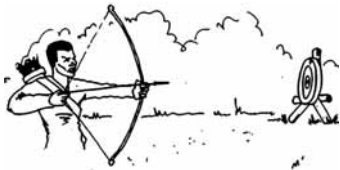


2 Participatory Learning and Action Research (PLAR) curriculum

2.1 Principles and objectives of the PLAR approach



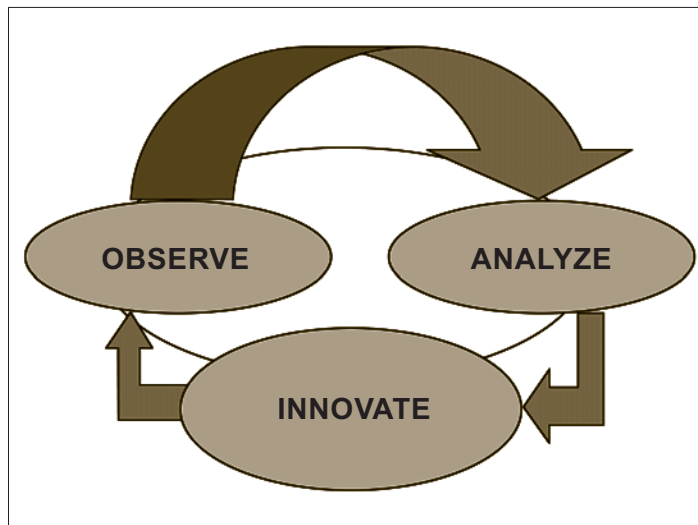
Participatory learning and action research (PLAR) is a farmer education approach, based on adult learning in groups of 20 to 25 farmers, making use of the experiences of the group members. The PLAR curriculum covers the whole cropping season, and the activities follow the development stages of the rice crop and the agricultural cropping calendar. Farmers analyze their own practices, discover problems and

seek solutions to solve them. Instead of diffusing or transferring the technologies coming from research or extension services, the facilitators encourage farmers to find solutions themselves and help them to become better rice-crop managers. PLAR does not seek to find the best solutions from a scientific point of view, but those which are the most practical, applicable and adapted to specific local situations.

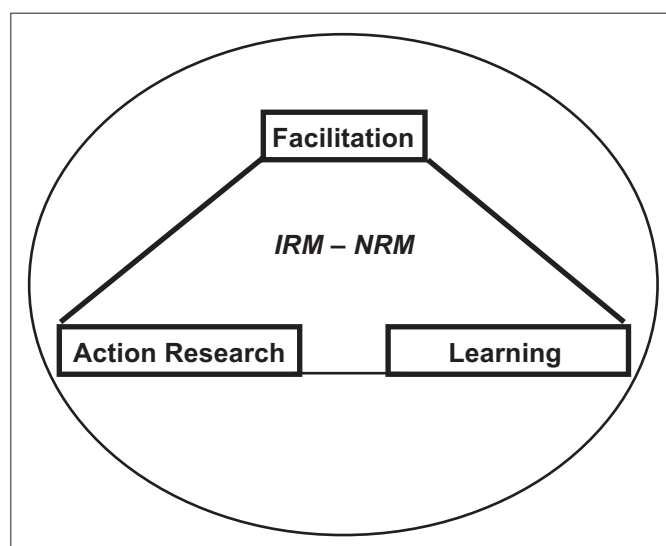
In the PLAR approach, farmers are not considered as potential ‘recipients’ or ‘adopters’ of new technologies; the idea is rather to create a process which will stimulate the farmers into discovering and innovating themselves. The underlying assumption is that in a given context, the learning, discovering and innovating process prompts change and sustainable improvement of the production system. This learning process is facilitated by a team of facilitators, the PLAR-IRM team, often coming from extension services, research or NGOs.

The objectives of the PLAR approach are:

- To develop and improve the farmers’ capacities to observe and analyze their working environment (field, inland valley) in order to identify the major constraints and to test, adapt and introduce possible improvements to achieve integrated rice management. This process includes the following steps:
 - Exchanging knowledge, attitudes, experiences and practices;
 - Observing, recording;
 - Comparing, interpreting, analyzing, understanding the causes and factors behind what is observed;
 - Finding potential solutions;



- Reasoning through the decisions to make before taking action, experimenting (trying out) new ideas, learning by doing, and understanding that experimenting also means planning, observing, comparing and interpreting;
 - Organizing (individually or at group or community level) for the implementation of activities;
 - Creating functional networks with other farmers, extension services, research and any other support service.
- To facilitate learning to make sure that farmers are capable of taking well-thought-out decisions, resulting in more productive and sustainable IRM. The facilitation team uses different learning tools, they are part of the modules and together they form the curriculum. The modules are implemented during facilitation sessions run by the facilitation team. With their enhanced capacity to observe, record, analyze and interpret, the farmers will be better equipped to appropriate further knowledge; this will stimulate them to implement this knowledge, innovate and to learn by doing. The facilitator encourages the exchange of experiences among farmers, and listens rather than dictates to farmers.



The facilitator plays a very important role. He (or she) assists farmers—apprentice groups—in taking the best possible decisions, resulting in more productive and sustainable rice management. Some important roles for facilitators are:

- To understand that learning is based on farmers’ experiences and farmer training needs.
- To create situations favoring the exchange of experiences and practical knowledge.
- To ask questions—using simple, direct and open questions; questions that encourage discussion and reflection, that insist on the ‘how’ and ‘why’ of practices, etc., to make the farmers think about the variability and differences in space and time.
- To use visual tools that are robust and flexible.
- To encourage discussions in sub-groups, but present results and observations in plenary sessions.
- To stimulate field visits to observe, compare and discuss.
- To translate scientific principles and knowledge into words and illustrations that farmers can understand. Link new external ideas to existing knowledge and practices.
- To urge farmers to implement what they have learnt, innovate and to test new ideas on their own farms.

2.2 Key elements of the PLAR-IRM approach

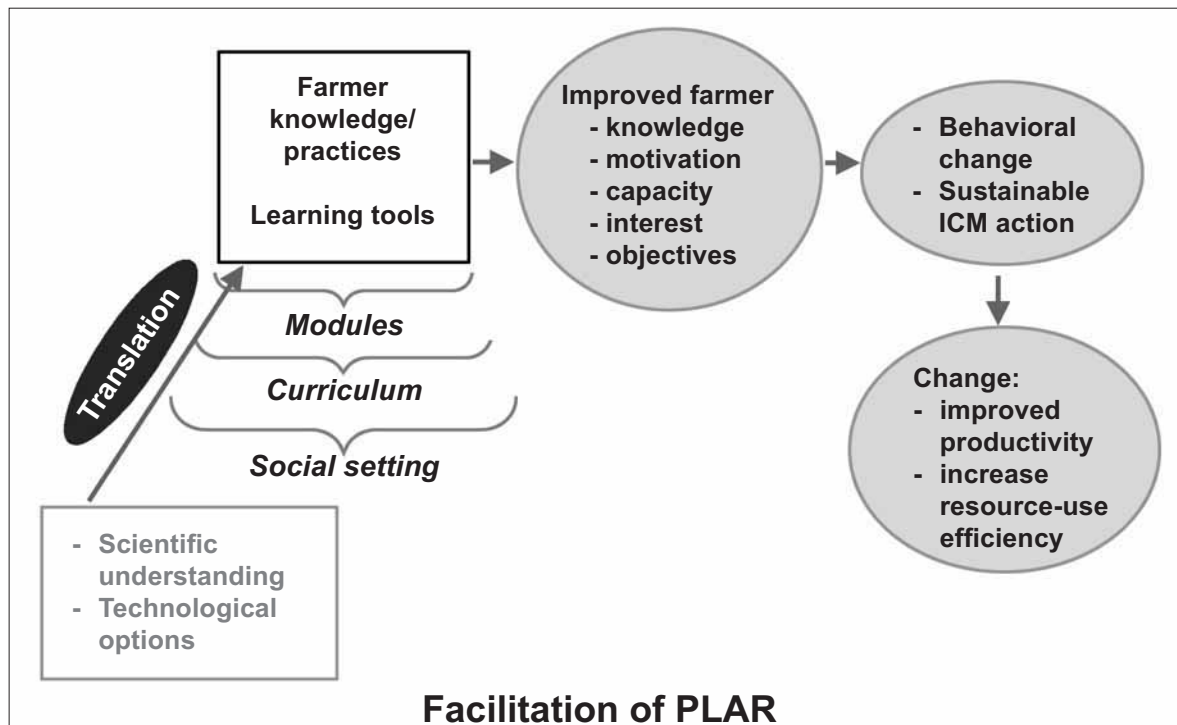


The modules are the basic components of the PLAR-IRM curriculum and the basic tools used in the facilitation sessions. In principle, each module takes as a starting point the farmers' existing knowledge and practices. The learning tools are the key elements of the PLAR-IRM modules and are intended to bring new and relevant information to farmers in an easily-digestible form, so that the new information can be captured by the farmers and thereby become internalized knowledge. The information captured in the learning tools relates to scientific insights and principles, and possible technological options for improvement. But this scientific information is generally too complicated to be understood by the farmers and thus needs to be 'translated.'

Each module aims at improving farmers' knowledge, motivation, capacity and interest to innovate and thereby to change behavior in a sustainable way vis-à-vis Integrated Rice Management. This will ultimately lead to improved resource utilization and rice productivity in the inland valleys.

The three key elements of the PLAR-IRM approach are explained in detail:

- The learning dimensions and tools.
- The modules.
- The facilitation sessions.



2.2.1 Learning dimensions and tools

Learning dimensions

Four major learning dimensions can be distinguished: concrete experience, abstract conceptualization, active experimentation, and reflective observation.

Beyond these, two ways to learn may be distinguished: individual learning, and communicative or social learning. The four learning dimensions (*see* ‘Notes on learning dimensions,’ page 21) mostly stimulate individual learning. Social learning supposes that individuals can learn through communication and reflection in groups. Groups prompt individuals to learn (e.g. school). When comparing group and individual analyses of a situation, groups usually obtain a more complete image out of the facts, arguments and relations between causes and effects; they also recognize false arguments more easily. The group can influence values, beliefs and feelings. The feeling of belonging to a learning group can stimulate members to go beyond their own individual capacities. But a lot depends on the facilitator animating the discussion, and stimulating open reflection and criticism using tools such as calendars, drawings, maps, etc.



Learning tools

PLAR-IRM is based on a set of learning tools with the aim of helping farmers to express themselves and exchange their knowledge and experiences, to observe, to stimulate farmers to give careful consideration, to analyze, conceptualize, innovate and implement new ideas, etc. Many tools are based on the visualization of phenomena which help farmers to discover and ‘see’ things that were previously ‘invisible’ to them. The learning tools used by PLAR-IRM to date are:

- The cropping calendar.
- The inland-valley and catchment area map.
- The transect walk.
- The plenary session to exchange experiences.
- The introduction of new concepts by the PLAR team.
- Field observation in sub-groups.
- Summary and presentation of field observations.
- The IRM field.
- Testing/experimentation.
- The recording form.
- Evaluation of the PLAR session.

Some of the tools are directly linked to a specific module (e.g. the inland-valley map or transect walk), while others are used in several modules (e.g. the cropping calendar, observations in sub-groups, experimentation, the IRM field) and a third group of tools are used in all the modules (e.g. the plenary session to exchange experiences, evaluation of acquired knowledge). Most tools aim at stimulating individual as well as social learning.

The cropping calendar allows farmers to obtain an overview of the stages of rice-plant development in order to improve the planning of good crop-management practices. The rice cycle and the cropping calendar are visualized by the farmers themselves. They use small figurines which they place on a cotton cloth. The cropping calendar will be the basis for the individual planning of the activities which (s)he will visualize on his/her recording form (Annex 1).

The inland-valley and catchment area map. Inland-valley and watershed maps represent the key elements related to the form/morphology, hydrology, soil, vegetation and land use of the inland valley. Such a map allows farmers to have an overall picture of the inland valley, beyond the field level. This overall picture helps them to analyze the functioning, constraints and possibilities of the inland valley in order to take action for improvement, which often requires consensus-building and concerted efforts.

The transect walk. A transect consists of walking along longitudinal and transverse lines, covering the different units of the catchment area of the inland valley. The group doing the transect walk stops at each unit identified by the farmers and discusses the type and characteristics of the soil, the hydrology and the relations between catchment area, soil and hydrology. The dominant vegetation, crops, practices, constraints and possibilities are also discussed. Thus, this transect walk completes the inland-valley and catchment area map.

The plenary session to exchange experiences. PLAR is based on farmers' knowledge and practices. Hence, each module begins with an exchange of experiences among farmers. This session allows the facilitators to understand the elements that the farmers do not control so that they can adapt the contents of the module in order to improve farmers' knowledge.

The introduction of new concepts by the PLAR-IRM team. Each module addresses one or more concepts that most of the participants do not control and which require explanation. The contents of these interventions are determined by the initial knowledge level of the farmers, identified during the plenary session of exchange of experiences. The PLAR-IRM team avoids giving long explanations, but will introduce new concepts in the form of question-and-answer sessions, making links with existing knowledge and practices.

Field observations in sub-groups. Making observations in the field is the leading principle of the PLAR approach. In order to be efficient, field observations are generally done in sub-groups of four to six farmers. Each sub-group designates a farmer-facilitator and a farmer-rapporteur. The type of observations to be made is normally discussed during the plenary session; they are called 'observation indicators.' It is important to take enough time to discuss and agree upon the meaning of 'observation indicators' (Module 11, page 2) and to find the translation into the local language. The field observations are made at different stages of rice development, but they also concern experiments, problems with weeds, insect damage, etc.

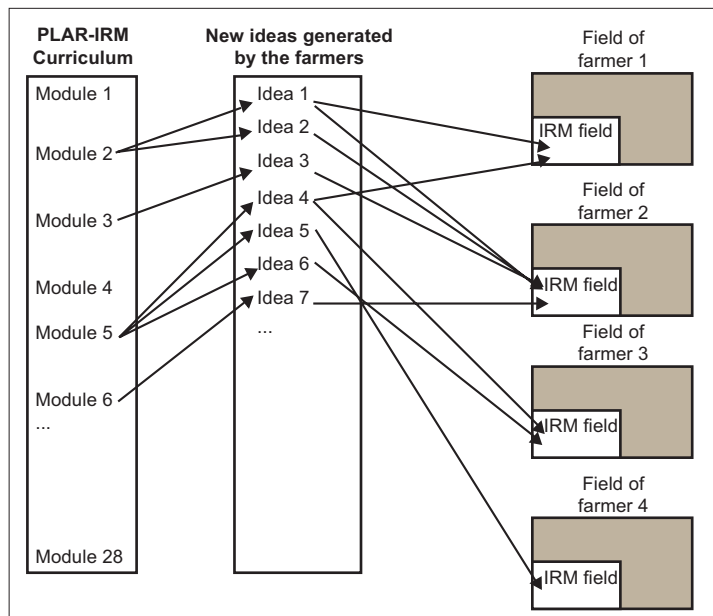
Summary and presentation of field observations. After the field observations, the farmers come back together into a plenary session and present a summary of what they have observed. Usually, by turns, the farmer-rapporteurs of the sub-groups present the results, while the other farmers provide

additional information. All the information is synthesized in the form of a table. During this session, the observations are analyzed in detail. To analyze is to understand the underlying causes or factors of what has been observed, e.g. if we see that a field is poorly leveled (an observation indicator), asking questions about why it happened is analyzing the problem.

During field observations, the farmers will often take samples that they will further analyze during the summary session. For instance, during the session on insect observation, the farmers collect insect-infested plants to identify the causes of the damage, and this will enable construction of the life-cycle of the insect.

The IRM field. The participating farmers are encouraged to implement any new idea—picked up during the PLAR sessions—in a part of their field. In practice, they identify and mark the limit of a field where they will install any new technique learnt, that field is called the ‘IRM field’; some options will be difficult to implement on only part of the field, e.g. improved land leveling or water management. At the end of each session, the facilitator asks what new ideas they want to implement (*see* ‘Evaluation of the PLAR session’ below) and during the next session, the facilitator asks which new ideas they actually applied on their IRM field. Farmers are advised not to use all their fields to apply the new practices, because it is often easier to test and adapt new techniques on a small scale before applying them on a larger scale; it also enables comparison with the farmer’s usual practices. This is totally consistent with the philosophy of the PLAR-IRM approach, i.e. the farmers discover and learn by doing and, if necessary, adapt the technique according to local conditions. After this phase, the farmers will probably apply the technique over wider areas (often after some adaptation of the technique) and integrate that technique into their production system. The sub-groups visit these IRM fields regularly for observation during the field-observation sessions.





In principle, any module can generate new ideas that farmers can apply in their IRM fields. Each individual farmer decides which idea(s) (s)he wants to put into practise. It is clear that the type and number of new practices applied in the IRM field will differ among farmers¹.



Testing/experimentation. Farmers are encouraged to decide which new ideas they want to test. Farmers’ experiments are a way of systematically testing a set of options while comparing them to their conventional techniques. It is important to notice that experimenting/testing requires a significant investment from the farmers. For this reason, it is preferable to limit the number of ‘test’ farmers to those who really want to be involved and are ready to invest considerable time and energy in doing an experiment. The group of test farmers can meet regularly and discuss all the aspects of the tests, giving this core group an important role in the presentation and exchange of the results achieved during the regular PLAR-IRM learning sessions.

In order to ensure the efficiency of the tests, it is necessary to operate in a systematic way and to follow a set of conventions that allow valid conclusions to be drawn. Farmers’ tests have different aspects: conceptualization, implementation, monitoring, observation visits, data analysis and presentation of results. The test farmers and the other farmers that are involved in the PLAR-IRM approach present the results together. The experiments play an important role in the adaptation of the new technologies to local conditions.

¹A questionnaire has been developed to record the new practices put in place by the farmers on their IRM fields (Annex 5). In principle, a PLAR team member should visit each farmer’s IRM field each month to record the information.

The recording form. Monitoring and evaluation of new technologies are necessary to analyze the efficiency of the IRM techniques and possibly improve these and the PLAR-IRM approach as a whole. Monitoring and evaluating requires proper recording of information on the activities and observations done in the IRM field. The recording form includes many visual aspects, allowing illiterate farmers to keep track of observations and practices implemented. A model of the recording form is given in Annex 1. It consists of:

- General information on the participating farmer and his/her farm.
- A sketch of the IRM field.
- A calendar of the activities planned, followed by the activities actually implemented.
- Field observations relating to field preparation, nursery, transplanting, and the different development and growth stages.
- Data on management practices.

Evaluation of the PLAR session. At the end of each module, an evaluation is done. This evaluation consists of three elements:

- Appreciation: what did the participants appreciate most and least?
- Learning: what do the participants know now that they did not know before?
- Benefit of the new knowledge: did the module generate new ideas which the farmers want to apply, e.g. on their IRM field?





2.2.2 Modules

The modules are the basic elements of the PLAR-IRM curriculum and the key tools used for running the facilitation sessions.



Structure of the modules

Each module starts with a short introduction, followed by the following sections:

- Learning objectives 
- Procedure 
- Time required 
- Materials required 

The introduction presents the problem and explains why this particular module is part of the PLAR-IRM curriculum. Normally, it is because farmers have expressed a need for information or it results from previous diagnoses.

Learning objectives



The learning objectives mostly aim at increasing farmers' capacities and skills, e.g. how to analyze a situation, observe, compare, interpret, look for and find solutions, take decisions, plan activities or experiments to implement, test new ideas, compare different techniques, evaluate the performance of new techniques, define how to meet a goal. There may also be some learning objectives for the PLAR-IRM team.

To make it possible to check later if the learning objectives have been met, they have to be formulated as simply and clearly as possible. For example, "by the end of the session, farmers will be able to diagnose signs of nutrient deficiency in rice."

Procedure



Most of the modules contain the following elements:

- Greetings.
- Review of the previous module, review of new techniques implemented in the IRM fields.
- Presentation of objectives.
- Exchange of farmers' experiences.
- Introduction of new concepts.
- Field visit or use of a visual tool, e.g. crop calendar.
- Restitution and summary.
- Evaluation of PLAR session.

Time required



The time required to run a facilitation session should not exceed 3 hours, in order to keep the attention of the farmers. If a module takes too long, it is better to suspend the session and to continue the module during the next session.

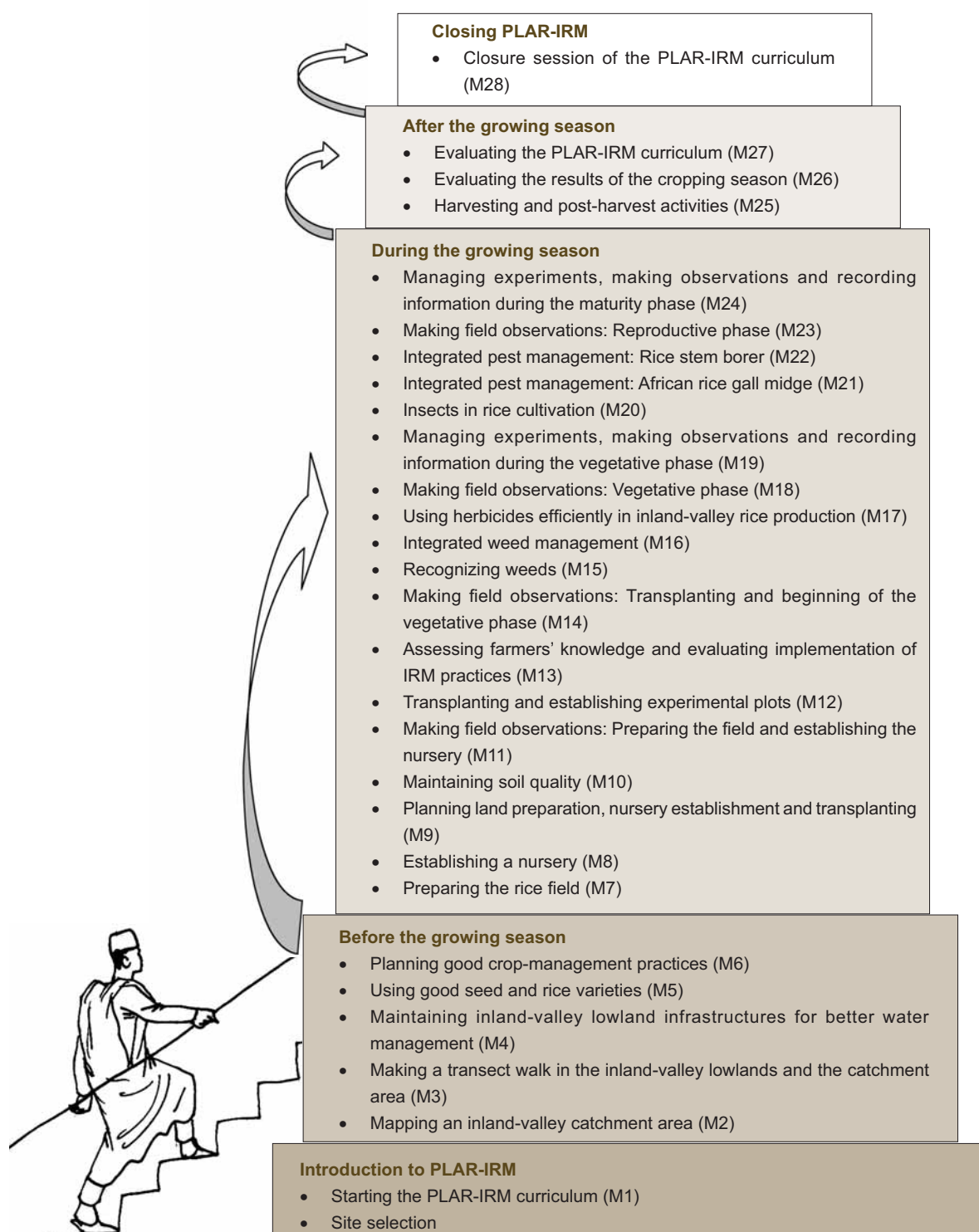
Materials required



For a session, sometimes the material has to be prepared in advance.

Modules

Currently, the PLAR-IRM curriculum consists of 28 modules. It is not necessary to use all the modules during the facilitation sessions. The choice of modules to be used will depend on the training needs of the farmers expressed during the first session. It is possible that there is no module on a particular subject judged important by farmers, in this case an additional module will have to be developed. The following table gives an overview of the existing modules.



2.2.3 The facilitation sessions



Facilitation sessions take place in the fields and at the PLAR-IRM Center. The location of the PLAR-IRM Center is chosen by the farmers. It can be somewhere under a tree, or a small room in the village or any other place not too far from the inland valley.

A facilitator is more than a trainer. He (or she) plays the role of an experienced farmer or of an advisor (for the practical part), of an animator (asking questions), of an organizer and coordinator. The roles and responsibilities of the facilitator are:

- To prospect potential sites for the implementation of PLAR-IRM (Section 4.2 and Reference 1).
- To make observations and prompt farmers to make observations.
- To ask simple questions so as to encourage farmers to exchange their knowledge and experiences, and to seek advice from other farmers; to ask other questions to encourage farmers to try to understand why things are like they are, and why they do this or that.
- To attract the attention of the farmers, try to understand their current knowledge, their attitudes, their practices and their underlying reasons for doing what they do. To give particular attention to the differences among farmers (diversity) and motivate the farmers to recognize and understand that diversity.
- To animate discussions and encourage farmers to analyze and take decisions to try out (test) what they have learnt.
- To train farmers to improve their way of testing new ideas, favoring the adaptation and adoption of new techniques and stimulating farmers to develop new ideas.
- To make the farmers respect some rules of behavior: if someone talks, the others listen and follow attentively. The facilitator makes sure that all the farmers participate and that the discussions are not monopolized by one or a few participants.
- To prepare the materials required for the sessions.
- To make a report of each facilitation session.
- To analyze the results of the farmers' tests and compare the IRM fields with the rest of the farmers' fields.

To be effective, the facilitator should:

- Be motivated to improve rice production and livelihood conditions of farmers.
- Avoid giving answers to questions, but encourage farmers to find the answers themselves, from their own experiences.
- Start with a few, cheap, simple activities for farmers to implement (basing choices on local knowledge and practices), which are most likely to give visible and significant results in a short time; this will help motivate the farmers.
- Avoid using artificial incentives.

- Be systematic and follow the procedure of the modules as described in the manual. To be systematic means: progress from simple things to more complicated things, and from what is known to what is not known, in order to explain something new to the PLAR-IRM participants.

The facilitator's attitude can stop the learning process, e.g. when the facilitator:

- Seems little interested in, or incapable of, focusing the farmers' attention, or is impatient with the farmers.
- Does not stimulate the exchange of knowledge and experiences among farmers.
- Offers standard recommendations without analyzing problems with participants.
- Does not ask further questions, but only gives his or her own opinion.

The PLAR-IRM modules have been developed to help the facilitator in his/her work. *However, the modules should **not** be considered as unique and rigid tools.* On the contrary, facilitators are encouraged to adapt and modify the modules to make them appropriate and useful to the conditions in which they are working. In that sense, it is important to evaluate the efficiency of the modules. At the end of each module, the facilitator should ask the farmers to what extent they appreciated the module, what they learnt and what they will implement or test. If the results of the evaluation are not satisfactory, it is clear that improvements have to be made. In addition to the farmers' evaluation, it is also important that the facilitation team evaluates each session. A sheet has been prepared to allow the recording of the evaluation results (Annex 2).