

Chapter 4: THE CONCEPT OF PARTICIPATORY WATERSHED MANAGEMENT

4.1 Methodological Background

During the 1960s a large number of major dams to supply irrigation schemes or generate hydropower were planned and implemented throughout the developing world. It was then that an increased need for the protection of upstream areas and a more holistic view of planning, organising and regulating the use of natural resources in the entire catchment was felt necessary. This led to the development of the watershed management concept, of which the FAO in Rome was at the forefront.

There are many definitions of watershed management, with the following being the most commonly used, also within WSMP:

Watershed management is the process of guiding and organizing land use and the use of other resources within a watershed to provide desired goods and services without adversely affecting soil and water resources. The recognition of the interrelationships among land use, soil and water, and the linkages between upland and downstream areas is embedded in this concept.

By nature watershed management has always been closely associated with soil and water conservation measures as well as with environmental protection. In fact, watershed management plans in the early days usually contained a multitude of different conservation structures and measures like afforestation in order to protect the slopes of the upper catchment area. These protective measures were designed to increase the sustained output of the most highly valued natural resource: water. This water would then be used either to generate electricity for the urban and rural population as well as for industrial development and irrigation. In some cases water would also be used for the supply of drinking water to nearby towns. Whatever the purpose of storing the water, the major share of the benefits would end up in the downstream areas.

Following along these lines of thinking, the upland farmers and mountain dwellers, very often belonging to ethnic minority populations, were encouraged or even forced to implement conservation measures in order to assure the continuous water supply downstream. Their way of using the land had to change according to the priorities set by planners and most of the solutions proposed contained physical structures. Very often large schemes of terraces, diversion drains, afforestation plots and other technical interventions were planned either without consent or even against the will of the local population.

This orientation towards "technical" solutions for all land use problems, in many cases led to the widespread opposition by the local inhabitants against most forms of erosion control. Their implementation could only be achieved by the use of force or by bribing the population with strong incentives and subsidies. The combination of physical measures planned and often also implemented by outsiders and the lack of possibility for the local population to express their wishes and priorities led to a situation where the protection measures were either not maintained or even destroyed. Although investment costs were high, there were usually only limited, if any, direct benefits for the target groups.

It was only in the late 1980s that a major shift in the approach to watershed management, land use planning and erosion control was initiated by placing more emphasis on farmers' needs and priorities. It was recognised that their participation

in planning and implementing the works would be of crucial importance and that their socio-economic situation had to be strongly taken into consideration. Instead of forcing the land users to implement pre-defined structures, a process of discussion, joint planning and mutual agreement was started in many watersheds throughout the world with the ultimate objective of Government institutions, NGOs and the target groups cooperating closely to achieve a better management of the local resources. Not only should the population in downstream areas benefit from secured water supplies, but also the people living within the catchment area would have to see direct improvements in their livelihood.

The new concept of watershed management, placing the needs and ambitions of the local population at the center of the planner's attention became more and more refined during the past decade. Participation of as many members of the local population as possible turned out to be an essential element. The new concept became widely known as "participatory watershed management" and consists of several components (see Chapter 4.2). For each component there are a number of tools or working steps which can be applied in changing sequence or intensity.

Experience has also shown that participatory working approaches are not easily adopted by Government institutions. Due to a long history of top-down attitudes, the paradigm of superiority of the technical knowledge by outsiders over local knowledge and the way that staff was educated and trained in the past, the members of Government services are usually ill prepared to face the new challenges of following the new methods. A participatory approach also means that Government organisations and parastatals relinquish some of their powers to local structures, redefine their role as pure service providers and supporters of local initiatives, yet are in a position to discuss technical issues on equal terms and eventually enter into joint implementation agreements. Government institutions will thereby withdraw as much as possible from directly implementing measures themselves and concentrate on supporting, monitoring and setting favorable frame conditions for an overall success. Issues of land tenureship and use rights, the appropriate use of incentives and the revision of the legal frameworks regulating local land use can be important tools in this context.

This change of attitude and roles cannot be achieved in one step or within a short time. This change can only result from a process of transformation which needs to be accompanied by several staff training inputs and hands-on practical working experience. This is exactly what the WSMP and all the staff members involved have attempted on a small scale while working in the Wadi Rajib area.

Not only do Government officials have certain reservations about these changes when working with the local population towards a better management of natural resources, but also the target groups themselves have difficulties in expressing their real needs, setting their priorities and taking responsibilities. In the past, decisions concerning their surrounding land resources were often taken by others and therefore they did not have the local structures capable of guiding the process of decision making and fully representing the people's views. Farmers tend to focus their interest solely on their private land and disregard their role in also managing communal land or water resources. State land is considered even more removed from their sphere of influence. Sometimes Government structures are feared for their powers to nationalise land resources and exercise their powers in all development issues. At the same time, the population also expects assistance from the outside, strong subsidies and charitable gifts which in the long run create dependency and inertia.

When following the participatory watershed management approach, a project like WSMP therefore also needs to strengthen the local analysing capacities, decision-making powers and the creation of local institutions representing the target groups. The willingness of the local people to initiate or adopt measures which were jointly planned and in which they contributed substantially in terms of funding and labour thereby become the real indicators of project success. The project also aims to develop procedures and local representation to ensure these efforts can be sustained over a long period of time.

4.2 Components of Participatory Watershed Management

All watershed management activities require a detailed assessment and analysis of the existing natural resources in the catchment area. This resource assessment should ideally reflect the status quo of available resources like land, water, vegetation cover etc. and also include a review of past changes and developments. Such an analysis will e.g. permit the identification of on-going degradation processes or changes in land cover. The step of thoroughly assessing the local resources is therefore a standard procedure in all planning exercises concerning improved use of land and water resources.

All the other components of a participatory watershed management approach are either slightly changed from the previous standard approach or entirely new:

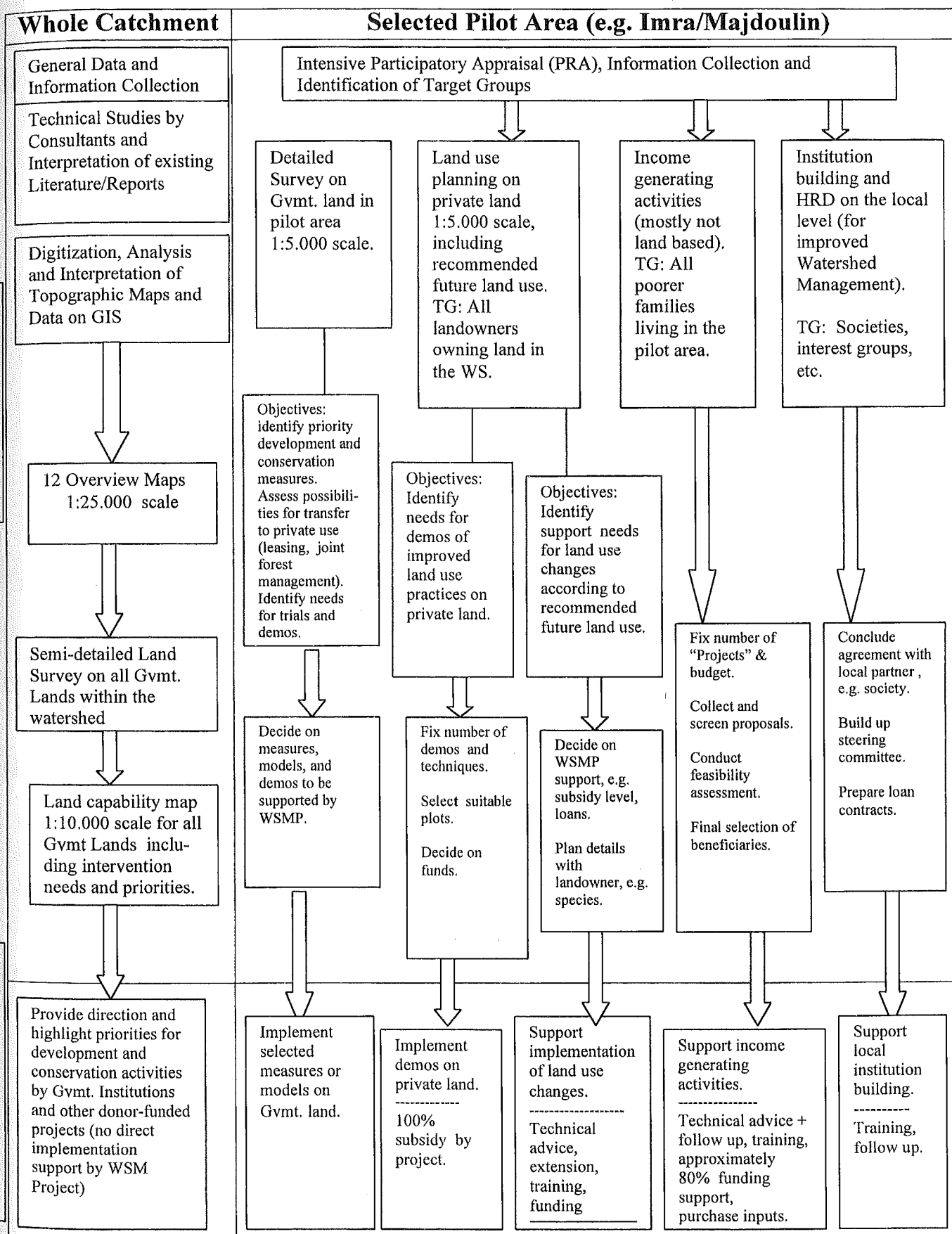
- a) Participatory socio-economic situation analysis
- b) Participatory technology development
- c) Participatory land use planning
- d) Strengthening and co-operating with local groups and organisations
- e) Improvement of people's livelihood

The components of a participatory approach obviously need to be adapted to any specific region or particular situation and can not be uniformly imposed. In the case of WSMP a particular approach and working sequence was designed which is represented as a flow-chart in Table No. 4.1 on the next page. The various steps and milestones defined for WSMP will be described in detail in Chapter 5.

4.2.1 Participatory Socio-economic Situation Analysis

When following a participatory approach it is of utmost importance that the information on the state of the natural resources is complemented by a detailed appraisal of the socio-economic conditions in the area, a profile of the local population and a first assessment of their needs. Due to the emphasis in the past on technical planning issues, these appraisal steps focussing on the inhabitants of the area were either forgotten altogether or reduced to a minimum. The socio-economic analysis should at least comprise information on the ethnic background of the population, their main occupations and sources of income, the particular situation of women and marginalised groups and the existence of local interest groups or organisations.

TABLE 4.1: WSMP – Working Process in One Project Area (WIH or WR)



A participatory appraisal will also help to highlight issues like the main problems faced by the local population, the extent of poverty and landlessness in the area, social structures within the communities, the labour situation and traditional expertise in various fields. The main present land use systems, past changes in land use and future aspirations will also be analysed.

A wide range of tools and methods can be applied in order to carry out this type of analysis. The most well-known and widely used approach is Participatory Rural Appraisal (PRA). The most important element which all the participatory appraisal methods have in common, is the principle of encouraging the population to analyse their situation themselves and to visualise this information. The input by external staff is limited to facilitating the entire process and moderating the collection of information. This is a very different approach when compared to the standardised surveys, questionnaires and statistics elaborated in earlier days.

Apart from usually creating a lot of transparent information for all participants in the analysis, the participatory working method, if properly applied, also significantly helps to build trust and mutual understanding between villagers and project staff. This familiarity with each other and the trust building effect are preconditions for successfully continuing the co-operation in the following working steps.

Another important aspect of using participatory appraisal and planning methods is the need to jointly define project measures and differentiate target groups for the various activities. A participatory watershed management project should avoid having set programmes or techniques already defined after the step of natural resources inventory and analysis. Even though certain appropriate measures and techniques e.g. for improved land use might already be on the minds of the project staff, the crucial point will be whether these are acceptable to and replicable by the population. This also necessitates a careful definition of which groups of individuals could cooperate in testing or applying the respective measure. In order to clarify this question a working method commonly referred to as "target group analysis" can be applied.

4.2.2 Participatory Technology Development

In Jordan, as in many other countries, a wide range of technically and ecologically adapted forms of land use and soil conservation measures already exist. Several of these are widely tested and proven. Others have been successfully applied under research conditions, but have never been accepted by local farmers.

Another component of participatory watershed is the selection, development and testing of effective and practical land use practices and conservation techniques which can be adopted and disseminated by the local inhabitants. These should not be predefined or prescribed by the outsiders, but if possible designed, selected and jointly implemented in very close agreement with the villagers. The monitoring and evaluation of results and impact of these techniques is also carried out by the people with support from technical staff.

In practice, this requires a close familiarity of the project staff with the principles of traditional land use systems in the area, as well as an understanding of recent changes and tendencies. With the ultimate goal of watershed management being the sustainable and profitable use or the protection of natural resources on a catchment level, certain prevailing land use practices are usually considered harmful and need to be discouraged. This requires some sort of definition together with the target groups on what should be changed and what could be improved practices. In most

cases this will comprise firstly some fairly easy changes or adaptations of known techniques, secondly the introduction of measures which have been tried out and have proven to be useful and acceptable in other parts of the country or the region and thirdly there could be the need to jointly develop and test real innovations. The use of participatory extension methods and continuous staff training are crucial elements in order to accompany this process of selecting, testing, monitoring and promoting the appropriate practices.

In the past, techniques which were not readily acceptable to farmers were promoted by extensive use of subsidies and other incentives. In many cases the fact that these measures were not replicated by the farming community on their own, is a result of their required high labour input and their uncertain efficiency or productivity. Therefore, it needs to be constantly kept in mind, that only techniques applied under real life situations on farmers' fields, tested and approved by these farmers themselves, stand a chance of becoming an accepted, efficient and widespread practice on private land.

4.2.3 Participatory Land Use Planning

When preparing a land use plan for a given area usually an ultimate development goal or an ideal situation in that particular area is drawn up. Rational criteria based on soil depth, slope, rockiness, rainfall etc. are defined and applied. When this planning procedure is applied to state land, where Government services have full control over implementation, such optimal land use might be feasible. Experience shows that this is rarely the case for private land. Most land use plans elaborated purely by technical staff remain wishful thinking and are never implemented.

Participatory land use planning tries to overcome these deficiencies by transferring the main responsibility for deciding on their future land use to the farmers and other land users. The process of planning becomes a discussion on what is recommended and what is feasible and eventually what could be the contribution of all implementing partners to achieve a more sustainable use or better protection of land resources in future. Although some broad principles and criteria need to be adhered to, these are not of overriding importance. The approach rather follows the concept of trying to find realistic compromises, which are ecologically, technically and socially acceptable among all stakeholders.

Usually participatory land use planning will start with a survey and analysis of present land use. This should only be undertaken in the presence of the land users, better even by themselves, very often by using their own classification for land use types. Ideally all groups of land users like dryland farmers, irrigation farmers, male and female livestock owners etc. should take part in the land use planning process. In some cases it is necessary to discuss conflictive land use issues with certain groups only, in other cases land use planning committees are created to represent entire communities. In a very individualistic society it can even be necessary to deal only with individual farmers concerning their individual property. In any case, it is important to start from the traditional ways of cultivating, conserving soils or keeping livestock and to investigate any customary regulations or traditions in place which govern the use of natural resources.

The results of the present land use analysis can be visualised either on 3D-models, on large-scale aerial photos or on base maps (e.g. 1:5.000 or 1:10.000 scale). Once the status quo is documented, the next step of jointly deciding on specific changes in land use and other measures to achieve a better management of resources can be taken. There is one difficult issue related to this step: very often the technicians have

preconceived ideas on techniques which would be appropriate under the local conditions, measures which they usually had no time to test and demonstrate to farmers in the area. On the other hand, farmers often have a pretty good perception of what should be changed, but ignore suitable practices and measures. In other words it would be advisable to wait with the elaboration of a participatory land use planning exercise until the joint technology development step (see 4.2.2) can be fully evaluated. In reality this will not be possible, as some techniques require years to be developed and accepted. In most cases both steps will be started at more or less the same time, with the jointly developed future land use plan then reflecting also the on-going trials. It is rather the exception that ready solutions are available for all types of land use and that these are immediately acceptable to all participants in the land use planning process. Existing options for future land use can be presented by project staff, but at least with regard to private or communal land, the decision on what to test or adopt on a wider scale remains entirely with the farming community.

In practice, this means that a future land use plan should highlight the feasible and accepted changes to the present land use and that this plan needs regular updating as more experience from the technology development activities and the extension work become available. Such a plan has the advantage of being an agreed upon implementation plan, which can be monitored by farmers and project staff alike.

In the case of Jordan, where land is either privately owned or state land, the participatory land use planning approach is particularly applicable to the private land units. Still the participation of at least people's representatives or committees in the surveys and plans for Government land would be extremely useful, as e.g. most of the rangeland areas used for livestock grazing are under state control. Experience shows that measures to be taken on state land in order to reduce e.g. degradation effects would become more acceptable to the local population if they had an influence on defining the action to take. Consequently, all efforts should be undertaken to involve the local people as closely as possible in the planning and implementation of conservation measures on Government land. Under certain circumstances the aim of achieving improved land use systems can also imply a change of land tenure under well defined regulations.

A future land use plan should ideally be accompanied by detailed agreements on steps and necessary contributions by all sides during implementation. These agreements define the role and responsibilities of the landowners as well as the support needed from Government services or NGOs. In addition, general land use regulations for community areas or sub-catchments defining what is and what isn't permitted in terms of managing the land, can be very useful. Their elaboration by the local population with external support should normally be part of any land use planning process.

4.2.4 Strengthening and Cooperating with Local Groups and Organisations

As mentioned before, a project or Government services in general need to deal with groups, committees or organisations representing local interests. It is therefore crucial to promote, strengthen and constantly support such organisations during the work of participatory watershed management.

The identification of such local groups and institutions starts during the phase of participatory situation analysis. Their specific tasks and responsibilities as well as their internal functioning need to be clearly understood. Their capacities need to be analysed. During the working steps of participatory watershed management the roles

and contributions of all these formal or informal organisations will then become much clearer.

Through a number of supporting measures in institutional development these local organisations can be strengthened, their decision making powers can be enhanced and they eventually become equal local partners in development. One of the aspects of overruling importance is the gradual development of mutual trust.

4.2.5 Improvement of People's Livelihood

One way of building trust is to take the socio-economic situation of the local population seriously and to start measures for the improvement of people's livelihood. This will normally take the form of community development or income generating activities.

Moreover, the importance of improving people's livelihood goes far beyond the need to build up mutual trust. Experience has shown that there is a direct causal link between poverty and environmental degradation. People who have no alternative but to satisfy their basic needs through overexploiting natural resources, for obvious reasons need support to improve their livelihoods. A concept of introducing more sustainable ways of managing the natural resources in a particular watershed will consequently not make sense and will not be possible without at the same time achieving an improvement of prevailing living conditions. Also, most of the land use changes and conservation practices will only show an economic return in the medium to long-term and therefore need to be accompanied by measures which have a visible effect within a relatively short time.

Again, it makes most sense to support e.g. agricultural and non-agricultural income generating activities proposed by the target groups themselves, which have been scrutinized by a technical and economical feasibility assessment. Yet in some cases it can be difficult to establish a link or an interdependency of socio-economic support with the improvement of natural resources management. Very often the measures of income generation will in particular address poor inhabitants, marginalised groups and women, i.e. those who usually have less influence on decision making concerning land use issues within the community. If, on the other hand this type of support is used as an incentive for creating acceptance of certain land use changes or conservation measures and would therefore only address major land owners, this would automatically exclude the main target groups in need of poverty alleviation.

The creation of income in the local communities will require a combination of technical and economic expertise, extension efforts on various levels and cooperation with suitable local institutions. Usually a small credit component will be included in such measures.

In order to prove that the promoted income generating activities are actually benefiting the local population, these measures need to be accompanied by extensive monitoring and evaluation activities. The WSMP makes no exception to this and has in recent months developed its own monitoring and evaluation concept (see chapters 5.2.3 and 5.3.2).

4.3 Selection of Pilot Areas

The implementation of a process-oriented participatory watershed management approach within the framework of a development project needs clearly defined pilot working areas. Although the Wadi Rajib watershed with its 85 sq. km and about 7

major settlement areas, by no means covers a large catchment area, project work cannot start everywhere at once. Therefore pilot areas need to be carefully selected according to set criteria.

Eventually, the impact of watershed management in the form of e.g. stable baseflow conditions in the wadi, improved bio-diversity and sustainable agricultural yields as well as improved livelihood for the local population will only be achieved when all communities in the area adapt their land use and participate in an equilibrated development process of the entire watershed.

In the case of the WSMP, the work in the WR area was thoroughly prepared by a gender specific target group analysis in September 1997²⁵. This survey helped to identify the most needy target groups and the most appropriate pilot area. For a step by step application of the participatory approach to watershed management, the four neighbouring communities of As Sakhina, Al Fakhira, Ash Shikara and Jabal Al Akhdar were selected. All these villages belong to the municipality of Safa and the charitable society of Al Hillal has members in all these communities. Together the four villages represent approximately 25% of the total area.

The village of Jabal Al Akhdar, although originally part of the Al Hillal area, increasingly evolved as a separate entity and a new women's cooperative gradually formed in that village. Therefore, during the year 1999, Jabal Al Akhdar became a second pilot area, including the smaller village of Khshuibeh Foga.

With the general project approach confirmed and approved once again by a project evaluation mission in January 2000, it was time for further expansion. At this stage it was also decided to promote the project approach beyond the boundaries of the Wadi Rajib watershed to selected villages in the Ajlun Governorate or even move into the neighbouring Jerash Governorate.

The project experience had shown by then, that the most crucial issue for identifying new pilot areas was the availability, or at least the potential, for building strong local institutions, such as charitable societies or cooperatives, for joint planning and implementation of project activities. Therefore, a series of selection criteria had to be agreed upon in order to identify suitable cooperatives and charitable societies to work with. These selection criteria are:

- a) Whether the group is a mixed cooperative/society or a pure women's group – women's groups are favored due to the gender aspect and previous experience gained by the project which shows that female groups are generally more active, more needy, more homogenous and less dominated by tribal issues and conflicts.
- b) Whether the group operates in an urban or a rural environment and whether the area shows obvious signs of poverty or under-employment – only rural groups are selected and those showing a high dependency on income from agricultural activities or widespread poverty in the case of employment.
- c) Whether the group is willing to cooperate with WSMP – this is usually the case, but there are exceptions due to the "non-islamic origin" of the funds used by the project.
- d) Whether the group already benefits from substantial support by other organisations like NGOs or from other funding sources – if this is the case the group will not be selected for cooperation with WSMP.

²⁵ Ganter, E. et al.: Gender Specific Target Group Analysis – Wadi Rajib 1997

- e) Whether the group seems well organised and shows sound leadership – some groups in the area have failed or are dormant due to poor management and leadership and will therefore not be selected by the project.
- f) Whether the group is successfully managing activities of their own – this again is an indicator of a well functioning group and will increase the chances of being selected.
- g) Whether the group is marked by tribal conflicts – this is one of the main destructive factors in groups, particularly in male cooperatives and societies.
- h) The current membership and the overall population in the area – this is an indicator of the importance of the group and describes its potential to grow further; the project prefers to work with larger groups or those having a good potential to become a large group, because of economies of scale and economic use of project resources (staff, transport etc.).
- i) Finally, the distance from the center of operations of the project in Kamaliya is also a criteria, again for reasons of economic use of available transport resources.

All these criteria together will help to classify the overall suitability of each cooperative or charitable society. WSMP maintains a list in which these criteria and the overall suitability of each group are described in brief. In the case of further expansion of project activities the team then proceeds according to this suitability list.

Thus, in the year 2000, the first pilot area of Al Hillal was expanded to incorporate the three additional villages of Zerra'a, As Safsafa and As Souk. The second pilot area remained unchanged in Jabal Al Akhdar and Khsheibeh Foga. A new, third area was selected around the small villages of Thaghrit Zabeed and Ka'b Mallool, as particularly the women in this area expressed strong interest to start co-operating with the project and establish their own women's cooperative. As Thaghrit Zabeed and Ka'b Mallool are poor, rural sites within the Wadi Rajib watershed, they were given preference.

Only very recently and after thorough analysis, a decision was taken to start additional work in the Ba'oon area, where an active women's society is operating. Ba'oon is the first pilot area located outside the natural boundaries of Wadi Rajib. Further expansion is already planned. During the first months of the year 2001 two additional pilot areas will be selected, possibly in the Jerash Governorate, in view of further promoting the project approach in rural areas of Northern Jordan.

The activities supported by WSMP in the various pilot areas are described in detail in the following chapter.