



REPUBLIC OF NIGER
MINISTRY OF AGRICULTURE DEPARTMENT OF
STUDIES AND PROGRAMMING



Japan International Research Center for
Agricultural Sciences

Conservation of Plants - For Motivation Peasants -



December 2012

Appendix: Technical Manual 2

"Guide for the Management and Natural Resource Conservation"

PREFACE

Une étude sur le développement des méthodes de gestion et de conservation des ressources naturelles pour la production Agricole a fait l'objet d'un mémorandum d'entente, signé en 2008, entre le Ministère de l'Agriculture du Niger et le Centre Japonais pour les Recherches Internationales en Sciences Agricoles (JIRCAS).

L'objectif principal de cette étude est d'élaborer au cours de la période 2008-2012 un guide sur les méthodes de planification pour la gestion et la conservation des ressources naturelles.

Cinq manuels techniques sont produits parallèlement au guide pour faciliter le transfert de technologies simples et reproductibles aux producteurs ruraux.

Le Manuel Technique de plantation d'arbres explique l'importance du ligneux pour les populations et son rôle dans la protection des écosystèmes. Il met en exergue également les différentes étapes à suivre lors d'une plantation en vue d'obtenir un bon taux de réussite.

Ce Manuel Technique, élaboré avec l'appui de JIRCAS, tout en complétant les outils déjà existants, constitue une précieuse contribution dans les efforts de renforcement des capacités des acteurs de terrain en vue de la restauration et la préservation des bases productives et des moyens d'existence des populations. Simple et bien illustré, il aidera assurément à l'amélioration des conditions de mise en œuvre des opérations de reboisement.

Tout en adressant mes sincères remerciements à JIRCAS pour cette initiative, j'ose espérer que cette collaboration établie de longue date se poursuivra et se renforcera en vue d'une appropriation effective du présent manuel par les populations bénéficiaires.

Le Directeur des Aménagements Forestiers,
du Reboisement et de la Restauration des Terres

IBRO ADAMOU



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Introduction

Given the scarcity of resources induced challenges in land and the consequences of their perpetual degradation through overuse by various rural users, JIRCAS and its technical partners including the Departmental Directorate of Say environment multiplies preservation initiatives, backup and rational and sustainable management of natural resources in their areas through a continuous and participatory process to sensitize people about the environmental problems that the world faces in general and Niger in particular.

This guide appears as a developer tool to ensure medium- and long-term stable agricultural production through environmentally ensuring a better balance in the spaces - society relations, despite the difficult equations to solve without effort synergy the whole community.

Show the peasants that the constant food crisis in this area is related to the deterioration of the environment (weather, loss of soil fertility, erosion). To reverse this trend and overcome food insecurity must be dispensed, it put body and soul for success worthy afforestation. We must banish this spirit that makes us believe that the trees I plant does not benefit me because I would not be in this world when we should enjoy the fruits of labor (Commander of observations).

The present technical manual shows a better way to reforest providing solutions to limiting factors:

- How best to motivate the villagers;
- How eleminer friction
- How to ensure greater adherence to planting operations
- How to make this more sustainable reforestation action

1. How better to reforest

1.1 For the public good or for individual benefit?

Reforestation is an act of planting trees in areas that do not. This activity has the potential to create a dense forest when trees are numerous and it is even more valuable than a large number of people involved.

However, it is difficult to grow a large number of seedlings and it takes many years before the trees reach full maturity. People do not often have the energy and time enough for that.

In general, reforestation is done collectively. This collective afforestation serves the public good and, even if he does not become a direct individual benefit, it still benefits the individual when taken at large. Moreover, when trees are grown on agricultural land or land in private ownership, they are for personal goals and as a personal responsibility, the benefits obtained also being own profits. The consciousness of working for himself is involved in motivation.

Based on its experience to date, the Japanese International Center for Research in Agricultural Science (JIRCAS) is convinced that there is no harm in acting for its own interest. The grouping of people seeking their own interest in forest conservation activities will likely serve the public good in the future. Nevertheless JIRCAS of interventions helped develop intervention techniques appropriate likely to improve

the state of the various resources considered.

1.2 Nobody is happy painful things

We explained that reforestation was a difficult activity. In this part of West Africa, where the natural landscape is savannah dotted with shrubs, there is a great risk that afforestation ended in failure. Moreover, agriculture is a profession, that is to say, for farmers whose main occupation is to get something to eat, all other work is unnecessary and it is normal that they don ' have no desire to work in afforestation if the fruits of their labors are harvested in a more distant future than agriculture. In addition, you need to water, protection from the sun, away livestock. And who will take care of his hard work? Nobody wants to do.

This is why the only thing to do is to proceed gradually to growing trees for the individual benefit and go getting bigger. It is not necessary that this activity be forced. But in Niger, the issue of environmental protection is a constitutional duty of every citizen. (recall)

2. comprehensive measures to motivate villagers

2.1 Problems identified in the verification study and opportunities to improve decision

awareness

As mentioned earlier, reforestation is hard work and it is not possible to leave the trees as such even after planting. The climate in West Africa can be divided into two seasons, and if planting trees is during the rainy season,




the long dry season is an environment for vegetation extremely severe. This creates a degradation increasing the productive potential due to climate change and human activities on resources.

During the verification study by JIRCAS, reforestation activities were performed twice (during the rainy season in 2011 and 2012) under the Rural Development Program. During these activities, it was found that cooperative actions between the administrative officers of state service and peasants, as well as mentoring and advice to farmers by the administrative agents were extremely important, and they have helped many conservation activities. The recommendations and instructions given by administrative officers have been a real support to conservation efforts by farmers. However, the presence of limiting factors manifested in afforestation activities performed during the study.

To solve or alleviate these restrictions, the means or remedies and following programs were developed on the subject of reforestation and practiced. The measures proposed for limiting factors listed above are presented in Table 1.

The project in question is a practical example that has been done in the department Say in Niger, West Africa

Table 1 Elements restrictive existing in villages compared afforestation and proposed measures (JIRCAS / Ministry of Environment)

restrictive elements existing in the villages	Measures proposed
<p>1. Disruption of afforestation by the conflicts in the village</p> <p>(Problems: Conflict Example)</p> <ul style="list-style-type: none"> · Between forest officials and villagers (Fear of being penalized if the trees are damaged) · Between landowners and farmers (farmers are not allowed to plant trees on the land) · Between breeders and farmers (the ranchers cut trees without permission on agricultural land) · Between men and women (the Men love not that women place fixed objects on land.) 	<p>(Execution methods)</p> <ul style="list-style-type: none"> - Holding a series of discussions between the parties prior to planting, to share problems. - Identify problems during workshops and develop, after discussions, several examples of improvement both parties have understood the objectives of afforestation. - Make know progress of the discussions through posters or rural radio. <p>(Evaluation Method)</p> <ul style="list-style-type: none"> · Conduct a survey on the verbal change opinion of the parts concerned after the planting period. · Study examples of improvements, etc.
<p>2. Technical problems of plant production (applied forestry)</p> <p>(Problems)</p> <ul style="list-style-type: none"> · The villagers are not familiar with the methods of growing trees. (Treatment of seedlings and planting depth of holes, etc ...) - · Extension of methods anti-erosion planting not possible to observe changes of scale. <p>1) Insurance water 2) Preventing evaporation 3) Few opportunities to carry out afforestation</p> 	<p>(Execution methods)</p> <ul style="list-style-type: none"> - Organize practice and training technology with the Technical Manual 3 (Before the planting period, around July) - technical supervision on anti-drought planting methods <p>1) Ensure hydration and supply nutrients by introducing fertilizers and manure in the planting hole</p> <p>2) Control of evaporation of water soil or plant gravel mulch (Evaluation Method)</p> <ul style="list-style-type: none"> · Are these techniques used in planting next? (Study on the percentage of completion (%) conducted by agricultural production unit (UPA) and the implementing agency)
<p>3. Few opportunities to carry out afforestation</p> <p>(Problems)</p> <ul style="list-style-type: none"> · Difficulty in procuring seedlings · opportunity to afforestation (we can expect few people expressing their will to afforestation.) 	<p>(Execution methods)</p> <ul style="list-style-type: none"> - Initiate the Promotion nursery village s - Production and block release by the Water and Forests or creating a system of purchase by villagers - Organization of an afforestation campaign, environmental education for children by involving schools and

teachers.

- Afforestation opportunity creation during the celebration of the independence of Niger (August 3: Afforestation Day)

(Evaluation Method)

- Identification study of the number of seedlings received
- Study on the number of villagers who participated in the afforestation campaign

4. Lack of short-term goals and motivation

(Problems)

- Afforestation results can not be immediately obtained.
 - The motivations disappear easily.
- Agricultural work and cattle and finally work elsewhere (cash income) are more important than caring daily reforestation.



(Execution)

- Increase awareness of farmers for awareness.
- The forest resources are the basis of all production agro-pastorale.
- The wood (trees and shrubs) are integral in basic production systems.
- Introduction of a system of competition on the themes of irrigation and prevention of damage caused by livestock after planting.

Percentage Rating

live trees and methods used several months later and prizes.

(Evaluation Method)

- Evaluation of the percentage of live trees and methods of protection (management) trees

2.2 Example of serial programs

established from study
verification (eg reforestation)

In the verification study by the JIRCAS the remedy proposals made to resolve existing conflicts and technical problems in the region were organized in programs taking into account the afforestation period. These are

programs measures overall
including continuously implementing six activities and 4 events during the year and taking into account the lifestyle of villagers not only farmers but also

breeders
villagers populations in the
city suburbs. These measures were aimed not only to conduct outreach to rural populations but also to create a mechanism by which the regional services of the State (in

the case of Niger, the different
regional directorates and commissions
Communal land COFOCOM) may carry out conservation activities by strengthening the links and communication with

the villagers. The programs
Overall prepared on the basis of this concept are shown in Table 2.

A solution for improving
social relations villagers



Technical training in forestry



At a reforestation ceremony











How to maintain motivation ?; Competition in
the field of

Forestry.



Table 2 Series COFOCOM-COFB programs in villages taking afforestation for example

activities	May	June	July	August	September	October	November	December
Climate								
Crop and off-season	Preparations	Seedlings (germination)	Weeding (growth period)	Weeding (growth period)	Weeding (growth period)	Crops (crop period)		
1. Acquisition of seedlings for afforestation	Production and Protection Seedlings by state services							
2. Solutions to 4 conflicts between villagers		Workshop villagers		Monitoring and investigation by the administrative agents				
3. Implementation of technical training on afforestation			Training Afforestation					
4. Implementation of the villagers afforestation		planting activities by villagers				Monitoring and investigation by the administrative agents		
5. Organizing a festival of tree planting				Feast of tree planting				
6. Promotion of motivation							contest planting	

Note: W / S = Workshop

3. Removal of restrictive factors - Conflicts between farmers and other people

3.1 What are the conflicts that exist in the villages?

These problems have existed for some time but for which solutions have not yet been identified. In rural areas, live not only farmers but also people from surrounding towns and ranchers. These residents various professions, form different relationships of interest in the context of the profession or position.

The verification study by JIRCAS identified four types of such conflicts. These conflicts may hinder not only in afforestation activities themselves but also for the proper implementation of conservation activities - which emphasize the importance of natural resources - and to disrupt further the understanding between local ethnic groups and residents of the region. These conflicting issues have been summarized below.

3.2 Issues and Actions

3.2.1 Conflicts between foresters and farmers

To overcome the conflicts between peasantry and forestry officials, we need a greater awareness, showing long-term resources are their property need to wisely use the example of rural wood markets created throughout the territory of the Department Say. Foresters must occasionally planting work involvement among the people in all the work (hole digging, fence installation, planting, watering etc ...)

Foresters are state officials. These are special administrative officials who control the exploitation of forest resources in accordance with the Forest Code and Niger have the right to make arrests for the illegal act. The laws on the management of resources

forest in Mali and Niger

include in the Forest Code or the implementing regulations, the provisions on restrictions of uses such as logging, as well as the sanctions to be administered in case of protected species are cut without permission.

One farmer says " If I plant a Gao (*Albida*) on agricultural land, I may be held responsible if the tree is damaged. As I did not want to be accused by the forest officer, I did not want either to plant these protected species. "Unlike other administrative officers, forest officers frighten rural populations, due to misunderstanding

If the actions of forest officers simply to protect the natural environment of the country come to reduce the incentives for rural people

in afforestation, it means that administrative actions have results contrary to their objectives. This is being protected and used appropriately that trees have a real value as a natural resource.

We must mention here two problems. The first is the total failure of wood resources in semi-arid areas and arid and the fact that even urban populations depend and yet use of wood resources as fuel. The second is that forest cover, which represents only about 1% of the total area of the country is no longer in a situation where it is possible to keep while using it. The measures to solve these problems will be discussed separately, but it is necessary to reverse the trend here of the current state of mind: "I do not want to plant trees because I do not want to be accused. "In:" I am admired by all if I protect the trees. "

The problems and measures and methods and the expected effects are summarized below as action in the future.
(Fixation of atmospheric nitrogen by gao)

Table 3 Problems between foresters and farmers, and Action Category

	contents
Problem	Some farmers are afraid of the foresters. They think they will be charged if it is discovered that the trees in their farmlands were damaged even if they are not to blame.
Reviews foresters	<ul style="list-style-type: none"> - Forest officers enforce the laws on the use of forests and want only ensure a rational and sustainable management. - Villagers can use trees if they have a good reason to do so and if they have received official authorization.
Reviews villagers	<ul style="list-style-type: none"> - We do not want to plant species protected by law if we are to be held responsible in case something happens.
Solutions and against-measures	<ul style="list-style-type: none"> - It is necessary to organize a campaign to understand the objectives of the legislation on the sustainable use of forests. Held discussions during workshops etc. - Public relations activities are also needed to better disseminate the measures taken. With posters or radio among others.
Followed	<ul style="list-style-type: none"> - Totaling the number of stresses filed for authorization for slaughter (by town) - Opinion poll on the laws relating to the use of forests to villagers
Implementation period	<ul style="list-style-type: none"> - Especially during the dry season (necessary measures over the long term)
expected effects	<ul style="list-style-type: none"> - The number of villagers carrying out the solicitation for permission to slaughter is increased compared to the previous year.

3.2.2 Conflicts between landowners and farmers

The form of land ownership has different features depending on the village. In villages where the village chief's family proceeded so monopoly in the management of land, as in the case of the village, all land uses are decided only in the opinion of the village chief. In some cases, farmers are forced to change every year the fields they use.

Moreover, as in the case of B town, many owners live elsewhere and in this case there are restrictions in terms of land use. For this reason the farmers are not allowed in some cases planting trees in agricultural lands. For their land use permit is temporary and, in case they are planting trees, the problem of ownership of the land may arise.

However, the importance of planting trees on agricultural land, for agroforestry among others, is becoming better known recently. Planting of trees in farmland keeps some moisture due to the return of organic matter such as leaves and fallen branches or because trees make shade. Trees also provide a place where farmers can rest. The problem would be solved if the owners and farmers were fully aware of these benefits and if they understood that trees are planted for their mutual benefit. However, since the owners live far away, it is difficult to receive their approval and they do not understand in some cases the benefits of agroforestry.

returns cultures. Example: Nitrogen Fixation
atmospheric by legumes such as acacia albida.).

Table 4 presents a classification of problems and actions.

Table 4: problems between landlords and tenants, and Action Category

	contents
Problem	Farmers can not make agroforestry if landowners allow.
Reviews land owners	<ul style="list-style-type: none"> - The owners have land rights and farmers can not freely install something permanent. - Planting trees can become the starting point for the possession of the land.
Reviews Farmers	<ul style="list-style-type: none"> - It is impossible to plant trees, even if desired, without the owner's permission.
Solutions and against-measures	<ul style="list-style-type: none"> - Select sympathetic owners and motivated farmers, create more success stories and popularize gradually. - A contract between the parties for the implementation of agroforestry (Draft agreement) 1) The property owner has the ownership of the trees. 2) The farmer can collect leaves and tree fruit. 3) Both parties have agreed on the above and they will seek the one and the other to preserve agricultural land for their mutual benefit. - To publicize the radio or posters (same as above). Establish loan certificates by COFOB.
Followed	<ul style="list-style-type: none"> - Totaling the number of examples of planting by farmers. - Totaling the number of afforestation contracts between landlords and tenants.
Implementation period	<ul style="list-style-type: none"> - Several years (long-term measures required)
expected effects	<ul style="list-style-type: none"> - The number of owners and farmers who have concluded agreements relating to rights to trees and land rights will increase. - Examples of contract and implementation by progressive owners and farmers are spreading to other regions.

3.2.3 Problem breeders (Conflict between pastoralists and farmers)

In rural areas, peasants live with farmers in many cases. While farmers are settled on their agricultural land and farm, farmers form two categories, one settled in the region and the other practicing pastoralism. Moreover, farmers raising small livestock are many. Advocate for peaceful coexistence and a willingness to equitable sharing of forest resources by the two actors.

If rural reforestation, the presence of farmers is an issue. For these farmers can in some cases damage, picking or cutting the trees that were planted in agricultural land by farmers. We can therefore consider that there is a conflict between the interests of farmers and those breeders but they provide the droppings of their livestock as manure on agricultural land and farmers can provide fodder for animals. Measures were envisaged to

find solutions to this issue (Table 5).

Table5 problems between pastoralists and farmers, and Action Category

	contents
Problem	Some breeders do not like that livestock grazing areas are limited. For it is not possible to provide adequate food to the animals if agricultural land is fenced. Therefore, farmers have started to hate to plant trees in agricultural lands.
Reviews breeders	<ul style="list-style-type: none"> - We want to ensure food for our livestock. - We can not approve that agricultural lands are closed because we want to provide the best possible food livestock.
Reviews peasants	<ul style="list-style-type: none"> - If we plant trees, cut the Breeders, so we do not want to plant. - The Breeders do not respect the line between roads and farmland.
Solutions and against-measures	<ul style="list-style-type: none"> - Is it possible that breeders and farmers spend a share of concession agreement and to others? (Contract proposition) 1) Farmers provide fodder. They must respect the grazing areas and corridors passing animals. 2) Breeders leave feces of livestock manure as agricultural land, according to the agreement. - Make widely known by radio or other (same as the previous paragraph)
Followed	<ul style="list-style-type: none"> - Observe the examples of the above agreements.
Implementation period	<ul style="list-style-type: none"> - All year (necessary measures for several successive years)
expected effects	<ul style="list-style-type: none"> - Several past agreements and their results will be demonstrated in other regions as examples.

3.2.4 Issue of women participation in difficulty (the fight against gender inequality)

Everyone knows that different problems hindering women's participation in project activities and / or speaking at meetings are known to all. These are cultural or religious issues. In Niger also improved as to the status of women has recently become one of the measures of national policy and a ministry was created especially for this purpose. However, rural traditions are still deeply rooted and women can not make their views heard. This time, groups of women said they also wanted to plant trees.

Following this request, the causes and measures in relation to the participation of women in difficulty in conservation activities have been categorized in the table below.

Table 6: Enhanced participation of women in difficulties in the activities of retention

Category	contents
Problem	<p>Some women want to plant trees in agricultural lands and homes of the land to obtain food products or convertible to cash. However, men do not like women planting trees, which are permanent plant in the ground.</p> <p>The kind of problem is often confused with the problem of the disposal of women to property titles and major objectives of the measures are often different from those of promoting the participation of women.</p>
Reviews women	<ul style="list-style-type: none"> - We want to plant trees. We can also us to do so. - Fruit trees and moringa are important to improve living conditions
Opinions of men	<ul style="list-style-type: none"> - The work force are reserved for men. - Women should not plant trees in specific fields.
Solutions and against-measures	<ul style="list-style-type: none"> - Organize a campaign to raise awareness of the National Gender Policy (NGP) of the Ministry of Promotion of Women. - To establish more firmly the positions that women have acquired. - Educate farmers on gender and human rights.
Followed	<ul style="list-style-type: none"> - Observe the number of words taken by women during the meetings and the number of participants in the activities.
Implementation period	<ul style="list-style-type: none"> - All year (necessary measures for several successive years)
expected effects	<ul style="list-style-type: none"> - Participation in activities is further increased through the creation of women's groups.

4. Organizing a festival of planting trees using dates

commemorative

In rural areas of the southern Niger, opportunities are few to be in contact with the afforestation of trees and its importance does not seem to be well understood. The creation of artificial forests requires a lot of time before the forest reaches its final form, and if the people of the region have few opportunities to know afforestation, it will be difficult to understand the importance to manage forests.

JIRCAS planned a festive planting commemorative trees at the request of the Departmental Directorate of Environment. The Niger celebrates its independence on 3 August which is also considered the day of planting trees. It will be possible, by engaging on this occasion the greatest possible number of people in these activities, to make them more widely known the importance of natural resource conservation activities.

The festival of tree planting has two different events. The first of these events, called "Night of the environment" is organized on the eve of the holiday and the second, which is the festival of planting memorial trees, takes place on August 3 even. Many villagers come to attend these events and it is possible to provide them with opportunities to plant trees and maintain them (reforestation).

4.1 Evening environmental

The Evening of the environment commonly known ecological night is a festive day before that can be in contact with the environment. Most villagers are home at night. Therefore, village meetings are held mostly in the evening. This opportunity will be used to bring together the largest possible number of villagers. Part of the program organized during this evening

the environment is presented below.

Table 7 Example Program for the evening of the environment

contents				
· Speech administrative authorities and customary.				
· Speech of the organizers, etc.				
· Slideshow on the environment and natural resources				
· Song "Preserve		the nature of		
department Say "				
· Quiz on the environment in daily life				
· Investigation		sure	the	consciousness of
the environment				
· Call for Participation on the next day				



4.2 Memorial Day planting trees



The festival of tree planting takes place the next day. If it is organized in several villages, it is necessary to post administrative officers such as forestry officials, in each village for the distribution of seedlings and coaching people for plantations are carried out simultaneously. If this is not done, the villagers are forced to stay to wait and so it is impossible to plant during the appropriate time slot in the morning.

On the other hand, the seedlings should absolutely be transported during the previous day and be neatly arranged and aligned in the shade. As these operations are added to the work of the Party of the environment, the active cooperation of different directions, including the Agriculture Department, are essential. The timetable for a planting party that was actually organized is presented below for example.

Tableau8 example of organizing a festival of planting trees

schedule	contents
7 morning 00	Rally on the site responsible for the Environment Directorate and other
7 h 00-7 h 30	Confirmation of the location of the tools for planting, water and seedlings
Around 8 pm 00	Gathering of Villagers
Around 8: 30 pm	Arrival and welcome of administrative and traditional authorities
8 h 30 to 10 h 00	planting work (technical guides by foresters)
10 to 00	End planting work
Around 10 h 30	Closing speech, souvenir photograph
After work	arrangement



5. Competition as a means to ensure sustainability

5.1 What is a competition as a means?

A contest is a competition. The organization of a competition is a motivator and as a popular means of conservation measures aimed at better understanding and to teach villagers the techniques and concepts of planting trees, by stimulating competitive spirit among them. The competition can be organized between groups or between individuals and it is the latter that prevails in the case of afforestation, for individual planting in agricultural land.



In the past, wages for equal work has been paid for many afforestation. But this has revealed a problem since the villagers afforestation process to receive a salary. The competition is effective in the sense that it allows learning while putting into practice. In addition, improvements can be made in some cases through the competition. Although afforestation appropriate to receive a salary in exchange for work, there will undoubtedly participants through the competition, will have acquired technical and made improvements in these activities.

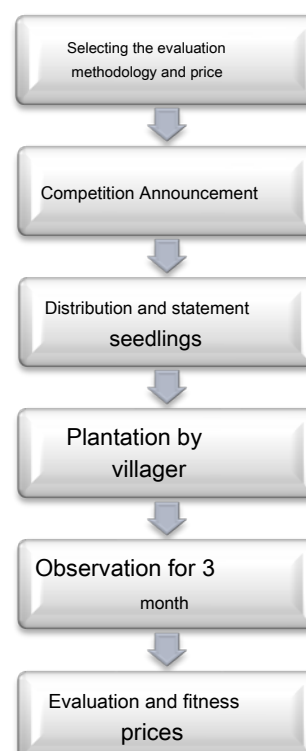
The afforestation contest is open to both men and women, and all the villagers participating in individual planting activities (Action Plan) can register. These participants cultivate and manage or protect themselves seedlings they received in person, following a cultivation plan they established independently. Villagers with the highest scores receive the prize that was presented to them in advance.

5.2 Stages of the Contest organization

The execution of the contest is performed according to the steps below. The important thing is to know that a competition will be organized before starting individual planting. Moreover, it will be possible, by knowing in advance the date and conditions of the contest, to increase the percentage of participation in this competition.

The contest is a way to boost the population has an effective awareness. The introduction of competition allows better maintenance of plant trees.

It allows to touch the following year up to farmers.



5.3 Selecting the evaluation methodology and price

The evaluation takes place by a comparative rating of each of the villagers planting activities. It is divided into five different sections but the assessment itself involves the practice of protection (management) of planted trees, the survival rate and the number of living trees (Refer to 5.7 for details).

Moreover, in terms of the product awarded as prizes and after studying what could best motivate villagers, the largest number of opinions focused on food. Watering cans to irrigate the plants have been added in addition to these prizes to stress the concept of continuity required for these actions.

5.4 Competition Announcement

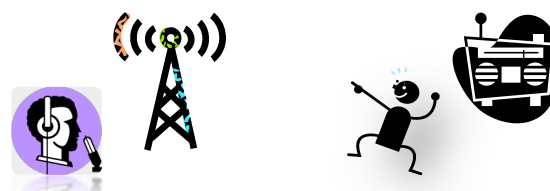
The organization of the competition should be announced in advance. For it must tickle the antennae of the participants and arouse their interest. Even if they are just lured by the price, the most important thing is to participate!



It is preferable that the announcement of the competition takes place posters or radio. For the posters, they require a certain number of tasks, since it takes time to achieve them, pay for the design and

then paste and there is also the risk that the villagers not to read. But if they are well illustrated, the visual impact will be effective the advertising level. In addition, the radio announcement by choosing a good beach time in the evening (after the end of the prayer 20 hours) is actually the most appropriate method for ad

the
rural populations.



5.5 Distribution and holding seedlings

survey

The plants to be delivered to the people should be able to plant, meet the ecological conditions of the environment and especially appreciated.

The seedlings should be distributed after announcing in advance the date of the distribution, decided after taking advice from the villagers. Indeed, as it is necessary to prevent the young plants are exposed to direct sunlight during transport by truck or other, and ensure they do not dry out, it is also essential that the Departmental Directorate environmental or other responsible office is responsible for transporting seedlings to the village. By knowing in advance the day of transport, the villagers will be able to pick the plants available to them.

In addition, it will be necessary, when deciding on a specific day for distribution, to keep records of all persons who received the plants. It is essential for

organizing the competition, how to raise seedlings of tree species which were taken by the participants (those who received the seedlings). Administrative agents or facilitators should absolutely take on these statements.

- Announce in advance villagers date distribution plants.
- Please do not forget to write the name of recipient, the name of tree species and number of plants per species.

5.6 Planting by villagers

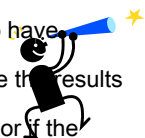
After receiving the seedlings, the villagers decide for themselves as to where they will plant them and they proceed to independently culture. However, those who do not know the methods of planting and who have doubts about how to protect plants subsequently may receive guidance by appropriate technicians as forest officers for example. The contest can be successful only if the villagers have the required knowledge and skills. Because otherwise, even if they are planted, the trees die immediately and it is difficult for the villagers to keep long motivation for planting trees. It is also necessary that the administrative agents are very active to provide technical advice in this area.



Moreover, it is possible to present to the villagers a document entitled "Manual 3: How to plant trees? "To explain their planting methods.

5.7 Examination of the situation for the contest

For competitions held so far by the JIRCAS, a period of 70 days had been planned, which seems to have weakened the motivation of villagers. In the case of a reforestation competition, it is impossible to judge the results and effort over a short period of time and it is considered that three-month period is required at least. For if the survival rate of the trees during the month immediately following planting is usually over 80%, the rains abruptly decreases going towards December and the percentage of survival decreases. The most appropriate periods are planted in July and August and observe



the situation in
October-November for assess.
However, he is necessary
continue to announce a competition will
continue.

- The most suitable period for execution a planting contest is about three months after planting.
- However, it is necessary to continue to announce the competition will take place later.

5.8 Evaluation and Awards

After planting the trees, the villagers have a periodic watering and continuous protection. It is necessary for them to make efforts to continue to water even during the rainy season it does not rain and to prevent livestock from damaging the plants. To show that these efforts are the key to the success of tree planting, participants efforts will be evaluated during the competition. The survival rate of trees planted and the number of live plants will also be considered. The rubrics and scoring system are presented in Table 9.

The assessment of whether a periodic watering of the plants was done or not will be denoted by 0 or 3. For the efforts that were made in order to prevent damage by livestock, protecting the trees by fencing for example, the notation will be 3 points (of 0 in the absence of such efforts. But we can give 2 Points for partial protection.). To note the survival rate of the planted trees, the percentage will be divided by ten and the resulting number rounded to one decimal place. For the actual number of living trees, the assessment does not focus only on the survival rate, but will include the efforts that have been made into reality on a large number of trees and,

in
giving notes 5 in the case of the maximum
number of trees, the
other notes will be calculated using the following
equation.

$$\left(\frac{2 \text{ point}}{\text{actual number of living trees came in first place}} \right) \times \text{actual number of living trees came in second place and after): figure rounded to the first decimal}$$

Planting sites will be categorized according to whether they are within agricultural land or inside an ordinary field or garden. Since protection is more difficult in the agricultural field, the note will be 2 points in this case and 1 point for a site within the regular field or garden.

The different notes and data are tabulated and the total scores are compared. Prizes are awarded to contestants reached the top five.

Moreover, the products provided as prizes, food products are considered the most interesting and watering cans are added in the hope that the trees protection activities should be continued in the future.



[Example of products for the price] 1st Place: 2 bags of millet and 2 watering cans and secateurs 1 2nd Place: 1 bag of millet, 2 watering cans, and one secateur From 3rd to 5th Place: 1/2 bag of millet and 1 watering can and secateurs

Table 9 Evaluation Rubrics and scoring method

Evaluation Rubrics	notation	Scoring method
spray	0 or 3 points	0 if no watering and 3 points when watering
Management (protection) daily	0, 1 or 3 points	0 in the absence of protection and 3 points in the case of protection
Percentage planted living (%) trees	0 to 10 dots	A tenths (1/10) of Survival rate will be solicited score points. • (Percentage of survival) / 10 = points obtained
real number living (trees) trees	2 points maximum	2 points to the participant with the highest number of live trees and after (2 points / actual number of living trees came in first place) x actual number of living trees came in second place and after)
Website planting	1 or 2 points	2 points if agricultural land and 1 point in case of ordinary field or garden
Total	Maximum 20 points	



Table 10 Results of observation of the situation

Names of participants	spray	Percent protection	survival	Number of live trees	Type sites
KI	No	No	70%	64	Garden
HAVE	No	No	71%	200	Farmland
GI	No	No	81%	167	Farmland
OG	Yes	Yes	71%	223	Farmland
BD	No	No	55%	113	Farmland
AD	No	No	55%	38	Farmland

Table 11 Results of rating

Names of candidates	Watering (0 or 3)	Protection (0,1 or 3)	Percent ge survival (0 to 10)	Number of live trees (max. 2)	Type sites (1 or 2)	Total (Max. 20)
KI	0	1	7.0	0.6	1	9.6
HAVE	0	0	7.1	1.8	2	(3 th) 10.9
GI	0	0	8.1	1.5	2	(2 th) 11.6
OG	3	3	7.1	2.0	2	(1 st) 17.1
BD	0	0	5.5	1.0	2	8.5
AD	0	0	5.5	0.3	2	7.8

In conclusion

In a harsh environment, such as in Niger where the forest area corresponds to only a very small percentage of the total land area, the chances of successful afforestation are extremely low. The only way to proceed in this case is certainly to register in time and continue repeatedly to protect trees planted over a long period. However, many problems appeared to be solved before they can even start these operations and we hope that the examples that have been presented here can serve as a reference for the solutions to be adopted in the future.

Finally, officials of the Departmental Directorate of Environment Say (Forestry), with which this document was prepared jointly, summarized the actions in the following formula.

"To protect the environment, we need someone who supports the villagers like us, and persevered efforts long term. "

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