministry for the Agricultural Development

According to its attributions, the DSP/ MAD is in charge of the supervision of projects and program under the control of the MAD. It will carryout every year a mission of supervision of activities of each region of the project accompanied by the DRDA and other members of the steering comittee when needed.

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA5 (1)											■												■											■		

AA5 (1) Missions

7.4.6 Steering committee

It is set up for all the projects and programs a steering committee for which the meetings are held at the national level. The steering committee plays the role of decision-making and orientation body. The project will organize each year a session of the steering committee. Take part in the meetings, the representatives of the Ministry of Agricultural Development (DSP, Direction of cooperative action and promotion of rural organisms, GDRE, Permanent secretariat rural code), DDE/FAD, Ministry breeding and animal industries, MTA/CD, MWR and ME/F.

Activities	First year												Second year												Third year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
AA6 (1)		■																	■												■						
	Fourth year												Fifth year												Sixth year											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
							■												■																	■

AA6 (1) Meeting