

Capacity building of basic communities for the sustainable development of the mountainous zones: Case of Bejaia, Algeria

Salah Chouaki¹, Abdelmadjid Boulassel^{2*}, Lila Saidi², Foued Chehat¹

Abstract-The study carried out within the framework of the project Mountain, in the massif of Bibans on a small zone of Ighil Ali, Béjaia, had for general objective to raise a current situation of natural resources, their mode of management and the living conditions of the local populations, in order to identify the sustainable activities susceptible to improve them. The fixed objectives aimed at first at characterizing and at estimating the conditions of life and production of communities, in particular state of natural resources (ground, water, biodiversity) and their mode of valuation; the socioeconomic environment; the agrarian structures and the means of production which have communities as well as social infrastructures. Secondly, it was a question of reviewing the activities of all kinds led or potential, and their effects on the standard of living of the local populations. The adopted methodology has been based on the approach of the livelihoods, which has the advantage to suggest a coherent approach of analysis of all the aspects considering, in particular the vulnerability, the assets, the policies, the institutions and the implemented strategies to remain. The adopted methodology led to realize participative cards and cards GIS of the relief and the natural resources. Population was investigated and interviewed with actors of various institutions. Finally focus-groups were led in a different way with the men on one hand, and the women on the other hand. It was called on to certain tools of participative research. The main results showed that the living conditions were appreciably improved with the made realizations: electricity, drinkable Water supply, roads, tracks, schools, antierosive arrangements, tree-dwelling plantations, renovation of the network of irrigation, subsidy of the population by a caprine (goat) livestock and a beekeeping, trainings of communities in particular social marketing, environmental education and sorting of waste, led by the breeding, the tourism, the manufacturing of cheese and food hygiene.

Keywords: Sustainable development, basic communities, mountain, management, livelihoods, Algeria.

1. INTRODUCTION

The mountainous regions of Algeria of the North are characterized by an extensive agriculture. The global problem can be perceived as an inadequacy between the needs for the farmers and the management of available natural resources. Indeed, the agricultural space is reduced and represents only 0.14 ha/person (lower than the average national estimated at 0.25 ha/per). The agriculture is to enclose upstream that downstream by socioeconomic and environmental conditions in permanent transformation.

Situated at the heart of the massif of Bibans, Ighil Ali, receives agricultural potentialities, but also tourist important. Nevertheless, his topography, characterized by strong slopes, presents a threat on the capital ground. The hilly landscape combined with the climatic hazards (drought followed by heavy rain), affects strongly the region by the water erosion. The latter causes a reduction in fertility of grounds and loss of the arable layer of the ground.

This weakens the agricultural interventions and echoes on the income of the already modest farmers, from where one requires of fight against

this phenomenon by acting on the factors which cause its; the ground, the land use, the topography and the climate [1], [2].

The improvement of income according to the participative vision, pass necessarily by the introduction of simple and effective technological processes and the improvement of the sustainable livelihood of the local populations (households).

This work concerns the results obtained with the communities of four villages of the Daïra d'Ighil Ali, worth namely Tazla, Kalaa, Belayel and Tiniri.

2. MATERIAL AND METHODS

The adopted methodology has been based on the approach of the livelihoods, which has the advantage to suggest a coherent approach of analysis of all the aspects considering, in particular the vulnerability, the assets, the policies, the institutions and the implemented strategies to remain. The adopted methodology led to realize participative cards and cards GIS of the relief and the natural resources. Population was investigated and interviewed with actors of various institutions. Finally focus-groups were led in a different way with the men firstly, and the women secondly. It was called on to certain tools of participative research.

¹Laboratory for agricultural, agri-food and rural economy and the environment, National High College of Agriculture (ENSA), Alger, Algeria

²Laboratory of the Water Control in Agriculture, National High College of Agriculture (ENSA), Alger, Algeria

*Corresponding author: b.abdelmadjid@gmail.com

We have used livelihood approach (fig. 1).

The Sustainable Livelihoods Framework

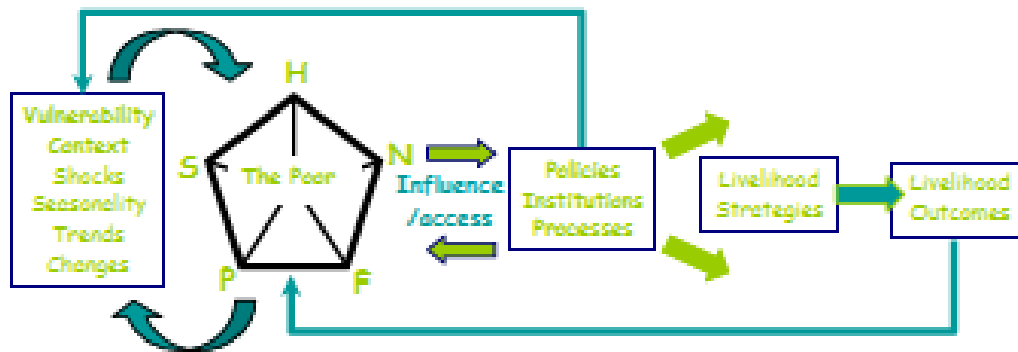


Fig. 1. The livelihoods approach [3].

3. RESULTS AND DISCUSSION

3.1. Presentation of the zone of study

The municipality of Ighil Ali is situated on the bioclimatic floor: subhumide to semi-arid cold [4].

It covers a total surface of 195,37 km² and counts a population of 13232 inhabitants distributed in

15 distant villages from 02 to 26 km of the administrative center of the municipality. The heights vary 381 in 1314 m with an ascendancy of the class 600-1000m which occupies 63.88 % of the surface of the zone. The territory is marked by the ascendancy of a mountain relief, split into three natural circles (fig. 2).

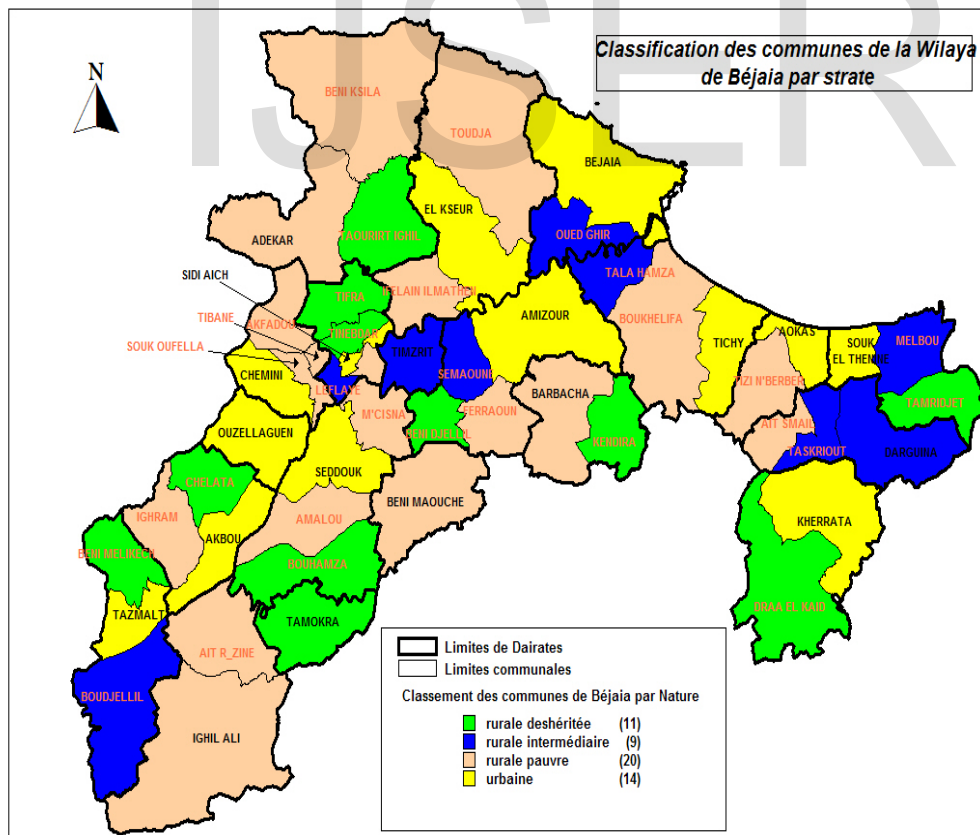


Fig. 2. Card of the wilaya of Béjaia

The main dominant occupations are the rustic arboriculture (olive tree and fig tree in the North

of the territory and in the center); the forests of pines of Aleppo and Holm oaks in the South

(forest of Mocha, Taguemount, and Beni Abbès) (fig. 3).

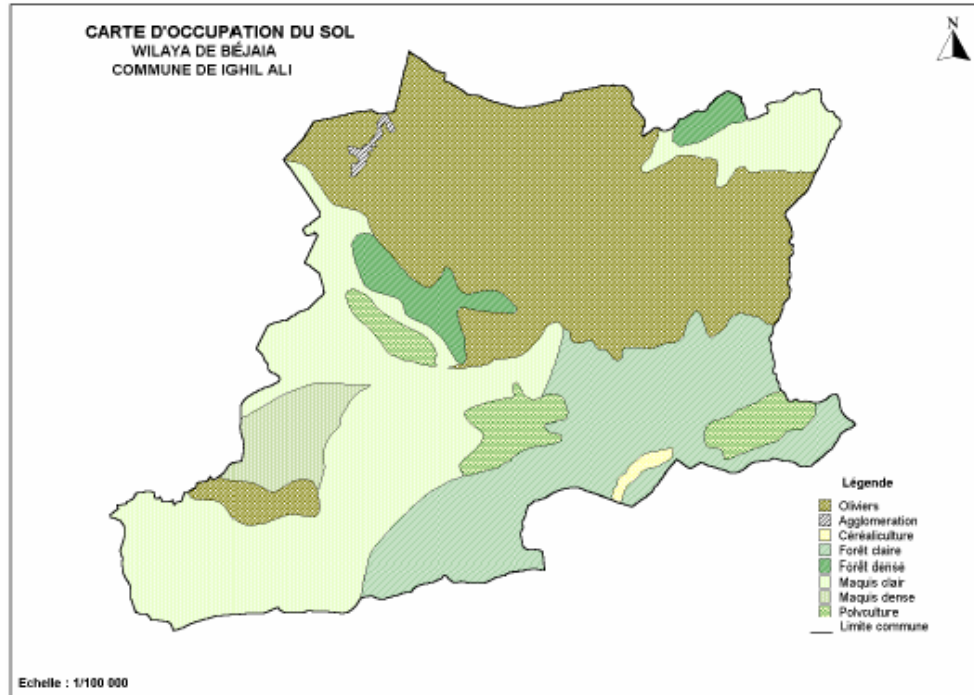


Fig. 3. Card of soil occupation

The river system is dense. The main stream is the Oued Boussalem which feeds the Oued Soummam [4] (fig. 4).

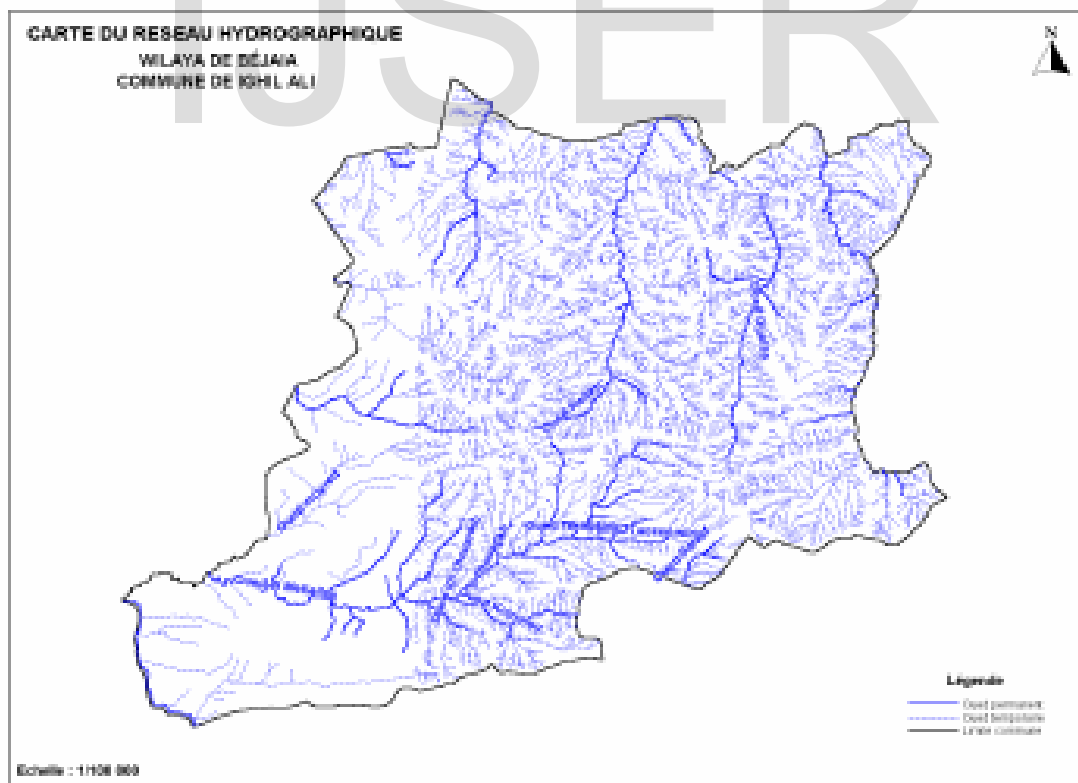


Fig. 4. Card of river system

The grounds of the municipality are of soft slaty types, very sensitive to the erosion, generally

poor, the constituent of mediocre water-bearing reservoirs (fig. 5).

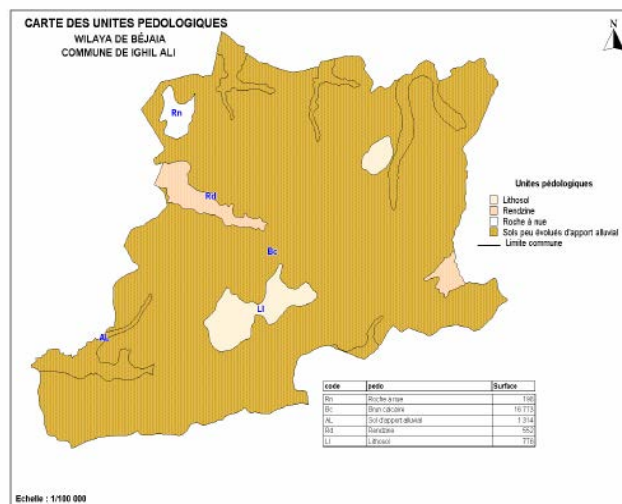


Fig. 5. Card of the pedological units

3.2. Main results of the intervention

At first, we identified with the various communities, the type of plantation to be set up, the actions which will be led and the plots of land where we shall realize pockets in stones and the straw pockets.

The realizations are important seen the total cost of the operation (less than 100 000 Euros). They amount:

At the level of the village Tiniri:

Mobilization of a source of water which fed only a farm of a hectare by traditional channel. Implementation a system of irrigation with zero loss of water with distributors' systems for 5 exploitations on 1,5 km;

Construction of a pond of accumulation of water (6 m3) at the level of exploitation;

Introduction with experimental title in the same exploitation of the system of irrigation "pocket in stones" for the fruit cultivation and "pocket in straw" for the truck farming.

Diversification and intensification of the agricultural production by the introduction of tree-dwelling species (fig tree, olive tree, pear tree and vineyard in pergola) and truck-farming valuation of the species premises.

Protection of the cultures against the wild boar by the implementation of an electrified fence fed by the solar energy.

Concrete results:

Increase of the agricultural productions;

Return of the members of the family (two children) immigrated inside the country to work at the level of the exploitation (family exploitation which assures the food safety of the household).

At the level of the village Tazla:

Besides the harnessing of three sources for the irrigation of abandoned exploitations and the

participative realization of antierosive corrections arrangements in the agricultural domain by biological and mechanical processes.

Biological process by the plantation of:

2 300 olive trees (Chemlal and Azerradj);

1 710 plants of almond tree

880 plants of apricot tree

910 plants of peach tree

1 000 plants of fig tree

Mechanical process: torrential Corrections by dry stone thresholds in the channel of a torrent [5], [6].

Besides these actions, the households were endowed:

Of systems of irrigation "straw pocket and stone pocket" (at the level of two exploitations); · Of 60 full hives with accessories, for the production of honey and its valuation as produced by mountain;

Of 100 goats to create manufacturing units of cheese.

Of methodological tools and support for the assembly of a rural project of closeness integrated introduced at the level of the wilaya with a forty seven million dinar amount (project completely realized);

Trainings were distributed for an efficient management of acquisitions and which carry on:

Training of two days on the modern techniques of apiarian breeding;

Training of two days on the techniques of caprine breeding;

Training of two days on the techniques of transformation and conditioning (packaging) of cheese;

Training of two days on the social marketing for the members of the created groupings;

Training of two days in the job of tourist guide

Training of the children concerning the environmental education including the conservation of natural resources (biodiversity) and sorting of household waste.

To insure the durability of the undertaken actions, the accompaniment for the creation of associations of villages and the strengthening of their capacities were imperative.

Creation of:

"DRDPE Ikhoulaf" association, shining on the territory of the village of Belayel and targeting all the aspects of agricultural and rural development, gathering around thirty members;
AGRNPA association, shining on the territory of the village of Tazla, targeting first and foremost the rural development and the management of the water and including almost all of the members of the community.

Capacity building of associations

Training of two days concerning the functioning and the administrative management of an association;

Training of two days for the assembly and the planning of projects, administrative and financial management, looks for of financing;

Training on the politics of the rural revival and the mechanisms of financing;

Training on the aspects of communication.

Impact of the project:

Diversification and intensification of the agricultural productions at the level of Tazla and Tiniri;

Harnessing, arrangement of sources and transport of the water towards the exploitations.

Capacity building of the farmers

Accompaniment in the creation of two associations;

Rehabilitation of the social strength;

Revitalization of the village of Tazla (return of the villagers)

Reopening of the school and the acquisition of a school bus to Tazla

Construction of new houses (rural group settlement)

Outcome of the projects to Tazla and Kalâa

The works realized by the association of Tazla, relay of the project

Construction of a water tower (reservoir of 40 m³) and connection the houses of the village of the drinking water;

Realization of the sewer system of the village;

Asphalting of all the alleys of the village;

Renovation of the mosque of the village;

Construction of a siege for the association and being able to be of use as accommodation to the researchers;

Opening of a united shop;

Relaunch the outpouring of solidarity (Touiza)

Creation of a Web site which allowed the strengthening of the social strength

The use of a technological process which showed its ability in "rustic" arboriculture and was adopted by the farmers in rural areas for the collection and the irrigation is baptized "pockets in buried stones" [7], [8], [9]. This can be associated with the technique of irrigation by internal distribution. The use of this technique for the water harvesting on olive tree allowed a considerable gain of the stock of water estimated at 120 mm at the end of cycle (in the middle of June) [10], [11], [12].



Fig. 6. Pockets in buried stones (in phase of realization)

4. CONCLUSION

The project intended in the "Capacity building of basic communities for the sustainable development in the mountainous regions", has allows, among others, the participative realization of antierosive arrangements in the agricultural domain through the plantation of 6800 fruit trees (olive tree, almond tree, apricot tree, peach tree and fig tree) which constitute biological ways for the fight against the water erosion by putting the structural stability and by improving the process of infiltration where from an improvement of the "green water". This is realized in combination with mechanical ways "torrential corrections". These actions were conceived and realized by and for mountain communities' dwellers. These actions, simple which are, were of a big interest for these communities which did not benefit from this kind of development project. The global objective is an improvement of the sustainable livelihood of these communities by the creation of generative activity of income while protecting natural resources, from where useful plantations.

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