



Wolfgang Bayer and  
Ann Waters-Bayer

**Participatory Monitoring  
and Evaluation (PM&E)  
with pastoralists:**

**a review of experiences and  
annotated bibliography**

Eschborn 2002



Deutsche Gesellschaft für  
Technische Zusammenarbeit (GTZ) GmbH

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## FOREWORD

For decades, agencies of development cooperation (DC) have been working in the drylands of developing and transition countries. These regions are an immense challenge for technical cooperation because of their high climatic variability, their susceptibility to desertification and their economic and political sensitivity, including their potential for social and resource-based conflict. The important insights gained from cooperation with pastoralists include the central role of resource-use rights, the importance of indigenous knowledge and cooperation with traditional institutions, the necessity for a flexible approach, and especially the role of participation as a fundamental conceptual and practical element of cooperation.

On the basis of this assessment, the GTZ commissioned already in 1994 a study on experiences gained in participatory planning with pastoralists. This resulted in the document *Planning with pastoralists: PRA and more – a review of methods focused on Africa*. A French version (*Planification avec des pasteurs: MARP et au-delà – un compte rendu de méthodes centré sur l'Afrique*) appeared in 1995. This overview and analysis of approaches and methods was received with great interest far beyond the circle of those concerned only with pastoralism. Today, eight years after its publication, the document is still being requested.

During that review, it became clear that there were few experiences documented with respect to a very important element of participation: the observation and evaluation of project activities and resource management by the target group, i.e. participatory monitoring and evaluation (PM&E). To what extent is this instrument employed in DC with pastoralists? What are the main successes and best practices? Where do the main difficulties lie? What can the experiences teach us?

PM&E is a topic important for DC as a whole, particularly in the realm of natural resource management, because it embraces questions of impact and sustainability. When pastoralists are involved in PM&E, the opportunities for learning are especially large, because cooperation with these groups of resource users is particularly challenging, given their mobility and their – in most cases – social exclusion and political and economic marginalisation. Does PM&E have a special significance here because of this situation? Is PM&E even possible in such settings?

The present document was prepared with a view to finding some answers to these questions. It is based on a review of published and “grey” literature, communication with persons and institutions cooperating with pastoralists and the field experiences of the authors, particularly in Africa. Without the willingness of a large number of persons and projects to report very openly on their experiences with PM&E, this document could never have been produced. We extend our warm thanks to them all.

The interest of ETC Ecoculture in joining the GTZ in publishing this review stems from its years of involvement in Participatory Technology Development (PTD), an approach to promoting local innovation on the basis of experimentation led by farmers and pastoralists. PM&E plays a central role in PTD. ETC has given particular attention to building up multi-stakeholder platforms for planning, implementing and evaluating natural resource management, in which special efforts must often be made to include livestock-keepers, particularly the more mobile groups. The authors of this review are associated with the Livestock Group of the ETC Foundation.

We hope that the present document is received just as enthusiastically as *Planning with pastoralists: PRA and more* and likewise becomes a valuable instrument for people and projects involved in DC, also beyond pastoral development.

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September 2002

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## ACRONYMS

AAS	ActionAid-Somaliland
ACIAR	Australian Centre for International Agricultural Research
ACORD	Agency for Cooperation and Research in Development
AgREN	Agricultural Research and Extension Network
APAM	Aires Protégées d'Andasibe/Mantadia
CAHW	Community-based Animal Health Worker
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical (International Centre for Tropical Agriculture)
CIP	Centro Internacional de la Papa (International Potato Centre)
CRDP	Central Rangeland Development Project
DFID	Department for International Development
ELCI	Environmental Liaison Committee International
FAO	Food and Agriculture Organization of the United Nations
GATE	German Appropriate Technology Exchange
GRAAP	Groupe de Recherche et d'Appui pour l'Autopromotion Paysanne
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
HRM	Holistic Resource Management
ICLARM	International Center for Living Aquatic Resources Management
IDRC	International Development Research Centre
IDS	Institute for Development Studies
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
IIRR	International Institute of Rural Reconstruction
ILEIA	Information Centre for Low-External-Input and Sustainable Agriculture
IPSOS	Integrated Participatory Seasonal Observation System
ITDG	Intermediate Technology Development Group
ITP	Intermediate Technology Publications

IUCN	The World Conservation Union
M&E	Monitoring and Evaluation
MARP	Méthode Accélérée de Recherche Participative
MDP	Marsabit Development Programme
NAHA	Nomadic Animal Health Auxiliary
NGO	non-governmental organisation
NRI	Natural Resources Institute
NRM	Natural Resource Management
ODA	Overseas Development Agency
ODI	Overseas Development Institute
PE	Participatory Evaluation
PIM	Participatory Impact Monitoring
PLA	Participatory Learning and Action
PM&E	Participatory Monitoring and Evaluation
PRA	Participatory Rural Appraisal
PRGA	Participatory Research and Gender Analysis
PSB	Projet Sahel Burkinabé
PTD	Participatory Technology Development
RRA	Rapid Rural Appraisal
SARDEP	Sustainable Animal and Range Development Programme
SARL	Sustainable Agriculture and Rural Livelihoods
SEPO	Succès, Echecs, Potentialités, Obstacles
SWOT	Strengths, Weaknesses, Opportunities, Threats
TDCPU	Turkana Drought Contingency Planning Unit
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSO	Office to Combat Desertification and Drought (now Dryland Development Centre)
UPWARD	Users' Perspectives with Agricultural Research and Development
USAID	United State Agency for International Development
VITA	Volunteers for International Technical Assistance
VSF	Vétérinaires sans Frontières



## SUMMARY

This report reviews documented experiences, including “grey” literature, on participatory monitoring and evaluation (PM&E) with pastoralists and other livestock-keepers. It is divided into two parts: an analytical assessment and an annotated bibliography. Key websites for further information are given in an annex.

The review yielded numerous training reports, guides and plans for establishing PM&E systems, but few examples of actual implementation of systems that gave balanced attention to concerns of both the pastoralists and the intervening agents. This may be because:

- pastoralists in remote areas prefer to manage their own affairs and are reluctant to share information in joint monitoring and evaluation with other stakeholders;
- development agency staff and government officials do not want to relinquish control; and/or
- projects, administrations, pastoral groups and local institutions do not have the capacities to carry out PM&E in remote pastoral areas.

Under-reporting of experiences may also play a role. Staff of projects and development agencies often do not have the time to document experiences for a wider audience, or PM&E activities may be so loosely structured that they are difficult to describe.

The available reports on PM&E with livestock-keepers and in natural resource management (NRM) in a wider sense point to some important prerequisites. The issues to be monitored have to be of genuine interest to the partners involved. Indicators must be simple and capable of communicating something to the people wanting to act on the results. The recording needs to be done in a form that partners can manage. It must be taken into account that pastoral communities in developing countries have a strong oral tradition, low levels of literacy and little access to modern information and communication technology, except radio.

It appears doubtful whether pastoralists would find most of the currently applied monitoring systems sufficiently beneficial to continue practising them together with local groups of stakeholders without external support. Notable exceptions are simple PM&E systems with low intensity of data collection, using methods of recording and analysis that depend more on memory and discussion than on written records.

Most pastoralists do not accept data-intensive forms of monitoring. People living in sparsely populated areas, as drylands tend to be, appreciate the opportunity to discuss with peers and seem to prefer periodic meetings during which environmental or socio-economic (e.g. market, conflict) conditions can be discussed in a semi-structured way. At such meetings, various visualisation techniques can be useful, such as before-and-after matrices, maps, proportional piling, flow or impact diagrams, and SWOT (strengths, weaknesses, opportunities and threats) charts. The repeated use of such tools in successive workshops can form an element of PM&E. Thus, instead of frequent and continuous observations and records, a series of short evaluation workshops could be used to monitor progress.

PM&E is an integral part of local capacity building and institutional development. It can create a feeling of ownership among all partners. Appropriate forms of PM&E can help the local people manage their own affairs better and increase the likelihood that project-supported activities will continue after the project ends.

However, a project pursuing PM&E can fall into several traps. The most basic one is ignoring the questions: Why monitor? Who needs and will use what data? If scientists or development workers wish to monitor certain parameters that are not of immediate interest to the livestock-keepers, it may become necessary to pay local enumerators or to provide other forms of incentive (e.g. free veterinary care) to persuade livestock-keepers to take the measurements and keep the records.

Participatory approaches to collecting and interpreting information can lead to biases, especially where pastoralists are involved who do not have a relationship of trust with outsiders or who see the exercise as a

chance to seize advantages. Many intervention projects are not sufficiently aware of the extent to which PM&E of environmental trends, organisational development or project-supported activities can become part of a power play between different resource-user groups or levels of government.

PM&E can be introduced deliberately as a means of shifting power relations in the sense of giving voice to previously marginalised user groups, such as women or nomads. This is possible in the framework of multi-stakeholder platforms that function as monitoring mechanisms for better management of common resources. Facilitated negotiation allows the different interest groups to reach agreement on what can be done within their capacities and means and what needs to be monitored by whom. The negotiation process must continue through joint assessment of the very PM&E system that the platform puts in place, examining whether the concerns of all stakeholder groups have been included. Thus, platform building becomes a continuous process fed by self-evaluation.

The low population density in pastoral areas, their remoteness and their poor infrastructure make PM&E costly, even if records are limited to the most essential. These costs must be justified in terms of the contribution that the PM&E process makes to building capacities for managing natural, including human, resources. With this in mind, development agencies truly committed to pastoral development need to make long-term investments in participatory approaches in the framework of process-oriented projects and programmes. PM&E can then be a very useful means of enhancing joint learning by pastoralists and other development planners about sustainable use of the rangelands and improving pastoral livelihoods.

## RESUME

Ce rapport représente le bilan des expériences (y compris des expériences "inédites") relatives au suivi et à l'évaluation participatifs (PM&E) avec des pasteurs et d'autres groupes d'éleveurs. Il est divisé en deux parties : une évaluation analytique et une bibliographie annotée. Pour de plus amples informations, des adresses de sites web sont proposées en annexe.

Ce bilan fait état de nombreux rapports de formation, guides et programmes de mise en place de PM&E, mais de peu d'exemples de leur mise en œuvre concertée avec les éleveurs d'une part, et les intervenants, d'autre part. Cette situation résulte peut être :

- du fait que les éleveurs des zones éloignées préfèrent gérer eux-mêmes leurs problèmes et hésitent à partager leurs informations au cours de séances communes avec d'autres parties prenantes ;
- de l'équipe de l'agence de développement et des fonctionnaires du gouvernement, qui ne sont pas forcément déterminés à renoncer à exercer leur contrôle ; et/ou
- des projets, des administrations, des groupes pastoraux et autres institutions locales qui n'ont pas les capacités de promouvoir le PM&E dans les zones pastorales éloignées.

Par ailleurs, l'absence de rapports écrits n'est pas à négliger. En effet, l'équipe impliquée manque souvent du temps nécessaire à la présentation de ses expériences à une plus large audience ou, parfois, le PM&E est si peu structuré qu'il est difficile à décrire.

Les rapports disponibles concernant le PM&E avec des éleveurs et, dans un sens plus large, la gestion des ressources naturelles, mettent en évidence le fait que certaines conditions préalables sont indispensables. Les questions prises en compte doivent représenter un intérêt réel pour les partenaires impliqués. Les indicateurs doivent être simples et efficaces pour les personnes qui devront utiliser les résultats pour agir. La forme d'enregistrement doit être utilisable par les partenaires. On doit notamment se souvenir du fait que les communautés pastorales

des pays en développement possèdent une importante tradition orale, un faible niveau d'alphabétisation et, qu'en dehors de la radio, elles ont peu accès aux techniques de communication.

Il est peu vraisemblable que les éleveurs parviennent à considérer la plu-part des systèmes de suivi comme suffisamment avantageux pour persister à les utiliser entre eux, entre groupes locaux de parties prenantes, sans aide extérieure. Les systèmes de PM&E les plus simples, comportant peu de recueil de données et une méthode d'analyse basée davantage sur la mémoire et la discussion que sur les écrits, constituent cependant des exceptions notables.

La plupart des éleveurs n'acceptent pas les modèles de suivi intensif. Les personnes vivant dans des régions faiblement peuplées, comme les zones arides, apprécient l'opportunité de discuter avec des pairs et les réunions régulières, au cours desquelles les problèmes liés au contexte environnemental ou socioéconomique (e.g. marché, conflit) peuvent être discutés de manière semi-informelle. Lors de telles réunions, plusieurs techniques de visualisation peuvent être utiles, comme les matrices avant-après, les cartes, "empilement proportionnel", diagrammes de flux et d'impact, SEPO (Succès, Echecs, Potentialités, Obstacles). L'usage répété de ce type d'outils au cours d'ateliers successifs pourrait constituer un élément de l'approche PM&E. Ainsi, les trop fréquents suivis pourraient être remplacés par de courts ateliers d'évaluation.

L'approche PM&E est une partie intégrante du processus de développement local. Elle peut créer un sentiment de propriété parmi tous les partenaires. Une démarche appropriée peut aider les communautés locales à mieux gérer leurs affaires et accroître la probabilité d'une continuité des activités soutenues par un projet après la fin de ce projet.

Cependant, un projet développant une approche PM&E peut rencontrer de nombreux écueils. Le plus courant consiste à éviter de se poser des questions telles que : Pourquoi un suivi ? Quelles données recueillir ? A qui seront-elles utiles et qui les utilisera ? Si les scientifiques ou les personnes impliquées dans le développement souhaitent prendre en

compte certains paramètres qui ne représentent pas un intérêt immédiat pour les éleveurs, il peut devenir nécessaire de rémunérer du personnel local ou d'inciter de diverses manières (e.g. soins vétérinaires gratuits) les éleveurs à mesurer et enregistrer les données.

Les approches participatives relatives à la collecte et au traitement des données peuvent déboucher sur des partis pris, surtout lorsque les éleveurs impliqués ne développent pas de relation de confiance avec les personnes extérieures ou qu'ils ne voient en ces approches qu'une source de profit. De nombreux projets ne sont pas suffisamment avertis du fait que la démarche PM&E appliquée à l'environnement, au développement organisationnel ou aux activités soutenues par le projet peut faire partie d'un jeu de pouvoir entre les divers groupes d'utilisateurs et le gouvernement.

L'approche PM&E peut être délibérément utilisée afin de donner la parole à des groupes préalablement marginalisés, comme les femmes ou les nomades. Ceci est possible dans le cadre de plates-formes de suivi, regroupant toutes les parties prenantes, dans le but d'une meilleure gestion des ressources communes. Le fait de faciliter la négociation permet aux différents groupes de parvenir à un accord sur ce qui peut être réalisé avec les moyens dont on dispose, sur ce qui doit faire l'objet d'un suivi et sur qui doit effectuer ce suivi. Le processus de négociation doit se poursuivre avec l'évaluation du système de PM&E mis en place, en s'assurant de la prise en compte des préoccupations de tous les groupes d'intervenants. Ces plates-formes correspondent ainsi à un processus continu d'auto-évaluation.

La faible densité de population des zones pastorales, leur éloignement et leur faible infrastructure font de l'approche PM&E un processus coûteux, même si le recueil et le traitement des données se limitent à l'essentiel. Ces coûts doivent être justifiés par la contribution de l'approche PM&E au développement des capacités nécessaires à la gestion des ressources naturelles, y compris humaines. En tenant compte de ces aspects, les organismes réellement engagés dans le développement pastoral doivent investir à long terme dans l'approche participative au sein de programmes orientés. Le processus PM&E peut ainsi se

révéler un moyen très utile, pour les pasteurs et autres acteurs de développement, de contribuer à l'utilisation durable des pâturages et à l'amélioration de la condition du monde pastoral.

## **Part II:**

# **Annotated bibliography**





## A. Useful documents on PM&E in NRM in general

Abbot J & Guijt I. 1998. ***Changing views on change: participatory approaches to monitoring the environment***. SARL Programme Discussion Paper 2. London: IIED. 96pp.

*environment, methods, monitoring, review*

Review of participatory approaches to tracking biophysical changes in projects focused on environmental regeneration, drawing on published literature, interviews with practitioners and experiences of an action-research project in Brazil. Examines the roles of different stakeholders in each stage of the monitoring process. Supposed trade-offs, e.g. between scientific rigour and maintaining local participation in monitoring, are discussed. The book describes methods that 1) are based on PRA visualisation techniques, 2) use oral testimony to understand patterns of environmental change, and 3) adapt methods of ecological assessment for use by local people.

Ashby JA. 1990. ***Evaluating technology with farmers: a handbook***. Cali: CIAT. 95pp.

*evaluation, participatory experimentation, technology development*

Guide for researchers wanting to collaborate with farmers in on-farm trials; encourages researchers to listen to farmers' views; includes some tools that could be used in participatory evaluation of technologies, also related to livestock-keeping.

Bainbridge V, Foerster S, Pasteur K, Pimbert M, Pratt G & Arroyo YI. 2000. ***Transforming bureaucracies: institutionalising participation and people centred processes in natural resource management – an annotated bibliography***. London: IIED. 214pp.

*bibliography, environment, gender, impact assessment, indigenous knowledge, learning processes, methods, organisational change, participation, policy*

Almost 400 documents are divided into seven overlapping themes important for institutionalising participation and people-centred processes in NRM: conceptual issues and theories of organisational change for participation; learning organisations; gender and organisational change; transforming environmental knowledge and organisational change; nurturing enabling attitudes and behaviour; policies for participation; methods for institutionalisation and impact analysis. Each theme is treated in a separate chapter. An analytical overview is given of how bureaucracies can support local participation in managing natural resources throughout all phases of the process, including PM&E.

Estrella M & Gaventa J. 1998. ***Who counts reality? Participatory monitoring and evaluation: a literature review.*** IDS Working Paper 70. Brighton: IDS. 73pp.

*methods, participatory learning, review*

Reviews literature on experiences in participatory M&E from around the world, involving all kinds of stakeholders – NGOs, donors, research institutions, government, people's organisations and communities. Introduces the key principles of PM&E, its application for different purposes (impact assessment, project management, institutional learning, understanding and negotiating stakeholder perspectives, public accountability) and various tools and methods.

Estrella M, Blauert J, Campilan D, Gaventa J, Gonsalves J, Guijt I, Johnson D & Ricafort R (eds). 2000. ***Learning from change: issues and experiences in participatory monitoring and evaluation.*** London: ITP / IDRC. 274pp.

*capacity building, community development, farmer experimentation, impact assessment, indicators, methodological issues, organisational development, self-evaluation*

Collection of 12 case studies on PM&E from around the world, focused on the process and forms of participation of different stakeholders. Part 1 describes innovations in methods and approaches to PM&E; Part 2 deals with community-driven PM&E; and Part 3 looks at implications of "scaling up" PM&E in terms of creating learning-oriented organisations.

Ford R *et al.* 1996. ***Conserving resources and increasing production: using participatory tools to monitor and evaluate community-based resource management practices.*** Worcester: Center for Community-Based Development, Program for International Development, Clark University / Nakuru: PRA Programme, Egerton University. 53pp.

*Kenya, community development, self-monitoring*

Case study with examples of field uses of participatory tools for M&E. Three communities in Kenya identified their own indicators of good NRM and recorded relevant changes in community log books (see Razakamanarina *et al.* 1995). This helped them assess the effectiveness of alternative approaches and practices, and to evaluate their own progress in implementing their community action plans. The manual (Ford *et al.* 1998) mentioned in Section B is based on these experiences.

Forster R, Karkoschka O, Kitz M & Scherler C (eds). 1998. ***Beyond the tool kit: experiences with institutionalising participatory approaches in GTZ supported projects in rural development.*** 2<sup>nd</sup> ed. Eschborn: GTZ Unit 04. 244pp.

*action learning, capacity building, community development, decentralisation, institutionalisation*

A good, critical reflection on experiences with institutionalising participatory approaches in development cooperation, including some projects related to livestock and pastoral development (e.g. Soura *et al* 1998). PM&E is mentioned several times, but in the sense that “ways should be explored” and “tools for participatory monitoring and evaluation are being developed”. However, the secrets about what these ways and tools are and how they were developed are not revealed.

Shah P, Bharadwaj G & Ambastha R. 1991. **Farmers as analysts and facilitators in Participatory Rural Appraisal & Planning.** *RRA Notes* 13: 84–94.

*India, communication, experimentation, innovation, mapping, monitoring, planning*

In the framework of watershed management activities supported by the Aga Khan Rural Support Programme, villagers identify local innovations, examine their potential to solve problems, collaborate in experimentation and evaluate the results. Members of different local groups make sketches and diagrams to show how innovations have affected them (technical, social and economic impact). Emphasis is on mapping resources and socio-economic aspects (e.g. lenders, borrowers) and on monitoring by making a series of maps at various stages of a village project to show changes in productivity or access to natural resources, marked by the villagers with symbols. Maps proved effective in giving a common framework for discussion and planning in group meetings, for resolving conflicts and for analysing impacts over time.

UPWARD. 1997. ***Self-assessment: participatory dimensions of project monitoring and evaluation.***, Manila: CIP-UPWARD. 99pp.

*Asia, agricultural research, impact assessment*

Description and analysis of field experiences, focused on validating situation analysis and problem characterisation by local people and on institutionalising PM&E done as a self-assessment to form a basis for further planning. Three types of project activities are monitored: facilitating social processes (e.g. participatory learning, capacity building), technology development and project management.

## B. Useful guides on PM&E in NRM

Borrini-Feyerabend G, Farvar MT, Nguingiri JC & Ndangang V. 2000. **Co-management of natural resources: organising, negotiating and learning-by-doing**. Heidelberg: Kasperek Verlag / GTZ & IUCN. 95pp.

*adaptive management, methods, negotiation*

A guide to a process of participatory management (PM) of natural resources, that involves: 1) preparing for and organising the partnership; 2) negotiating the management agreements; and 3) implementing, monitoring, evaluating and revising the agreements ("learning-by-doing"). While the agreements are being implemented, the partners collect data laid out in an agreed protocol. During the process, there is experimentation with some innovation as a result of new information, refinement of technical solutions and/or a wider-scale application of activities. Review meetings are organised at regular intervals to evaluate the results and lessons learned. The guide includes annexes with methods, e.g. participatory mapping, brainstorming, trend analysis and SWOT (strengths, weaknesses, opportunities, threats), examples of community vision and strategy, and a case study from the Co-Management Project in the Congo Basin.

Davis-Case D. 1989. **Community forestry: participatory assessment, monitoring and evaluation**. Community Forestry Note 2. Rome: FAO. 150pp.

*community forestry, methods, situation analysis*

Presents concept, methods and tools of Participatory Assessment, Monitoring and Evaluation (PAME) and gives many sources of further information, although now somewhat outdated.

Feuerstein MF. 1986. **Partners in evaluation: evaluating development and community programmes with participants**. London: Macmillan. 196pp.

*community development, evaluation, health programmes*

A classic among the various handbooks on participatory evaluation. Although designed primarily for use in health and community development programmes, the general framework that it provides for understanding and planning participatory evaluation and for participation in analysing, reporting and using the results is highly relevant for PM&E in all aspects of development, including work with livestock-keepers. The guide is obviously based on long years of field experience, brings good practical examples and is well illustrated. It is a much better introduction to PM&E than many guides on NRM monitoring based on the assumption that local resource users will want to collect data for outsiders.

Ford R, Lelo F & Rabarison H. 1998. ***Linking governance and effective resource management: a guidebook for community-based monitoring and evaluation.*** Worcester: Clark University / Egerton University / APAM / VITA. 42pp.

*Kenya, Madagascar, community development, methods*

Presents various PM&E techniques designed to help resource users see the impact of their own practices and to build these findings into improved local management of natural resources that can be linked with national resource management policies. Uses examples from case studies in four communities, three from semi-arid areas in Kenya and one from a buffer zone of a national park in Madagascar. Gives attention to impacts not only on the natural environment and household income but also on personal attitudes, cultural values and political behaviour. Monitoring tools described include trend lines, Venn diagrams, ranking and record-keeping.

Germann D, Gohl E & Schwarz B. 1996. ***Participatory impact monitoring.*** Braunschweig: Vieweg & GATE / GTZ. 170pp.

*impact assessment, monitoring, self-help groups, social change*

Guide for action-oriented management, based on separate monitoring by local self-help groups and the supporting development organisation. During periodic comparison of the results, the two groups of actors reflect on their assessments, adapt their planning accordingly and deepen their dialogue. The emphasis is on evaluation of socio-cultural and organisational impacts. The guide consists of four booklets: 1) Group-based impact monitoring; 2) NGO-based impact monitoring; 3) Application examples from India, Bolivia, Argentina and the Philippines; and 4) The concept of participatory impact monitoring.

Guijt I. 1998. ***Participatory monitoring and impact assessment of sustainable agriculture initiatives: an introduction to the key elements.*** SARL Programme Discussion Paper 1. London: IIED. 112pp.

*Brazil, impact assessment, methods, monitoring, sustainable agriculture*

A methodological introduction to setting up a PM&E process for sustainable agriculture initiatives, initially written to guide an action-research process on monitoring and impact assessment with small-scale producers, rural workers unions and NGOs engaged in sustainable agriculture in Brazil. Explains why interest in PM&E is growing, introduces the key concepts, identifies steps in developing a monitoring system, discusses the complexity of selecting indicators and methods, and reflects on common pitfalls and specific difficulties faced in Brazil in starting up such a system for sustainable agriculture. An extended annex gives a description and visual examples of twenty participatory methods useful for monitoring change.

Lee-Smith D. 1995. **Community based indicators: a guide for field-workers carrying out monitoring and assessment at community level.** Gland: IUCN. 12pp.

*Zimbabwe, indicators, methods, sustainability*

Intended as a simple guide for community workers to help identify indicators for sustainable development. Gives examples of indicators likely to be relevant and measurable/observable at grassroots level, not referring specifically to livestock or pasture but to NRM more generally. Some indicators could be questioned, e.g. alleviation of fuelwood (or tree fodder) shortage cannot be measured simply according to number of people planting live fences; also the length of fence would be important. Similarly, number of seedlings transplanted indicates little if the survival rate is ignored. Despite these shortcomings, the down-to-earth approach goes in the right direction for PM&E.

Narayan D. 1993. **Participatory evaluation: tools for managing change in water and sanitation.** World Bank Technical Paper 207. Washington DC: World Bank. 122pp.

*indicators, methods, participatory processes, sanitation, sustainability, water*

Based on experience of "Promotion of the Role of Women in Water and Environmental Sanitation Services" in Africa, Asia and Latin America, the guide is oriented around sets of indicators measuring sustainability, effective use and replicability. It focuses on water and sanitation, but much of the content (e.g. on local institutional capacity and change assessment) is relevant also for managing other natural resources. Includes many field examples, cases of PM&E workshops, evaluation tools (e.g. pocket chart, three-pile sorting) and appendix on gender analysis for the three sets of indicators.

Razakamanarina N *et al.* 1995. **Using village log books for monitoring and evaluation: a guide to community based project management.** Worcester: Clark University Program for International Development / APAM / VITA. 44pp.

*Madagascar, community development, local organisation, methods*

Explanation and examples of log books kept by villagers in protected and buffer-zone areas to: 1) store baseline data collected by them; 2) record their action plans and indicators of progress; and 3) measure the well-being of the community over the longer term. Focused on local organisational development and locally planned micro-projects, but also provides useful ideas for PM&E.

Selener D, Purdy C & Zapata G. 1996. ***Documenting, evaluating and learning from our development projects: a participatory systematization workbook***. Quito: IIRR. 107pp.

*documentation, organisational development, process monitoring*

Provides practical guidelines on how to design, monitor and evaluate development processes in a participatory way. "Systematization" is defined as a continuous process of joint reflection on a project's processes and results, undertaken by project staff and its partners, including the beneficiaries. The analysis generates lessons that are fed back to improve the project. The process is meant to strengthen the organisational capacity of the participants.



## C. Documents on PM&E in pastoralism and livestock-keeping

Acherkouk M *et al.* 1995. ***Applicabilité de l'outil participatif SEPO pour l'auto-évaluation des actions d'aménagement pastoral au Maroc Oriental.*** Meknès: Projet de Développement des Parcours et de l'Élevage dans l'Oriental / Institut National de la Recherche Agronomique / Projet GTZ Conseil. 64pp.

*Morocco, range management, self-evaluation*

Report on testing of SEPO (*Succès, Echecs, Potentialités, Obstacles* = SWOT, Strengths, Weaknesses, Opportunities, Threats) with six rural communities in east Morocco, as a tool for assisting resource users to evaluate and manage pastoral development. SEPO helped focus the discussions and stimulated the pastoralists to improve communication with other groups so as to negotiate coordinated use of pastoral areas. Recommendations for improving the application of SWOT are made.

ActionAid-Somaliland. 1995. **Programme Review / Evaluation October 1994.** London: ActionAid. 115pp.

*Somaliland, animal health, indicators, methods, pastoral livelihoods, seasonality, water*

A multi-stakeholder review team (32 people) included representatives of ActionAid UK and Somaliland, elders from the various clans in the project area and people from the local management groups at each project site. The philosophy behind the participatory review and the methods of implementing it, using mainly PRA tools, are described in detail. The report has separate sections on ActionAid's and the local peoples' perceptions of the benefits of the project's investments in the water and animal health sectors. It gives attention not only to biophysical data related to livestock but also to benefits in local livelihood systems. The participants' evaluation of the review process is also included.

ActionAid-Somaliland. 1999. **Programme review June 1998 by Sanaag community based organisation.** London: ActionAid. 100pp.

*Somaliland, animal health, conflict resolution, impact assessment, indicators, water*

The residents of Sanaag evaluated the benefits of development work by ActionAid Somaliland (AAS) on water resources, animal health care, pastoral resources and the "Working in Conflict" programme. A team of 42 people from

the Sanaag Community Based Organisation, representing different clan interests, was trained by AAS in evaluation techniques, designed the review, piloted it, amended the design and then conducted the main review. The team assessed the value of AAS's investments in terms of availability, reliability, accessibility, utilisation, coverage, quality, effort, efficiency and impact, using a historical comparison between the situations in 1992 and 1998. Resource maps were drawn and kept for further planning and evaluation exercises, and photographic and video records were made. AAS staff compiled the report in English and Somali. A prime example of a review in which the process was just as, if not more, important than the results.

Allen WJ. 1997. **Towards improving the role of evaluation within natural resource management R&D programmes: the case for "learning by doing"**. *Canadian Journal of Development Studies* XVIII: 629–643.

*New Zealand, action research, grazing, multi-stakeholder approach, process evaluation*

Participatory development programmes should be responsive to changing community needs. A major challenge for decision-makers and evaluators is to develop participatory evaluation processes that allow for ongoing learning and adjustment. This paper outlines such a process, using a case study of a programme for weed management on highland pastures in the southern island of New Zealand, where the natural resources are used for multiple purposes. The programme applied a participatory research approach entitled Integrated Systems for Knowledge Management (ISKM). This includes a three-pronged evaluation system. "Process evaluation" enables evaluators and stakeholders to understand the links between resource use, programme activities, the (predetermined) objectives being pursued and the contribution of the programme to overall long-term vision. "Outcome evaluation" enables the participants to apply the results of the process evaluation to see which of their goals are achieved and to develop performance indicators. "Short-cycle evaluation" provides the feedback loops that are needed to make the programme self-improving. Evaluation thus becomes an integral process of a development programme, in which all stakeholder groups are involved.

Ba Ibrahim. 1997. **Le forum d'échanges intervillageois cadre de planification et d'évaluation participative: Project de gestion des ressources naturelles – le cas du Dallol Bossi au Niger**. Paper prepared for World Bank Workshop on Participatory Monitoring and Evaluation, 5–6 February 1997, Washington DC. 6pp.

*Niger, agrosylvopastoral systems, local organisation*

Brief description of an M&E system introduced to village land management committees, based on notebooks prepared by the project for recording credit, village meetings, visitors and expenses. The execution of activities is reviewed twice a year in village meetings. The conclusions from these village-level self-evaluations are exchanged in intervillage meetings. Impact monitoring is not carried out and usually the only person in the village who can write or read the records is the committee secretary, who is given some compensation (it is not clear by whom) so that he remains in the village.

Banzhaf M, Drabo B & Grell H. 2000. ***From conflict to consensus: towards joint management of natural resources by pastoralists and agro-pastoralists in the zone of Kishi Beiga, Burkina Faso.*** Securing the Commons 3. London: IIED. 38pp.

*Burkina Faso, action research, organisational learning, stakeholder platform*

The project for Land Use and Natural Resource Management in the Sahel of Burkina Faso (PSB-GTZ) facilitated participatory land-use planning based on the national "*Gestion des Terroirs*" (land management) approach and attempted to integrate transhumant pastoralists into the planning process. The multi-stakeholder platform (consultative committee) of land and water users that coordinates resource management developed a system of internal monitoring and self-evaluation, but this is not described in the paper (see Kiema 2000).

Bayer W & Waters-Bayer A. 1999. **Participatory evaluation with Beja pastoralists in Sudan.** In: Eldridge D & Freudenberger D (eds), *Proceedings of the VI International Rangeland Congress: People and Rangelands Building the Future*, Vol. 1, pp 70–71.

*Sudan, community development, evaluation, methods*

A participatory approach was taken in an external evaluation of an ACORD-supported project in the Red Sea Hills of Eastern Sudan. Community members were involved in planning and implementing the evaluation, together with project staff and external consultants. The methods are briefly outlined, and some constraints and strengths of the approach are discussed (for complete report, see Waters-Bayer *et al* 1998).

Bosch OJH, Allen WJ, Williams JM & Ensor AH. 1996. **An integrated approach for maximising local and scientific knowledge for land management decision-making in the New Zealand high country.** *Rangeland Journal* 18 (1): 23–32.

*New Zealand, knowledge management, land management, monitoring*

Describes a process designed to integrate community knowledge (both local and scientific) into an accessible decision-support system for land managers (farmers). Tools for monitoring land condition, which had been developed by scientists, were modified so that land managers could use them. Land management is described as an experiment involving continuous informal monitoring and adaptation. Involvement in monitoring together with researchers allows land managers to acquire greater expertise and confidence. Stresses that all stakeholders in the rangelands need to collaborate to identify sustainable land management practices, and that co-research approaches and continuous participatory monitoring, feedback and action for improvement depend on good links between scientists and local communities.

Burnside DG & Chamala S. 1994. **Ground-based monitoring: a process of learning by doing.** *Rangeland Journal* 16 (2): 221–237.

*Australia, learning process, monitoring, rangeland condition*

Describes the "active adaptive approach" to monitoring rangeland condition by pastoralists, which treats management actions as deliberate experiments designed to manage the resources effectively and to generate better information for attaining sustainability. Ground-based monitoring served as a learning mechanism among pastoralists to assist their own decision-making about land care.

Capezzuoli S. 1994. **The development of the auto-evaluation process in the Gao and Timbuktu regions of northern Mali: final report for the ODA.** London: ACORD. 49pp.

*Mali, modelling, restocking, self-evaluation, visualisation*

Gives a detailed account of the use and adaptation of tools and strategies for M&E by Tuareg and other communities supported by ACORD, describing both the strengths and weaknesses of the tools. Visual methods using images of local problems, although useful to trigger verbal analysis, proved time-consuming and difficult to apply by the local people themselves. "Maquettes" helped to solve community conflicts that could be represented by physical models, and to experiment with possible solutions, e.g. avoiding dirty pools of water around a pastoral well. An impact-flow exercise elicited local perceptions of an ACORD-supported activity that herders chose to assess: an irrigated area. Written and spoken (also audio-recorded) messages seemed to be the most suitable M&E tools for nomadic groups. Intercommunity meetings of group representatives to assess and plan activities also provided opportunity to exchange information. Monitoring notebooks were kept by trained animators from the groups, as well as by members of local management committees (e.g. for rebuilding herds). The communities demanded a shift from visual to

written records for assessment and planning. Suggests that PRA tools be applied to generate assessment criteria and indicators that are widely accepted by the group.

Catley A. 1996. ***Pastoralists, paravets and privatisation: experiences in the Sanaag Region of Somaliland.*** Pastoral Development Network Paper 39d. London: ODI. 13pp.

*Somaliland, animal health, economic aspects, indigenous knowledge, methods, privatisation*

PRA tools, such as livestock disease scoring by herders before and after selection of paravets, are used to monitor the animal health programme. Information could thus be provided on the effectiveness of the paravets in reducing the incidence of the main animal diseases.

Catley A. 1999. ***Community-based animal health care in Somali areas of Africa: a review.*** Nairobi: Vetwork UK / Participatory Community-based Vaccination and Animal Health Project (PARC-VAC). 57pp

*Ethiopia, Kenya, Somalia, Somaliland, animal health, monitoring, privatisation*

Review of experiences with community-based animal health workers (CAHWs) in Somalia/Somaliland, northern Kenya and eastern Ethiopia. NGOs with long-term experience in participatory development achieved particularly positive results. Where government regulation was absent or weak, monitoring by the pastoralists was more effective than external monitoring of the CAHWs, who were selected and paid by the pastoral communities. News travels fast among nomads; the results of users' evaluations of CAHWs spread correspondingly.

Catley A. 1999. ***Methods on the move: a review of veterinary uses of participatory approaches and methods focussing on experiences in dryland Africa.*** London: IIED / DFID. 99pp.

*Africa, animal health, methods, review*

Literature review of experiences in applying participatory approaches and methods in veterinary services and research, mainly in community-based animal health projects in the Horn of Africa. Explores options for combining conventional quantitative "hard science" assessment in veterinary epidemiology with participatory and largely qualitative ("soft systems") inquiry that uses a 12-point framework to judge its trustworthiness. The emphasis is on methods for participatory situation analysis, with only a short section on PM&E.

Catley A. 1999. **Monitoring and impact assessment of community-based animal health projects in southern Sudan: towards participatory approaches and methods – a report for Vétérinaires sans Frontières Belgium and Vétérinaires sans Frontières Switzerland.** Nairobi: IIED Participation and Veterinary Epidemiology Project. 61pp.

*Sudan, animal health, information management, monitoring, methods, transhumance*

The approach to participatory monitoring and impact assessment used in this work was influenced by the soft systems methodology used by ActionAid-Somaliland (1999). This report describes the process through which veterinary workers and other livestock staff of the NGOs VSF-B and VSF-CH reviewed their current monitoring system, were introduced to participatory approaches and methods, and then developed new ways of working in the field. The work demonstrated that simple participatory (PRA) tools can yield useful information on key local indicators of change and benefit that can form the basis for monitoring systems. Emphasises the complementarity between participatory and conventional monitoring and impact assessment.

Conroy C. 2001. **Participatory technology development with livestock keepers: a guide.** Chatham Maritime: NRI / Pune: BAIF Development Research Foundation. 64pp.

*India, goats, methods, monitoring, participatory experimentation, statistics*

Guide to participatory technology development written for government researchers and staff of development NGOs, based largely on experiences of a goat project focused on easing seasonal feed scarcity in semi-arid India. Includes a good discussion of when participatory trials are feasible. Covers methods of joint design, implementation, monitoring and evaluation of trials by livestock-keepers and researchers, as well as dissemination of results and institutionalisation of the approach. The monitoring section covers biophysical data and non-experimental variables to explain variation, as well as monitoring the technology development process. Methods of both qualitative and quantitative assessment of innovations and methods of statistical analysis applicable in participatory research are described in easy-to-understand terms (complemented by 38-page guide: *Participatory situation analysis with livestock keepers*).

Conroy C & Rangnekar DV. 1999. **Participatory research at the landscape level: Kumbhan water trough case study.** CGIAR-PRGA/NRI Workshop on Participatory Research for Natural Resources Management: Continuing to Learn Together, 1–3 September 1999, Natural Resources Institute, Greenwich, UK. 4pp.

*India, fodder, participatory research, problem tree, small ruminants, water*

Case study from a research project in India on easing seasonal fodder scarcity for small ruminants. The problem analysis in one village showed that water scarcity was more important than feed scarcity. A water trough was constructed, and the herders and scientists monitored its impact on animals and people. Pitfalls into which the researchers, such as very data-intensive monitoring, became evident during a joint evaluation by the herders and scientists.

Cooper L & Gelezhamstin N. 1994. **Historical matrices: a method for monitoring changes in seasonal consumption patterns in Mongolia.** *RRA Notes* 20: 124–126.

*Mongolia, food consumption, historical analysis, matrix scoring, methods, monitoring*

Reports on the use of seasonal consumption matrices to evaluate the impact of economic liberation on consumption patterns among Mongolian pastoralists. Informants from wealthy and poorer households were asked to name foods consumed in the past year and to give each food item a score against each month. This was repeated for a 12-month period five years earlier, and the patterns were compared. It is not clear whether the informants themselves discussed the comparison and drew their own conclusions.

Cramb R & Purcell T. 2001. **How to monitor and evaluate impacts of participatory research projects: a case study of the Forages for Smallholders Project.** CIAT Working Document 185. Cali: CIAT. 55pp. (Available from CIAT c/o IRRI, DAPO Box 777, Metro Manila, Philippines; or ACIAR, GPO Box 1571, Canberra, ACT 2601, Australia)

*Philippines, Vietnam, diagramming, forage, impact assessment, indicators, mapping, monitoring, participatory research, ranking*

A CIAT project developed procedures to monitor and evaluate the impacts of new forage technologies emerging from Farmer Participatory Research. Participatory and conventional approaches to developing technologies with smallholders were compared. The first part of the report covers conceptual and practical issues involved in developing an M&E framework for the Forages for Smallholders Project. The second part reviews a range of M&E techniques, including maps, timelines, historical paths, seasonal calendars, flow and impact diagrams, and crop and activity histories. Practical examples are given of experiences made with these tools among smallholder livestock-keepers in the Philippines and Vietnam, but the emphasis is more on the results rather than the “how”, i.e. the process.

Cullis A. 1994. **Ranking with *shagaa* in Mongolia.** *RRA Notes* 20: 87–88.

*Mongolia, animal husbandry, historical analysis, methods, ranking*

A combination of the time-trend and proportional-piling methods, using animal bones commonly used by Mongolian pastoralists in games, proved valuable in illustrating trends in winter livestock losses over the last 10 years and providing a basis for discussion with and among the pastoralists.

Cullis A & Pacey A. 1992. **A development dialogue: rainwater harvesting in Turkana.** London: ITP. 126pp.

*Kenya, animal traction, institutional analysis, process approach, social organisation, water*

Frank account of the history of development projects in the Turkana region of northwest Kenya. In 1979/80, drought and disease drastically reduced livestock numbers and caused severe famine. Subsequent "food-for-work" programmes were partly successful but attempts to offer alternative sources of livelihood (fishing, farming) were not. Project staff with long experience in the area observed that sorghum gardens to supplement animal produce were mainly at sites of natural water harvesting. Intensive dialogue with the Turkana led to development of improved water-harvesting techniques. Perhaps more important was the institutional success: the local people organised themselves to identify problems, derive solutions, implement joint action and monitor results. Rather than creating artificial social groupings, the project sought to strengthen existing local institutions. The approach involved unhurried dialogue, resisting donor pressure for tangible results by fixed dates and depending on good relations with the pastoral community.

Devavaram J. 1994. **Evaluation of a community-based buffalo project in Tamil Nadu.** *RRA Notes* 20: 133–137.

*India, animal husbandry, calendar, evaluation, livelihood analysis, mapping, methods, restocking*

PRA methods were incorporated into a mid-term evaluation of a buffalo-restocking project in India. Semi-structured interviews provided the most information about the project's weak points. Seasonal calendars revealed the high employment potential, leaving little time for livestock care. Livelihood analyses revealed sources of income and their relative importance. In a second evaluation of the same project, villagers were no longer willing to "play PRA games" (draw resource maps), feeling it was a waste of time because the recommendations of the first PRA had not been acted upon.



Fitter JC, Kressirer RF, Kroll T, Kruger AS, Neumann NPK & Werner W. 2001. ***Coping in a fragile environment: the SARDEP experience.*** Windhoek: SARDEP, Ministry of Agriculture, Water and Rural Development. 157pp.

*Namibia, institutional development, range management*

The philosophy, approaches and achievements of the GTZ-supported Sustainable Animal and Range Development Programme (SARDEP) are presented. The programme initially looked for technical interventions, but soon realised that institutional development – training of staff and farmers in managing communication processes and natural resources – had to be a major thrust. The strong involvement of Ministry staff in evaluations of the project led to a similarly strong ownership of the programme by the Ministry. However, there is little indication how livestock farmers perceived and evaluated the programme. In the formal evaluations, their role was restricted to being interviewed. The emphasis on institutional development also means that technical interventions and the monitoring of their impact are less prominent in the book.

Gardner JS, Duffield C, Berkes F & Singh RB. 1997. **Local knowledge in the assessment of resource sustainability: case studies in Himachal Pradesh and British Columbia.** Winnipeg: Natural Resources Institute, University of Manitoba. 25pp.

*Canada, India, indicators, indigenous knowledge, resource sustainability, watershed management*

Cross-cultural comparison of local perceptions and knowledge as applied to indicators of environmental sustainability in the Himalayas of northern India and the Columbian Mountains of western Canada. Based on historical reviews, field observations and interviews, and participatory workshops. Note the type of questions posed to elicit local criteria for sustainability. Inhabitants articulated forest-linked, agricultural and especially socio-economic indicators that differed from those of resource management "professionals". The authors conclude that significant attention must be paid to site-specific indicators when assessing sustainability. Example of a search for indigenous indicators by "professionals" to use in their monitoring of sustainability, but not an example of PM&E with the local people involved in the monitoring.

Gentil D & Marty A. 1979. **Intensification de l'élevage pastoral sahélien: les expériences de Tchintabaraben (Niger) et de la 6ème Région du Mali.** In: Billaz R & Dufumier M (éds), *La Recherche-Développement appliquée à l'agriculture tropicale et méditerranéenne semi-aride: objectifs, conditions et méthodes* (Montpellier: DGRST Comité Lutte contre l'Aridité Tropicale), pp173–200.

*Mali, Niger, conflict management, pasture improvement, process approach, restocking, situation analysis, social organisation*

In two projects with mainly Tuareg pastoralists, after improvements in animal health and water availability, the focus moved to improving animal nutrition through better range management and use of pastoral space. The Nigerien pastoralists suggested harvesting good pasture species in underexploited areas and resowing them in degraded areas put under protection. After several discussions, they formed a territorial association to manage the improved areas. In a series of meetings, the pastoralists and technicians assessed the results of the enclosure experiment, made improvements and defined new activities. Relations between pastoralists and technicians gradually changed from informal discussions to (verbal) contractual agreements to divide tasks and responsibilities. The process was dominated by the leaders; other groups, e.g. women, even if interviewed separately, did not contradict the "official" view.

In Mali, a process of reviving a cooperative was accompanied by numerous discussions between pastoral leaders and project staff to monitor progress and correct course. Parallel to this, the staff monitored how loans for herd reconstitution given by the cooperative were used, collected proverbs and sayings which revealed pastoralists' attitudes, and recorded various socio-economic indicators such as participation in meetings and decision-making. There was a continuous process of negotiation between pastoralists and project staff in repeated cycles of situation analysis, planning simple experiments, implementing them and evaluating the results.

Hambly H & Angura TO (eds). 1996. ***Grassroots indicators for desertification: experience and perspectives from Eastern and Southern Africa***. Ottawa: IDRC. 168pp.

*Kenya, Tanzania, Uganda, Zimbabwe, indicators, indigenous knowledge*

Illuminates importance of grassroots indicators for interpreting environmental change and for generating information to support local action and innovation. Grassroots indicators are measures or signals of environmental quality or change formulated by local inhabitants, derived from their own systems of observation, practice and indigenous knowledge. Emphasis is on M&E of desertification. A summary of findings and challenges is given in "Grassroots indicators: measuring and monitoring environmental change at the local level", *ILEIA Newsletter* 12 (3): 14–15.

Harnmeijer J, Waters-Bayer A & Bayer W. 1999. ***Dimensions of participation in evaluation: experiences from Zimbabwe and the Sudan***. Gatekeeper Series 83. London: IIED. 20pp.

*Sudan, Zimbabwe, evaluation, pastoral development, water management*

This analysis of two participatory evaluations in Sudan and Zimbabwe, carried out on the request of NGOs (ACORD and CARE, respectively), addresses limitations to externally-mandated participatory evaluations that generate primarily qualitative data when also quantitative data were requested. In the Zimbabwe case, quantitative data were available from prior conventional evaluations, whereas few such data could be found in the Sudan case. Different stakeholders (funding agency, implementing agency, local administration, “beneficiaries”) have legitimate interests in different types of evaluation processes and in different types of information and outcomes. Indicates the difficulties faced by a small external team working for a short period when it is expected to facilitate a participatory evaluation of a programme with a wide range of activities.

Ison R & Russell D (eds). 2000. ***Agricultural extension and rural development: breaking out of traditions.*** Cambridge: Cambridge University Press. 239pp.

*Australia, action research, monitoring, process evaluation, range management*

A research project in western New South Wales in Australia, where sheep are kept on arid rangeland, started with the assumption that the conventional transfer-of-technology approach to extension is not working. Detailed research revealed that a major reason for this is lack of communication between farmers (“graziers” or “wool producers”) and various government and private services. The project dealt with a “Western” and largely literate society. Forms of visualisation such as proportional piling or Venn diagrams did not play a major role as evaluation tools. The action research was carried out primarily through discussions, meetings and visits (to wool mills, wool marketing board etc). A chapter entitled “The graziers’ story” gives the producers’ assessments of the research process and outcome, not according to any fixed format or referring to specific indicators but, rather, as subjective accounts.

The main thrust of the book is on research approaches. A difference is made between “first-order processes” in research, in which researchers are outside the system they are observing and analysing, and “second-order processes”, in which researchers are active partners in a development process. The chapter “From theodolite to satellite” recounts the history of the top-down approach to range monitoring that is carried out for two main reasons: because the resource users and the government want to have “order” in an apparently chaotic world, and because the State wants to exert its power over the resource users. This is apparent in many “high-tech” approaches to monitoring.

ITDG East Africa. 1999. **Participatory impact monitoring systems (PIMS)**. Nairobi: Rural Agriculture and Pastoralism Programme (RAPP), ITDG East Africa. Mimeo. 4pp.

*Kenya, impact assessment, monitoring, pastoral development*

Brief description of use of system developed by IT Kenya for monitoring the impact of project activities. The pastoral communities (Gabra and Turkana) selected their own indicators and ways of recording, e.g. using colour codes with cultural significance for good or bad, or number of legs on an animal to denote well-being and flexibility of movement. The records, kept by local monitors selected by the project, can be converted into scores to enable statistical analysis of the impact of project activities on pasture availability, food availability, human health, peace and women's involvement in development activities etc. However, it is not clear whether this was actually done. The monitoring system also gives early warning of imminent crisis (Sammy Keter, RAPP, pers. comm.).

Kiema A. 2000. **Méthodologie de suivi d'impact des codes locaux de gestion des ressources naturelles en région sahélienne du Burkina Faso – zones de Kishi-Beiga, Darkoye et Djobou**. Dori: Programme Sahel Burkinabé. 48pp.

*Burkina Faso, impact assessment, land-use policy, monitoring, social organisation, stakeholder platform*

With project support, settled and semi-settled agropastoralists in northern Burkina Faso agreed on rules for land use, e.g. for cropping, grazing, clearing and haymaking. These rules are overseen by a management group of local people at each site, who are also responsible for sensitising transhumant pastoralists about the rules. The project helped the producers set up a system to monitor the extent to which the rules are followed and what impact this has, supplemented by a system of ecological monitoring by the project. During a workshop at each site involving the local management group plus technical services and administrative authorities, agreements were reached about indicators, sites of observation, times and methods of assessment, and responsibilities. The management groups observe the degree of compliance by both local and transhumant people in respecting dates of opening and closing grazing areas, meeting obligations to herd (control) animals at certain times of the year, obtaining permission to graze crop residues or cut hay etc. Impact is measured, e.g. according to number of conflicts over resource use, degree of siltation of ponds and changes in vegetation (e.g. cutting of shrubs and grasses and extent of regeneration). The methods are described in the future tense, with a recommendation that the project continue to support producers in recording and analysing monitoring data, as well as in evaluating and, if necessary, adjusting the monitoring framework.

Lunch C, Lunch N & Orazvalieva J. 2000. **Turkmenistan Participatory Video Pilot Project 1999**. Northampton, UK. Mimeo. 18pp.

*Turkmenistan, communication, documentation, group formation, impact assessment, policy change, range management*

Describes how participatory video filming and editing was used to bring together different groups in a community (men, women and children) and to let them express their views and analyse problems. The process catalysed community action, and the community could use the video in policy lobbying. This was in the framework of a DFID-funded pilot project on "Impacts of Privatisation on Range and Livestock Management in Semi-Arid Central Asia" to study the effect of policy change on land use; pasture condition; household economies; livestock productivity, husbandry and marketing; and institutional organisation. It was followed by an EU-funded (Copernicus) project (2000–03): participatory video to document livestock-keepers' perspectives on changes they are experiencing and the impacts these have on their patterns of resource use. Video thus serves as a monitoring tool and as a means to open up communication channels between scientists, shepherds and policymakers.

Martin P & Quinney S. 1995. **Participatory Evaluation Project SOS Sahel/UNSO: Final report/Annotated bibliography on participatory appraisal, monitoring and evaluation**. London: SOS Sahel. 168pp.

*Burkina Faso, Ethiopia, Mali, Mauritania, Sudan, bibliography, methods, participatory research*

Report on a joint project of SOS Sahel and UNSO to explore methods of involving Sahelian communities, mainly agropastoral, in evaluation of rural development projects. It revealed very few examples of successful local monitoring (these being mainly in farmer-researcher groups) and weak capacities of NGOs or international projects to embark on participatory evaluation. Discusses examples and possibilities of: 1) incorporating participatory components into external evaluations; 2) project self-evaluation; and 3) various types of formal and informal PM&E.

Marty A. 1985. **Le gestion des pâturages en zone pastorale (Région de Gao, Mali)**. *Les Cahiers de la Recherche-Développement* 6: 22–24.

*Mali, experimentation, pasture improvement, process approach, social organisation*

Report on an experiment in pasture management by settled and nomadic herders in northern Mali. Through a long process of patient dialogue, it was possible for pastoral organisations and government services jointly to observe pasture conditions over the year, analyse constraints, plan activities, implement and evaluate them, and make appropriate re-adjustments. Older

herders remembered how pastures not grazed in the wet season could be used in the dry season. Also *Panicum laetum* areas, where *fonio* was collected for food in times of need, were disappearing. The herders then started experimenting with a pasture management system based on twice-yearly meetings: one at the start of the rains to identify reserve areas of pasture and *Panicum laetum*, and one at the end of the rains to assess vegetation availability and needs and to decide whether and when to open up protected areas.

Marty A. 1993. **La gestion des terroirs et les éleveurs: un outil d'exclusion ou de négociation?** *Revue Tiers Monde* XXXIV (No. 134): 325–344.

*Cameroon, Mali, Niger, conflict management, mapping, marketing, social organisation*

In the Kaarta area of Mali, commissions of farmers and pastoralists began by negotiating consensus, which led not to a fixed land-use plan but rather to frequent monitoring and re-negotiation in response to changing conditions. Rehabilitation of pastoralism depends not on making a plan but rather on strengthening institutions for decentralised negotiation.

MDP. 1998. **MDP impact monitoring system.** In: Marsabit Development Programme (MDP) M&E Consultancy Report. Ministry of Agriculture, Livestock Development and Marketing, Government of Kenya / GTZ. 20pp.

*Kenya, self-help capacity development, impact assessment, monitoring, livestock*

Description of a simple impact monitoring system developed to measure, in a participatory way, the achievement of the purpose of the development programme, namely, to increase the local communities' self-help capacity to manage better their social, economic and ecological environment and circumstances. This marked the beginning of a revised system; the experience reported was still on the level of involving local administrations in M&E.

Mellis D, Mutsaers H & Mwaniki B. 1999. **Participatory technology development for animal traction: experiences from a semi-arid area of Kenya.** In: Starkey P & Kaumbutho P (eds), *Meeting the challenges of animal traction: a resource book of the Animal Traction Network for Eastern and Southern Africa (ATNESA)*, Harare, Zimbabwe (London: ITP), pp 20–27.

*Kenya, agricultural implements, animal traction, participatory research*

Describes and discusses experiences in developing animal-drawn equipment in a pilot programme with metal workers and men and women farmers. Farmers designed the on-farm trials to test the equipment, selected their monitoring criteria and evaluated the results in farmer-to-farmer visits and focus-group meetings. They made recommendations to improve the equipment and experimented with their own adaptations and innovations for animal traction and hand tillage.

Pantuliano S. 1998. **Participatory evaluation: the experience of ACORD Red Sea Hills Development Programme**. Port Sudan: ACORD. 14pp.

*Sudan, community development, equity, gender aspects, local organisation, methods, participatory evaluation, pastoral livelihoods, urbanisation, visualisation*

A report on the planning, process and results of a participatory evaluation that was anticipated by the local project team as a learning experience. The team already had several months' training and experience in using participatory methods. The terms of reference formulated by the project team and agency staff were discussed at length between team members and external evaluators and translated into questions. Some problems with the approach were the high time requirement and the extensive travelling needed because of the low population density in the project area.

Plastow J & Pantuliano S. 2001. **Experimenting with PIM: the ACORD Sudan Urban-Rural Linkages Programme experience of adapting Participatory Impact Monitoring**. Paper prepared for Workshop on Appropriate Methodologies for Urban Agriculture Research, Planning, Implementation and Evaluation, October 2001, Nairobi, Kenya. 15pp.

*Sudan, impact assessment, monitoring, visualisation*

An NGO working with Beja agropastoralists and urban dwellers in Eastern Sudan has, together with local community-based organisations, adapted the Participatory Impact Monitoring (PIM) approach to suit the local conditions and partners' skills. GTZ originally developed PIM for literate partners. In the non-literate Beja communities, emphasis was put on pictures and locally understandable diagrams as bases for communication and for recording the information being monitored. This experience shows how other participatory approaches can enrich the PIM approach. PIM proved particularly useful as a way of building the capacities of local groups to manage their own development activities.

Raina RS, Sharma A & Mohammed Z. 1998. **Integrated, participatory, seasonal observations for land systems.** (<http://www.gisdevelopment.net/application/lis/rural/lisr0003pf.htm>)

*India, information, livelihood systems, rural development, seasonality*

Draws attention to seasonality as a key concept in rural development programmes. The case of an information facility in Rahepwa village in Harwana State, India, illustrates the functioning of an Integrated Participatory Seasonal Observation System (IPSOS), a season-sensitive database with information generated by different types of farmers, women, pastoralists, artisans, landless labourers, change agents, input suppliers etc. Participation of rural people in generating and using their own seasonal information reveals how different groups interpret the same seasonal context in different ways. This information brings scope for mutual understanding and negotiation during problem formulation, implementation of counter-seasonal strategies and PM&E. It is assumed that information flows, access and denials of information, intergenerational transfer of knowledge, gender roles in knowledge and skills etc have been institutionalised in each village over centuries. IPSOS therefore tries to build on the strength of existing rural institutions for generating and managing information.

Reckers U. 1997. **Participatory project evaluation: letting local people have their say.** *Development in Practice* 7 (3): 12–14.

*Kenya, evaluation, indicators, pastoral development*

The Dryland Ecosystems and Desertification Control Programme Activity Centre of the United National Environmental Programme (UNEP) devised methods for participatory evaluation of development projects in dry pastoral areas of Kenya, based on a case study among the Arier people. It was argued that projects promoting community participation in implementation should also allow the community to evaluate them. Ethnographic techniques allowed deduction of indicators according to which the pastoralists assessed the project. The methods are also laid out in an NGO guide for community-driven evaluation entitled "Participatory project evaluation: allowing local people to have their say" (118pp), published in 1996 by ELCI and UNEP in Nairobi.

Roche C. 1991. **ACORD's experience in local planning in Mali and Burkina Faso.** *RRA Notes* 11: 33–41.

*Burkina Faso, Mali, extension, forage, methods, planning*

Report on ACORD support to informal and formal rural groups, mainly of agropastoralists, to strengthen their participation in local planning. A mechanism for "auto-evaluation" was developed. GRAAP animation techniques were used to help villagers prepare a "fiche" or file for baseline data, a "fiche-action" with details of activities planned by the villagers, an agreement for dividing re-



sponsibilities between them and ACORD, and a "*fiche de suivi*" with PM&E indicators. An example is given of local criteria for evaluating regeneration of forage species. Strengths and weaknesses of the approach are frankly discussed.

Schoonmaker Freudenberger K & M. 1994. **Livelihoods, livestock and change: the versatility and richness of historical matrices.** *RRA Notes* 20: 144–148.

*Gambia, Senegal, historical analysis, livelihood analysis, methods, pastoral livelihoods*

Historical matrices used in The Gambia and Senegal showed the relative importance of livestock in families' livelihood strategies and changes in these strategies over more than 25 years. The matrices were based on time periods defined by the local people. It provided them with a way of "writing" the history of how they make their living, as well as a concrete basis for discussing why things have changed and what this means for them.

Simonazzi A. 1993. **Participatory evaluation: theory, methods and experience: PRA, GRAAP and the Kenyan case.** London: University of London. Mimeo. 15pp.

*Kenya, evaluation, mapping, methods, wealth ranking, workshops*

In participatory evaluation of projects in Maasailand and Kitui, local NGO staff were involved in deciding which communities and which community members should be visited. The project "beneficiaries" were treated not as respondents but as participants, i.e. their values and opinions were sought, rather than answers to pre-set questions. The project staff and local people jointly analysed the information gathered by the evaluation team. Mapping and role-play proved to be useful tools, but not wealth ranking, mainly because of the Maasai's reluctance to classify their neighbours openly, misunderstandings about the concepts of "family" and "clan" and lack of time. GRAAP methods were successfully used, particularly during meetings for sharing and analysing information.

Soura A, Boureima D & Banzhaf M. 1998. **Supporting local people in their management of natural resources: project for land-use and natural resource management.** In: Forster R *et al* (eds), *Beyond the toolkit: experiences with institutionalising participatory approaches of GTZ supported projects in rural areas* (Eschborn: GTZ), pp 71–85.

*Burkina Faso, action research, organisational learning, stakeholder platform*

The project for Land Use and Natural Resource Management in the Sahel of Burkina Faso (PSB-GTZ) facilitated participatory land-use planning based on

the “*Gestion des Terroirs*” approach and tried to integrate transhumant pastoralists into the planning process. Organisational learning about this experience was based on PM&E, participatory evaluation of tools and approaches, reflection on the mode of collaboration within the project, an information-exchange and reflection group on pastoralism involving other agencies intervening in the Sahel of Burkina Faso, and documenting the learning experience.

Stafford Smith DM, Clewett JF, Moore AD, McKeon GM & Clark R. 1997. ***DroughtPlan: building on grazier participation to manage for climate variability***. Occasional Paper CV01/97. Canberra: Land and Water Resources Research and Development Corporation. 148pp.

*Australia, climate variability, extensive grazing, predictors, risk management*

Reports on the results of a participatory research project to develop decision-support systems for livestock-keepers in arid Australia, who must cope with great variability in climate and hence in feed supply. The project was in five parts: detailed consultations with producers in Queensland, consultations and analysis nationwide, understanding biological links, developing the activities and tools, and analysis and delivery to producers in Queensland. The output is a set of computer programmes that can be used (and apparently are used) by farmers. For example, rainfall and vegetation yield (simulated on the basis of over 100 years of rainfall records) helps a producer decide whether to sell stock, buy stock in, give supplementary feed or move the animals to a different ranch. This case from an industrialised country shows how scientific data can be integrated into a monitoring and decision-support system for livestock-keepers. However, it is very data-intensive and therefore hardly applicable in developing countries, where such data sets are rarely available.

Stür WW, Horne PM, Hacker JB & Kerridge PC. 2000. ***Working with farmers: the key to adoption of forage technologies: proceedings of an international workshop held in Cagayan de Oro City, Mindanao, Philippines from 12–15 October 1999***. ACIAR Proceedings No. 95. Canberra: ACIAR. 325pp.

*Southeast Asia, forage, impact assessment, monitoring, participatory experimentation*

A workshop marking the completion of the Forages for Smallholders Project brought together experiences in testing and adapting forage technologies with smallholder livestock-keepers. Most papers focus on the technologies, but a small number deal with the process and PM&E of forage technology development, and with assessing its impact.

Tachez C. 1995. ***De la gestion des feux de brousse à la gestion du terroir***. France: VSF. 14pp.

*Guinea, fire management, livestock, range management*

Account of livestock-keepers' experimentation with use of fire in a sparsely-populated subhumid area of West Africa. Elders and development agents established a village land plan as a communication tool for villagers to discuss management options. They marked areas with risk of late bush fires on the map, and villagers planned where to set early fires to reduce the risks. Later, sites of actual late fires were marked. The villagers assessed the results of the experiment in terms of reduction of accidentally burned areas, and drew lessons for improving fire management. Local people learned to continue this process without external facilitation.

Tielkes E. 1998. **Communally managed rotational grazing on reclaimed pastures in the northern Sahel**. Paper presented at workshop "Evaluation of Technical and Institutional Options for Small Farmers in West Africa", University of Hohenheim, April 1998. 5pp.

*Niger, common property resources, erosion control, local institutions, monitoring, rotational grazing*

The GTZ-supported Tahoua Rural Development Project in southwest Niger promotes communal resource management through installation of local committees. The project is experimenting with rotational wet-season grazing of re-claimed pasture. It has developed an approach to introduce consensual pasture management by sedentary and transhumant livestock-keepers. This includes joint monitoring of pasture condition by herders, local management committees, extension agents and project staff. Having just been introduced at the time the paper was written, the experience with this approach is not documented.

Tielkes E, Schlecht E & Hiernaux P (eds). 2001. ***Élevage et gestion de parcours du Sahel: implications pour le développement***. Beuren: Verlag Grauer. 381pp.

*West Africa, livestock husbandry, range management*

Proceedings of a workshop in Niger, including 39 presentations and the results of groupwork, mainly in French with English summaries. Many presentations stress the need for participatory approaches, institutional and organisational development, committees, multi-stakeholder platforms etc. PM&E is not discussed in detail, but it is clear that a number of institutions for pasture management described in the papers could hardly function without it. The monitoring that is described remains top-down, such as a programme in Senegal in which high-tech methods are used to monitor vegetation and produce maps as

a basis for range management plans, or it remains scientific, as in a contribution on 17 years of monitoring woody vegetation, also carried out in Senegal.

Timlim A. 1996. **Participatory livelihood monitoring in southern Sudan**. *PLA Notes* 26: 39–44.

*Sudan, indicators, methods, monitoring, pastoral livelihoods*

To provide information for emergency responses, Oxfam developed a Livelihood Monitoring System intended to encourage Dinka pastoralists to explore and analyse their own situation. Local monitors were recruited and trained to collect qualitative and quantitative data using PRA methods, and to assess emergencies using a checklist. Oxfam identified key indicators through local resource persons, and discussions and ranking exercises with different socio-economic groups. The monitors' sources of information are daily observations at key sites (e.g. markets, stock auctions, waterpoints), semi-structured interviews with contact farmers, herd tracking, and visits to key informants for specialist advice on certain indicators. Oxfam analyses the data; local capacity for this has not yet been developed.

Vogt G & Vogt K. 2000. **Hannu Biyu Ke Tchuda Juna – strength in unity: shared management of common property resources – a case study from Takiéta, Niger**. *Securing the Commons 2*. London: IIED. 44pp.

*Niger, common property resources, stakeholder platform*

Process documentation of external support to decentralised NRM involving sedentary farmers and mobile pastoralists in an arid area. Decentralised management is possible only if the local stakeholder groups have the time to understand and negotiate their roles, are able to make their own inventory of resources and can design and implement their own monitoring of environmental change over time. The project took five years to reach this point; the report stops when the joint monitoring begins.

Waters-Bayer A & Bayer W. 1997. **Participatory planning, monitoring and evaluation of grassland management in West Africa**. *Proceedings XVIII International Grassland Congress, 8–18 June 1997, Winnipeg & Saskatoon, Canada*, Vol. 2, pp 18.17–18.18.

*Burkina Faso, methods, range management, stakeholder platform*

Brief account of facilitating PM&E by resource users, including Fulani cattle-keepers, of land-use management in the Sahel region of Burkina Faso. For a description of the subsequent process, see Soura *et al* (1998), Banzhaf *et al* (2000) and Kiema (2000).

Waters-Bayer A, Bayer, W, Ibrahim E, Tamiem AA, Sheik EH & Badry SA. 1998. **Participatory evaluation of ACORD's Red Sea Hills Programme, May–June 1998: final report.** London: ACORD. 72pp.

*Sudan, evaluation, methods, organisational development, pastoral livelihoods*

A participatory approach was taken in an external evaluation of an ACORD-supported project in the Red Sea Hills of Eastern Sudan. Men and women in the Beja communities, project staff and two external consultants collaborated in planning and implementing the evaluation. The participatory tools to show environmental and socio-economic impact included drawings of benefits, proportional piling and before-and-after matrices. The village committees assessed their own development using SWOT analyses, Venn diagrams and a "moons exercise" for self-evaluation of organisational functioning.

Wild RG & Mutebi J. 1996. **Conservation through community use of plant resources: establishing collaborative management at Bwindi Impenetrable and Mgahinga Gorilla National Parks, Uganda.** People and Plants Working Paper 5. Paris: UNESCO. 45pp.

*Uganda, forest management, indigenous knowledge, resource conservation*

A pilot process of participatory evaluation and planning of resource use resulted in written agreements for low-level use and collaborative management of forest resources. Describes Rapid Vulnerability Assessment, a systematic method of integrating indigenous and scientific knowledge in order to assess the vulnerability of plant species to utilisation by people, and to determine whether harvesting is or can be carried out at some level below the maximum sustainable yield. In each parish, the inhabitants formed a Forest Society, based on an existing community structure, to manage resource use. These societies document resource-use decisions and record quantities of resources harvested (mainly medicinal plants and basketry materials). A new PRA technique, Ground Relationship Map, was developed to monitor changes in the relationship between the park officials and the local people and to find out reasons for these changes. The monitoring appears to be "driven" by the park officials; it is recognised that additional work is still needed to involve resource users and traditional experts in resource assessment and monitoring.

Zeidler J. 2001. **Managing desertification in Namibia.** In: ELCI (ed), *Community-based land and water management in Africa: case studies of good practice* ([www.monitorinternational.org/namibia.htm](http://www.monitorinternational.org/namibia.htm) 19/12/01).

*Namibia, biodiversity, income diversification, monitoring, pastoral livelihoods*

As part of the Namibian Program to Combat Desertification, an NGO consortium is developing systems of monitoring natural resources and strengthening local capacities to manage them in a sustainable way. Scientific indicators of

range condition were compared with local ones. Needs-based monitoring systems were developed with local stock-keepers who were interested in monitoring natural resources. Methods were designed that could be easily used also by illiterate people. To distinguish degraded from non-degraded land in the extremely variable semi-arid environment, a broad set of indicators in an Index of Biological Integrity (including measurements of soil resilience, vegetation productivity and invertebrate biodiversity) proved superior to assessments based solely on vegetation. Socio-economic indicators are being identified and tested, but it seems to be more difficult for community members to identify with the need to track such data, which could help them identify viable alternatives to purely agriculture-based livelihoods.

Zessin K-H, Heuer C & Schrecke W. 1993. **The Central Rangelands Development Project (CRDP) – veterinary component.** In: Baumann MPO, Janzen J & Schwartz HJ (eds), *Pastoral production in Central Somalia* (Eschborn: GTZ), pp 97–111.

*Somalia, animal health, monitoring, pastoral development*

Documentation of efforts by GTZ in 1982–89 to build up an interlinked veterinary service between government agencies and nomadic animal health auxiliaries (NAHAs) operating with revolving drug funds. Having built up a close relationship with the nomadic herders, the CRDP staff could establish an “early warning system” for outbreaks of disease or other serious problems in animal health and production. The NAHA system was the first structured primary animal health care system under African pastoral conditions that did not limit auxiliaries to giving vaccinations or operating drug dispensaries, and focused on their usefulness in multi-linked, epidemiological disease surveillance.



## **ANNEX**

### **Electronic sources of further information on pastoralism**

#### **Eldis Pastoralism Resource Guide**

<http://www.eldis.org/pastoralism/index.htm>

Information about publications, projects, people and photos, with links to several other websites. Host of the website for Community-Based Animal Health and Participatory Epidemiology (CAPE), which specialises in primary-level veterinary services in pastoral areas in the Horn of Africa (see publications in this bibliography by ActionAid and Catley).

#### **Ethnovetweb**

<http://www.ethnovetweb.com/>

Information about ethnoveterinary medicine: how people worldwide keep their animals healthy and productive and how development can build on this information.

#### **Local Livestock for Empowerment of Rural People (LIFE)**

<http://www.lifeinitiative.org/>

Information compiled by the League for Pastoral Peoples, focused on domestic animal diversity and promotion of pastoralist-centred approaches to conservation of animal breeds.

#### **Pastoral Development Network**

<http://www.odi.org.uk/pdn/>

From 1976 to 1996, the Overseas Development Institute (ODI) managed a network of researchers, development administrators and extensionists interested in issues of pastoralism and rangelands. With the support of the FAO Rural Policy and Environment Group, this website has been set up to revitalise PDN. Most of the PDN papers since 1985 are now available online. Contributions to FAO electronic conferences about pastoralism, e.g. on coping with drought, can also be found on this website.

#### **Participation Kiosk**

<http://www.gtz.de/participation/>

The second printing of the publication *Planning with pastoralists: PRA and more – a review of methods focused on Africa* is available at the Participation Kiosk of the GTZ website: <http://www.gtz.de/participation/english/c03.htm>



# **Part I:**

## **Review of experiences**



# 1. INTRODUCTION

## 1.1 Background

Eight years ago, we reviewed experiences in participatory planning in pastoral settings, particularly in West Africa but also taking experiences made elsewhere into account. The report, *Planning with Pastoralists* (Waters-Bayer & Bayer 1994, French version 1995), contained a critical appraisal of participatory planning in pastoral development, a description of Participatory Rural Appraisal (PRA) tools and how they have been used with livestock-keepers, and an annotated bibliography.

The biggest gap at that time had been with respect to documentation of participatory monitoring and evaluation (PM&E). As the importance of PM&E as a component of the management cycle became increasingly recognised, the GTZ Division for Rural Development that had commissioned the first review requested an analysis of the experiences made in the meantime in PM&E and impact assessment with pastoralists. Like the previous one, this review is written primarily for GTZ staff in Germany and overseas projects, the staff of governmental and NGO partners of such projects, and pastoral development workers in general.

This report, like the previous one, includes a review of experiences and an annotated bibliography, but gives less attention to tools, as these tend to be similar to those described already in the first report. Moreover, the appraisal made it very evident that it is not the tools but rather the approach taken to PM&E that is crucial for success. This is not meant to be a guide to PM&E. Plenty of these already exist. It is rather an appraisal of whether and how PM&E has been practised in collaboration with pastoralists.

## 1.2 Some definitions

**Monitoring** refers, in development parlance, to a continuous process of collecting information about the performance of a project, in recent years often the measuring of progress according to a Project Planning Matrix. In more general parlance, monitoring refers to observing change,

such as in market prices, rangeland vegetation or climate, so as to discern trends. In processes of natural resource management (NRM), monitoring refers to tracking progress towards sustainability in environmental and socio-organisational terms. To be useful, a monitoring system must include a communication system that allows information to be exchanged between the people concerned and to be interpreted so that it can form a basis for taking appropriate decisions. The essential components of a monitoring system are:

- selecting indicators (see definition below) for each activity and desired impact
- collecting data concerning the indicators
- analysing the data
- presenting the information in a way that can be understood by those concerned
- using the information to improve the work (adapted from Gosling & Edwards 1995).

**Evaluation** refers to making a judgement on the worth of something – in development parlance, usually judging the extent to which project activities have achieved their intended objectives, including the overarching objective to which the project is meant to contribute. It sometimes but not always includes an assessment of the impacts, whether intended or unintended, of the project activities. Ideally, evaluation is a means to learn from experience and to correct direction.

**Monitoring and evaluation (M&E)** intertwines the two in such a way that the observations during monitoring are systematised and frequently interpreted so that assessment on process and impacts contributes to continual learning.

**Indicators** are quantitative or qualitative variables that can be measured or described and, when observed periodically, demonstrate trends; they help to communicate complex phenomena (Hardi & Pinter 1995, MacGillivray & Zadek 1995). *Scientific indicators* tend to be measurable in quantitative terms; they are global within a given discipline and are meant to be comparable across space and time. *Grassroots (indigenous) indicators* are signals used by local people (individuals, groups,

communities) based on their own observations and local knowledge, applied within specific cultural, ecological and spiritual contexts; they tend to be more descriptive.

**Participation** in development cooperation is a process in which different actors negotiate and share control over development initiatives and the related decisions and resources, with particular attention being given to involving groups that had been previously excluded or marginalised. Levels of local participation are defined primarily by the degree to which local people (“beneficiaries”, “target groups”) have the power to make or influence decisions.

**Participatory monitoring and evaluation (PM&E)** refers to the involvement of multiple stakeholders in the design and implementation of observing, systematising and interpreting processes as a basis for joint decisions about improving their joint activities. PM&E is not an end in itself but rather a management tool, whether for managing natural resources, managing social relations within a given area or managing relations between local people and outside agencies (e.g. government services, intervention projects).

Whereas conventional M&E is often regarded as a tool of control by project management and donor agencies, PM&E is meant to be a process that enhances the learning of all actors. Participation in M&E may refer to participation of staff from a project and its partner organisations, but in this review we are referring to participation of the livestock-keepers themselves in systems of monitoring change and adapting management accordingly. This means that the livestock-keepers are directly involved in setting the objectives of the PM&E process, choosing the indicators and methods, and interpreting and using the results.

The concept of PM&E is usually introduced by an intervening project. In some cases, the objective is to gain better feedback from the “target groups” so that the project work can be improved. In other cases or in addition, the objective may be to strengthen the capacities of the local people to manage their resources, whether natural or financial or social. For example, this was the explicit objective of introducing PM&E in the Marsabit Development Programme (MDP), a GTZ-supported project in

Kenya. MDP regarded the direct involvement of the local people and organisations in monitoring and evaluating their development as a step in increasing their self-help capacity, i.e. in meeting the project purpose. It therefore set out to develop a monitoring system with four functions:

1. To build the capacity of project partners and intermediaries from the local population to reflect, analyse and take action
2. To increase accountability to partners, beneficiaries, managers and donors
3. To derive lessons that can lead to corrective action by partners
4. To derive lessons to help the project improve its own implementation (MDP 1998).

### **1.3 Justification for the review**

It is now widely recognised that the natural resources in semi-arid and arid areas are used for multiple purposes, e.g. grazing, hunting, harvesting thatch grass, collecting wild foods and medicines and, in favourable niches, cropping. The different user groups need to be involved in planning, monitoring and evaluating resource use. However, most experiences in participatory approaches to land-use planning, such as “*Gestion des Terroirs Villageois*” in francophone West Africa, involve settled crop farmers and largely exclude mobile pastoralists, who depend on natural pasture for their livelihood. The territory-based approach to planning favours those who occupy the area permanently and not those who use it only temporarily or sporadically (Waters-Bayer *et al* 1995).

The need to monitor environmental conditions is even more important for pastoralists than for other users of natural resources, because pastoralists generally use the more marginal land (too high and/or dry for cropping). Their livelihoods are at peril if they do not react in time to threats of drought, floods or snow. The great strength of pastoralists is their flexibility: their capacity to move their animals in reaction to changes in environmental or socio-political conditions. Particularly the pastoral groups that operate in drought-prone and conflict-prone areas, and the outside agencies concerned with these people, need to recognise a potentially threatening situation early enough to be able to react appropriately. PM&E would seem to be one way to do this.

In view of the need to involve pastoralists in multi-stakeholder decision-making about resource use, which must rely on some form of collaborative M&E, and in view of the potentials that PM&E seems to offer for better decision-making by all concerned with marginal areas, GTZ is keen to identify best practices in PM&E with pastoralists. These experiences should serve as sources of learning and inspiration.

#### **1.4 Methods, boundaries and limitations of the review**

We contacted many of the same people and institutions that had contributed to the first review and are active in pastoral development work. We also sought documents in library databases of development agencies and with a search machine in the Internet. We sought, above all, examples of actual application of (as opposed to plans for) PM&E in resource management involving pastoralists as key actors.

We first sought cases in systems of pastoralism, agropastoralism, agrosylvopastoralism and watershed management including livestock-keepers. We sought experiences in PM&E with pastoralists also in “developed” countries, e.g. Australia and New Zealand, in order to see if they yielded lessons for work in “developing” countries. Having found relatively few experiences in what we saw as “genuine” PM&E, i.e. M&E planned together with the livestock-keepers to monitor at least what they want to monitor and in the ways they want to do it, we looked for cases of more general NRM projects that included PM&E of local environmental and socio-organisational change. Some of these may have included livestock-keepers but this was not evident in the documentation.

Another reason for including reports on PM&E in NRM, even when livestock-related issues were not central, is that it was noted already in *Planning with Pastoralists* that, where pastoralists did take the lead in managing the rangelands, it was often not the grazing resources that received their initial attention. They wanted to manage natural resources also for other purposes, such as protecting areas for collecting wild cereals or harvesting water to grow food crops rather than forage (Marty 1985, Cullis & Pacey 1992). This indicates that the entire livelihood system of the resource users, also of pastoralists, needs to be addressed in range management.

Although the focus in this review is on the integrated process of PM&E, we did include some cases of one-time participatory evaluation exercises with pastoralists carried out in the framework of projects that tried to involve local resource users as decision-makers throughout the implementation of the jointly planned work. These can indicate how more continuous forms of participatory monitoring could be developed.

Not included in this review of PM&E are cases of:

- project-led M&E using livestock-keepers simply to record data needed by the project
- evoking livestock-keepers' perspectives in the assessment of researcher-led on-farm experiments.

Some methods have been developed by researchers to facilitate monitoring of production and marketing data by pastoralists, such as milk recording by illiterate Fulani women (Waters-Bayer 1988). However, this was a recording system proposed by the research organisation. The women did not need this level of measured accuracy themselves; their observations and memories of seasonal changes in milk yield and impact of interventions were sufficient for their own purposes. We do not criticise such approaches but simply note that we do not regard them as examples of PM&E.

By far the majority of materials that reported on “participatory monitoring” with livestock-keepers were, in fact, reporting on consultations (surveys, interviews and use of Rapid Rural Appraisal [RRA] techniques to obtain information) or herd monitoring for scientific analysis. They were not processes in which the livestock-keepers themselves were involved in determining what was to be monitored and for what purposes, and in analysing and using the results themselves. It is indeed important that development planners and scientists solicit the views of livestock-keepers. However, this is not the type of experience that we were seeking for this review.

In numerous cases of monitoring herd productivity, farmers' participation consisted of providing information to project staff and restraining ani-



mals so that they can be weighed, thus speeding up the work of the project staff. This is described, for example, by Bosma *et al* (1996), who found that, even when they tried to motivate farmers by presenting them with the results on animal weight development, the farmers regarded the monitoring as time-consuming and not yielding any new information for them. Bosma *et al* conclude that such monitoring is of little use for proposing improvements in animal keeping and suggest, instead, that on-farm trials be implemented immediately after rapid diagnostic surveys. Farmers are then much more likely to want to record animal parameters of interest to them, in order to assess the effects of the innovations they are testing.

The above-mentioned case was frankly described and self-critically assessed. In other descriptions of “participatory” data collection, the role of the livestock-keepers is not made explicit. It can sometimes, however, be derived from other comments in the report. For example, an evaluation of an Animal Health and Livestock Production Programme in Afghanistan carried out in 1997 states that “Both men and women are capable of using the participatory monitoring forms provided by the project to monitor changes in their livestock production” (<http://www.fao.org/participation/afghanistan-lessons.html> 18.04.01). Documents that did not make clear *how* the livestock-keepers participated in the M&E, e.g. how they were involved in designing the forms, were not included in this review.

## **2. SOME DOCUMENTED EXPERIENCES OF PM&E WITH PASTORALISTS**

### **2.1 General comments on findings**

The outcome of our review is sobering. Once again, as in the case of the review of participatory planning, double-refereed journals and books yielded few references to PM&E with pastoralists. However, even through informal channels (in “grey” literature such as project reports and unpublished papers), we could find little documentation of PM&E actually being implemented together with pastoralists. Similarly, in a literature review of participatory environmental monitoring, Abbot and Guijt (1998) found many hopes attached to this approach but few practical experiences.

In contrast to the scarcity of practical experiences with PM&E with livestock-keepers, there are numerous reports on the use of PRA tools in joint situation analyses. There are also many offers of and reports on training in PM&E, and still more reports mention the necessity for it. Similarly, it seems to have become quite fashionable these days to write guidebooks on PM&E and participatory impact assessment in a general sense. The principles in these books can be applied to projects dealing with pastoral development.

In the last 4–5 years, a few reports have been compiled on workshops or lengthier procedures to design PM&E systems with livestock-keepers, but seldom was it possible to find documentation on how the system actually worked. In some cases, responses we received to our requests for follow-up reports expressed regret that the project had ended or that no funds had been available for documenting the experience.

The few experiences in PM&E in pastoral settings that we could find can be divided into four major types:

1. PM&E of change in the condition of natural resources (environmental monitoring)
2. PM&E of the way the resources are being managed, i.e. of local institutions and social relations (including management of community-based animal health services)

3. PM&E of intervention projects<sup>1</sup>, referring primarily to the interactions / collaboration between the local resource managers and external supporting agencies such as government services or projects
4. PM&E in participatory experimentation (on-farm / in-herd trials implemented by livestock-keepers and scientists or development workers).

## 2.2 PM&E of natural resources

Most cases of PM&E involving pastoralists in any way – also as one of several groups of resource users – focused on changes in the natural resources (vegetation, water, soil, wildlife) and livestock, assessing the impact of pastoralists and others (including intervention projects) on the resources. The monitoring was meant to guide the users in decisions on managing the natural resources, the livestock and related inputs.

**Drought monitoring.** As would be expected among pastoralists, many of whom live in marginal and highly variable arid environments, monitoring the risk of drought is a focus of attention in many pastoral development projects. Pastoralists clearly need to monitor closely the climatic variability and resulting variability in forage supply. Realising that a drought is imminent and reacting in time is a matter of survival for them. Rainfall, range condition, water supply, condition of the animals, drop in milk yields or falling price ratios between livestock and cereals are some indicators of an early stage of drought. Traditionally, pastoralists have a range of strategies to cope with drought, such as herd splitting, long-distance migration, sales of animals down to a nucleus herd, or diversifying income through wage labour or small-scale business (e.g. Niamir 1990, Galaty & Johnson 1990, TDCPU 1992).

After the droughts in large parts of Africa in the 1970s and 1980s, when the traditional coping mechanisms did not function and human suffering was widespread, pastoral development projects began to look into drought early-warning systems. Some projects charged with the task of

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<sup>1</sup> As a project is any planned undertaking and as pastoralists have their own projects, the term “intervention project” is used here to refer to agencies that come into an area from outside with the intention of bringing about some type of change within the area.

developing such systems produced extensive sets of data, which theoretically could give an early alert (e.g. the bulletins of the Drought Monitoring Project). However, the alert reached, at best, the relief organisations but rarely the herders themselves. The manuals and bulletins (e.g. TDCPU 1992, Drought Monitoring Project 1993) give no indication that drought monitoring was participatory, in the sense that the pastoralists not only provided information but could also use the results. Where indigenous indicators were used, it was in an extractive rather than a participatory way.

In the more developed countries where pastoralism covers large areas, such as in South Africa, Australia and New Zealand, drought alerts can rely on extensive sets of data and, at least theoretically, these can be communicated to livestock-keepers and rangeland managers via producers' journals, radio or computer-based information systems. The set of data now used for predicting drought includes meteorological data and assessment of range conditions by means of remote sensing and interviews with producers (Stafford Smith *et al* 1997). Analysis of the data is the responsibility of the agricultural administration, although producers can gain access to computerised decision-support systems based on these monitoring data. This is the case of provision of a service, rather than PM&E.

Early-warning systems based on more global data are potentially useful for developing countries and especially for pastoralists in remote and drought-prone areas. However, we could not find any report that pastoralists in developing countries received the conclusions derived from analysis of such data.

**Range and water monitoring.** A “classical” example of environmental PM&E with pastoralists in developing countries remains that described by Marty (see Box 1). Le Gall (1999) reports very briefly on World Bank efforts to support the introduction of Holistic Resource Management (HRM) in West Africa. An integral part of this approach is pasture assessment on the spot and on an almost daily basis. Key indicators are selected that the land users can understand, accept and replicate in their own monitoring. A project implemented by a local NGO in the

Somali Region of Ethiopia is likewise experimenting with HRM on “demonstration plots” that are supposed to be monitored by the Somali pastoralists (Yohannes & Waters-Bayer 2002). In Namibia, the GTZ-supported Sustainable Animal and Range Development Programme (SARDEP) started training in pasture assessment and improved models of pasture management. This involves frequent pasture assessment by livestock-keepers and pasture managers (Walther, pers. comm. 2001). In a project in Niger, joint pasture classification by project staff and resource users formed part of a process of participatory planning and institution building. After five years of this preparation process, the actual pasture management started in 2000 (Vogt & Vogt 2000). These cases would merit continued attention and documentation to reveal how the PM&E systems are actually functioning.

#### **Box 1: PM&E in grassland management**

Having experienced severe drought, pastoralists in northern Mali were open to new ideas as to how to manage the natural vegetation on which their herds depend. They entered into discussions with government livestock services and external consultants to identify possible improvements in resource management. They jointly observed current range conditions and analysed how these had changed. Some older pastoralists recalled that, in the past, certain pastures were not grazed during the rains and were then available in the dry season. They also noted that *fonio* or hungry rice (*Panicum laetum*), which pastoralists collected to eat in times of need, had become scarce.

They started experimenting on a small scale with the reservation of *fonio* areas from grazing. The experiments soon expanded to include areas reserved for deferred grazing. In a meeting at the end of the rains, the pastoralists assessed vegetation needs and availability and decided whether and when to open up the protected areas. At subsequent twice-yearly meetings, they drew lessons from experience and adjusted the management regime, e.g. by changing the size of the reserved areas, the period of reservation or the way in which fines were imposed on herders who did not comply. The pastoralists took the lead in this action research in local-level NRM, with government agents and consultants providing support where needed.

**Source:** Marty (1985), Marty (pers. comm. 1994)

In Burkina Faso, the GTZ-supported Projet Sahel Burkinabé (PSB) facilitated multi-stakeholder workshops following bilateral discussions by project staff with different user groups. Settled and semi-settled agro-pastoralists set out rules for land use, e.g. for cropping, grazing, clearing and haymaking, which are overseen by a local management group (“*cadre de concertation*”). This group informs transhumant herders

about the regulations. PSB helped the producers set up a system to monitor the extent to which the rules are followed and what impact this has. It supplements these observations with its own system of ecological monitoring. At each site, the local management group, technical services and administrators agreed on indicators, observation sites, times and methods of assessment, and responsibilities for monitoring. The management groups observe the degree of compliance by local and transhumant people in respecting dates of opening and closing grazing areas, controlling animals at given times of the year, obtaining permission to graze crop residues or cut hay etc. They measure the impact of the local regulations according to, e.g., number of resource-use conflicts registered, degree of siltation of ponds and changes in vegetation, e.g. cutting of shrubs and grasses and extent of regeneration (Kiema 2000).

In other cases, an interventionist mode comes through in the reports. A project in Niger “introduced” deferred grazing in the wet season (Lycklama à Nijeholt *et al* 2001). In order to be able to continue using the grazing resources, the agropastoralists in the area must agree on a plan and must monitor vegetation to decide where to go next, whether non-resident pastoralists may use part of the range, when to close part of the range from grazing etc. The report fails to provide details about how this is done, who makes the decisions and on what basis decisions are revised.

In those cases where participatory approaches to NRM in pastoral development projects were vigorously pursued, it became evident that it was more important for the project staff to have skills in facilitating the negotiation of interests (e.g. in negotiating the indicators and monitoring procedures) and skills in institutional development than to have technical expertise in pasture management. This came through clearly, for example, in a programme for weed control in grasslands in New Zealand (Bosch *et al* 1996). As the participatory process continued and became more intensive and encompassing, the technical issue was totally superseded by issues of community development.

This comes through clearly also in the reports on participatory evaluations in Somaliland (ActionAid-Somaliland 1995, 1999). Here, the local

people chose to focus on water development activities, and developed a range of indicators (which differed slightly in different villages) for assessing quality, quantity and reliability of water supply. Their assessment revealed positive impacts of water development, such as better nutritional status of children, as well as negative impacts, such as an increase of malaria around a certain type of waterpoint. It is evident from the time and thought invested in preparing and documenting and assessing their experiences with these participatory evaluations that an important objective was to contribute to institutional development.

**Indigenous indicators.** Pasture being the basis for pastoralism, we had expected to find much more documentation on PM&E of grazing resources. Using their own indicators of pasture type and quality, livestock-keepers decide whether or not they will go (or send their animals) on transhumance or will bring in feed from elsewhere. Studies of “grassroots” indicators compiled in Hambly and Angura (1996) include mention of how pastoralists recognise range degradation. In the day-to-day management of range resources, pastoralists’ monitoring practices are reportedly much the same as in scientific range management: they monitor vegetation cover and yield, greenness of plants, vegetation composition, occurrence of wildlife, and indicator plants for degradation (Niamir 1990). This would appear to be an ideal situation for PM&E of grazing resources.

However, pastoralists do not monitor vegetation, water or soil because they are primarily interested in these resources but rather because they are interested in how their animals and their families fare from these resources. Therefore, changes in the state of natural resources are more likely to be monitored through changes in the condition (health, productivity, well-being) of their animals. For this reason, indicators associated with their animals (e.g. milk yield, energy levels, sleekness of skin) are likely to be more important to monitor than, e.g. vegetation. Moreover, such indicators are easier to monitor especially by mobile pastoralists, because they stay with the animals rather than with the vegetation at a particular site. Ultimately, they will be concerned with the well-being of their families in social, economic and cultural terms. Here, indicators become even “fuzzier” than in environmental monitoring.

Most studies of “grassroots” indicators tended to remain at the level of environmental indicators and led, at best, to their incorporation into externally managed monitoring systems. Involvement of the local people in collecting the data was intended to reduce costs and time demands (e.g. Krugmann 1996). Some of the work on identifying local indicators has given scientists and project staff good opportunities to gain a better understanding of the livestock-keeping systems and of local perceptions (e.g. Gardner *et al* 1997). Thus, the search for and use of local indicators can strengthen the M&E system of the scientists, projects or other agencies. However, our literature search suggests that the opportunity is seldom seized to develop truly participatory systems that allow the local people to benefit from the scientific monitoring to the same extent as the scientific monitoring benefits from the indigenous monitoring.

### **2.3 PM&E of local institutions and social relations in NRM**

In NRM, institutional and social development aspects deserve as much, if not more, attention than technical aspects, as *management* is done by people. PM&E of socio-organisational capacity for managing the natural resources, for collaborating and for resolving conflicts, is a tool towards strengthening this capacity. It consists of monitoring group processes and is often introduced by a project in order to integrate otherwise marginalised groups (e.g. women, mobile pastoralists) into local decision-making structures. It is designed to increase the expression and widespread understanding of the needs of different user groups.

Local environmental monitoring is closely linked to the strengthening of the social organisation of managing the resources, particularly common-property resources used by several families or even ethnic groups. As Vernooy (1999) points out with regard to environmental monitoring in micro-watersheds:

*Local-level monitoring of resource use is required to ensure compliance and regulation. To achieve better resource management practices through cooperative action, rules and sanction, it is important that local people and those cooperating with them have a good understanding of resource dynamics, e.g. soil dynamics, nutrient flows, water*



*cycles. Resource assessment and resource-use monitoring are therefore key activities in any effort to improve management practices and regulatory arrangements. Monitoring will also help to raise awareness among local decision-makers about the interdependence of resources and, if carried out collectively, can easily impart skills and credibility and create a sense of ownership and confidence.*

### **Box 2: Towards self-evaluation in pastoral resource management in Mali**

Working with Tuareg in Mali, ACORD designed a self-evaluation approach based on the GRAAP method. Project teams collect information on the conditions of a group and prepare a baseline "fiche". Subgroups divided according to age and sex discuss their problems, present their results to each other and agree on activities to start. These are outlined in a "fiche action". The group identifies the support it needs, makes a contract to this effect with ACORD and identifies social, economic, technical and institutional indicators for evaluating each activity. Working with subgroups permits the views of marginalised groups, e.g. women, to be heard, and reveals differences in aims and criteria for success. The local criteria are combined with ACORD's own criteria to form an overall evaluation framework in a "fiche de suivi". Upon completion of an activity, the group and ACORD evaluate it according to the agreed indicators. The "fiches" provide a framework for data collection to assist the process of monitoring, evaluation and re-planning.

Considerable time of staff well trained in animation techniques is required for this approach. Civil unrest in the project area in 1991 prevented ACORD staff from giving intensive support to this process. As field visits became impossible, pastoralists began to send oral or written messages to staff at ACORD bases. The evaluation and planning activities were then shifted to intercommunity meetings held at ACORD bases, preceded and followed by meetings in each community organised by local representatives. The principle of subgroups and plenary meetings was retained in the intercommunity meetings. The most common monitoring tool actually used by the groups themselves is a simple notebook. For example, a management committee for livestock reconstitution has a notebook showing the cost, number and species of animals bought, to whom they were loaned, and how much of the loan has been repaid.

**Sources:** Roche (1991), Capezzuoli (1999)

**Local management committees.** The documentation on PM&E of local institutions deals mainly with management committees made up of members of a village or a seemingly homogenous group of resource users. It is designed as participatory (including both project staff and local beneficiaries) during a phase of external support – i.e. monitoring and evaluating organisational development while a management committee is being built up – but with a view to establishing an autonomous process of self-evaluation by the local organisation. An example is the work in Mali by ACORD, a UK-based NGO (see Box 2). Also the ACORD-supported work among Beja pastoralists in the Red Sea Hills of

the Sudan involves building the capacities of local management committees by facilitating their self-evaluation (Waters-Bayer *et al* 1998, Plastow & Pantuliano 2001).

**NRM by several user groups.** Since pastoralists often use resources for only part of the year, they must coordinate with other groups, e.g. negotiate with crop farmers for land use (Marty 1993). Later in the 1990s, attempts were made to facilitate the formation of multi-stakeholder platforms that include pastoralists for conflict management and coordinated action in NRM (e.g. Banzhaf *et al* 2000, Fitter *et al* 2001, Vogt & Vogt 2000). These involve some form of PM&E of both natural resources and social relations in order to create a better awareness and understanding of the perspectives of the different stakeholder groups and to establish a better basis for making joint decisions. The reports on these initiatives stress what the participatory processes should achieve and are written from the perspective of the supporting projects (see Box 3). It is difficult to judge how well these reflect the perspectives of the local people.

Although M&E by these multi-stakeholder platforms is mentioned in the reports, few or no details are given about what is actually monitored and evaluated and how this is done. One exception is the report by Kiema (2000) on monitoring the impact of local regulations for resource use established by management groups composed of settled and semi-settled pastoralists in northern Burkina Faso.

The participatory management of a territory or set of natural resources by two or more stakeholder groups is well described by Borrini-Feyerabend *et al* (2000). Here, the emphasis is on facilitating a platform for negotiating, defining and guaranteeing among themselves a fair way of sharing management functions, entitlements and responsibilities. Great importance is given to recognising differences between and among stakeholder groups in their values, interests and concerns. The three major phases of facilitating participatory management are preparation, negotiation and learning-by-doing. This third phase refers to implementing, monitoring, evaluating and reviewing the agreements made. Here, PM&E is inseparable from implementation in NRM.

### **Box 3: Reaching consensus through a multi-stakeholder platform for NRM**

The *Projet Sahel Burkinabé* (PSB-GTZ), a natural resource management project supported by GTZ in the Sahel region of northern Burkina Faso, facilitated a process leading from conflict to consensus in NRM. Through a series of workshops with people from all local user groups, the project stimulated the formation of fairly informal multi-stakeholder platforms (consultative committees) including also agropastoralists from nearby villages and transhumant pastoralists from further away. These workshops involved reflection on how the groups were interacting in using and managing the land and water resources. The project offered tools for situation analysis and self-evaluation as and when they were needed. PRA tools such as maps, historical matrices and Venn diagrams proved useful for visualising the changing condition of the natural resources, current management of vegetation and water, who is involved in the decision-making, and what could be improved.

The PSB staff found that it is not enough simply to use some “participatory tools”. Rather, the entire approach to land-use planning had to be shifted from drawing up fixed plans on paper to facilitating a process of building local institutions for negotiating modes of resource management, monitoring the effectiveness of the management and re-adjusting plans as the need arises. The regulations for resource use are meant to avoid conflicts between user groups and between these and the government administration. In the PM&E, the question of greatest concern to the participants is the extent to which the mutually agreed rules of behaviour are actually being followed. The monitoring of vegetation changes according to indicators identified by the resource users is meant to show the impact of following the rules. Part of the process of local institutional development is the participatory monitoring of how the multi-stakeholder platform is functioning in managing the resources.

**Sources:** *Soura et al (1998), Banzhaf et al (2000), Kiema (2000)*

In some industrialised countries, the realisation that the rangelands serve not only for grazing but also for recreation, tourism, mining, hunting, cultural activities and conserving biodiversity led to the building of coalitions of different land users in joint monitoring and management, such as the Landcare movement in Australia (Campbell 1994). Also in New Zealand, Bosch *et al* (1996) report on a decision-support system that integrates local monitoring by different user-groups as a basis for adaptive management of the grasslands. The process is regarded as a continuous large-scale ecological “experiment” that gradually expands the knowledge base available for deciding about land use. Here, PM&E is central to a multi-stakeholder information and learning system.

**Marketing.** An institution in which by far the majority of pastoral peoples are involved is the market. Information about market conditions, above all, the price ratio between cereals and livestock products, is particularly

important for pastoralists during periods of drought. It was therefore surprising that searches in the Internet and the more conventional literature yielded neither cases of participatory monitoring of markets for livestock and grain nor PM&E of marketing systems. Pastoral groups undoubtedly have informal means of gaining market information, often complaining that traders take an unfair share and pay them too little (e.g. Kerven 1992). However, no evidence was found of efforts to complement or strengthen these through participatory research in exploring market channels or in PM&E to improve pastoral information systems. Governments and formal marketing organisations maintain their own market monitoring systems, but little of this information seems to reach pastoralists.<sup>2</sup> Project plans often contain objectives of making market information more readily available, but the success stories are not reported. The reasons for this may warrant investigation, so that energies can be directed along more promising paths.

**Veterinary services.** Pastoralists are often interested in developing institutions in the realm of animal health care. Several pastoral development projects have tried to build up capacities of community-based animal health workers (CAHWs, “barefoot vets”, “paravets”) and to improve the supply of veterinary drugs. Many projects taking a participatory approach favour community-operated services, but participatory evaluation involving pastoralists in Somaliland revealed that channelling supplies through privately-operated enterprises (village general stores or small drug shops) better satisfied the needs of livestock-keepers to have veterinary supplies available when needed (ActionAid-Somaliland 1999). Community-operated shops have difficulties in recovering funds, especially in countries where the rate of inflation is high. Whereas an intervention project might like to measure levels of community participation in the activities it is supporting, the pastoralists may be more interested in measuring indicators such as reliability of drug supply and access to services.

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<sup>2</sup> This phenomenon is not restricted to developing countries. In a participatory research project in Australia, wool producers were surprised to find out that there are possible alternatives to the official auction system, and that they could obtain better prices through direct marketing to wool processors and could receive their money more quickly (Ison & Russell 2000).

In a review of experiences with CAHWs in Somali regions of Africa, Catley (1999a) found that, where government regulation was absent or weak, monitoring by the pastoralists proved more effective than external monitoring of the CAHWs. The pastoral communities who select and provide incentives for the CAHWs have a clear stake in the services, and therefore monitor CAHW behaviour and activities in their own way. News of ineffective treatment travels quickly. If CAHWs provide poor services, they soon become redundant.

Similarly, the GTZ-supported Central Rangeland Development Project (CRDP), which operated from 1982 to 1989 in Somalia, worked with Nomadic Animal Health Auxiliaries (NAHAs) selected together with Range and Livestock Associations in traditional Somali grazing reserves. An important task of the associations was to monitor the performance of their NAHAs (Baumann 1993). Having built up a close relationship with the nomadic herders, the CRDP was able to establish an “early warning system” for outbreaks of disease or other serious problems in animal health and production. “The NAHA system was the first structured primary animal health care system under African pastoral conditions which did not limit auxiliaries to giving vaccinations or operating veterinary drug dispensaries, but which focused on their usefulness in multi-linked, epidemiological disease surveillance” (Zessin *et al* 1993).

## **2.4 PM&E of intervention projects**

With increasing awareness among project planners that development is complex and unpredictable and that the same approach can lead to different outcomes in different settings, a stronger process orientation is being taken by some development projects. This requires a good system of obtaining and analysing information on experience in the course of implementation so that the project can recognise weaknesses, adapt methods, correct course and respond more quickly to unexpected events (Mosse *et al* 1998).

Also local needs within the community are changing over time. If NRM projects are to respond to these changes, participatory evaluative processes need to be set in motion to allow for ongoing learning-by-

doing and adjustment. The experience in New Zealand shows that local-level research and monitoring to improve NRM can also play an important role in informing policymaking at higher levels and thus creating a better policy environment for local-level resource management (Allen 1997).

Monitoring and evaluating an intervention project – especially one that claims to be operating in a participatory mode – is not simply a matter of looking at project activities. A close look must also be taken at the relationship between the project and its partners, including the “beneficiaries”. We did not find examples of pastoralists’ participation in monitoring the process of an intervention project. However, in a project in Uganda concerned with bufferzone management around a national park, a technique called the Ground Relationship Map is used to monitor changes in the relationship between park officials and local people and to find out reasons for these changes; this is intended to improve joint management of the park resources (Wild & Mutebi 1996).

Some cases are documented of pastoralists’ participation in evaluating the outcome and impact of intervention projects, e.g. by ActionAid in Somaliland (1995, 1999), Waters-Bayer *et al* (1998) in Eastern Sudan and ITDG East Africa (1999) in Kenya. The approaches taken in these participatory evaluations are described in some detail in these reports. In the Eastern Sudan case, the implementing agency (ACORD) commissioned a documentation and evaluation of the actual evaluation process (Pantuliano 1998) and an analysis of the participatory evaluation is included in Harnmeijer *et al* (1999).

Reckers (1997) looked into the relationship between pastoralists and projects in a part of Kenya where a UNDP-supported project was operating. She sought to find out how the local people perceived this and other projects. A typical dialogue was: Project staff: “Do you know where Project X comes from?” Local people: “We don’t know, but they must have plenty of money.” Staff: “Do you know why the project is here?” Locals: “No, but perhaps they think we have a problem” (Reckers 1995). She argues that PM&E of project structures and performance could help

the partners understand each other better, avoid unrealistic expectations and disappointments, and make project success more likely.

Misunderstandings regarding mandate and capacities of services and administrations are by no means restricted to developing countries. Sheep farmers in Australia who visited the Wool Marketing Board and the headquarters of the agricultural services for the first time experienced an “eye-opener”. Beforehand, the farmers had tended to complain about “them”, but were surprised to find that the people they met were open and reasonable – in Australian terms, “nice blokes” – and that there was more basis for communication and collaboration than they had first assumed (Ison & Russell 2000). Participatory evaluation of projects and services by producers, project staff and other partner organisations can contribute to a better mutual understanding of the perspectives of “them” and “us”, of “outsiders” and “insiders”. Moreover, it makes the project or service more transparent and more accountable.

There is scope for fruitful linkages between internal PM&E by a project and its local partners and external evaluation. An externally-facilitated participatory evaluation can precipitate or strengthen an internal PM&E system (e.g. Plastow & Pantuliano 2001). Moreover, once a system of PM&E is functioning properly, external evaluation can have the role of examining how well the system helps the project and its partners meet their objectives and what lapses in the PM&E system may have affected project achievements. External evaluators can highlight aspects either taken for granted or ignored by the PM&E system (Atampugre 1995).

When intervention projects strive for participation of the local people in project M&E, the question must be posed: who should and would want to participate in monitoring and evaluating what? Regular auditing of the project finances may not be an appropriate focus of PM&E. Financial relationships with a donor that wants a particular (and often complicated) format for financial monitoring may best be left to senior project staff, the accountant and the donor’s auditor. On the other hand, it could be argued that local resource users have a right to know the division of funds for different project components and the justification for this. This could be examined during periodic evaluations. In contrast, if a project is sup-

porting the establishment of a paravet service or a cooperative shop for livestock inputs, the financial monitoring should clearly be done jointly by local people and the project, as this activity helps to strengthen local capacities to continue the enterprise after project support has ended.

The question as to who should be involved in monitoring what can be worked out with current beneficiaries of a project. However, a wider participatory evaluation would have to consider also those who are not directly “targeted” by the project (see Section 3.3).

## **2.5 PM&E in participatory experimentation**

Most examples of PM&E in experimentation by pastoralists are in the realm of NRM as a large-scale experiment (e.g. Bosch *et al* 1996; Gentil & Marty 1979), trying out a new management technique or system of regulating access to resources and comparing the situation before and after the change. Examples of experimentation in collaboration with livestock-keeping crop farmers are more frequent, but the interests of the science partners usually dominate in the M&E. A good example of differences in monitoring interests between scientists and herders comes from India (see Box 4). The numerous guides and overviews that have been produced on farmer participatory research include sections on PM&E that would apply equally well to research in livestock-keeping (e.g. Ashby 1990, van Veldhuizen *et al* 1997, Warren 1998). A guide focused on participatory experimentation involving livestock-keepers has been produced by Conroy (2001).

The critical point in PM&E of participatory experiments is the design of the PM&E system. Answers to the following types of questions need to be negotiated between the livestock-keepers and the scientists:

- What is the objective of the experiment? What do we want to learn from it?
- What information do we need in order to be able to learn this?
- What key indicators will convey this information to us?
- How and when in the production cycle can these indicators be observed or measured, and by whom?



- Who will keep the records of which observations and measurements, and how will these records kept?
- Who will analyse which data, and how and when?
- How will the results be shared between us and with other interested parties?

#### **Box 4: Differences in monitoring interests between scientists and herders**

In a village in Gujarat State, herders identified the lack of a water trough near the communal grazing area as a constraint to milk production, arguing that they had to return to the village to water the animals. A research project that had been established to investigate possibilities to improve forage availability decided, after a project appraisal and a cost/benefit analysis, to support the locally proposed project, which cost about \$US 300. The agreement was that the project would pay for the building materials and the herders would provide labour and set up a management committee. The project staff pushed through a data-intensive monitoring system, which included measuring every two weeks the routes and distances covered by the herders, the daily activities of the animals (walking, grazing etc), milk offtake of 12 cows and 12 goat does and a monthly group meeting to monitor progress. The herders were not particularly interested in the monitoring data and the research team was slow in analysing the data. With time, the project recognised that the monitoring exercise was totally out of dimension and that the herders could well observe the impact without any formalised monitoring.

**Source:** Conroy & Rangnekar (1999)

As revealed by the Indian case, it is also critical to review the efficiency and value of the originally designed PM&E system and revise it accordingly.

In the reports on actual monitoring by livestock-keepers, the most common approach is a series of meetings to observe changes together, e.g. within groups of research farmers or through farmer-to-farmer monitoring visits. Participatory evaluation sessions at the end of a trial phase often take the form of field days, focus-group meetings or travelling seminars to the different trial sites (e.g. Mellis *et al* 1999; Defoer *et al* 1996).

Conroy (2001) reports that, among illiterate goat-keepers in India, monitoring forms based in symbols rather than words were tried, but the goat-keepers saw no need to quantify or record changes in their animals. They relied on their observations and recall. Because they

made these observations every day, whereas the formal researchers were often delayed in analysing the monitoring data that had been collected by field staff and entered into computers, the researchers were not always aware of important trends and could not make the most of joint evaluation meetings with the goat-keepers to investigate issues. The lesson derived from this experience was to encourage the field staff to do simple analyses using calculators and to convert the data into a visualised form.

The same indicators may be monitored for PM&E of natural resources and for PM&E in participatory experimentation, but the difference is in the time period and the objective of the monitoring. Environmental monitoring consists of observations over a long term to discern trends, e.g. in the condition of vegetation or water, whereas PM&E in participatory experimentation is limited in time (for the length of the experiment) and is focused on a specific objective related to the hypothesis of the experiment, e.g. to observe the influence of a treatment on a grazing area. In both types of monitoring, pastoralists are likely to give prime importance to indicators related to animals, herds and households, rather than to indicators related to the natural resources.

### 3. ASSESSMENT OF MAIN APPROACHES AND METHODS USED

Here we will start by referring to some tools that have proved useful in PM&E with pastoralists. However, much more important than the tools is the approach that gives the context for their application. Therefore, Section 3.2 describes some strengths of promising approaches to enhance participatory learning about process and impact in NRM. Section 3.3 draws attention to some of the major issues and dangers in applying participatory approaches in M&E and reveals the traps into which many attempts to introduce PM&E seem to have fallen.

#### 3.1 Some useful tools

Tools that have been applied in PM&E with pastoralists include various types of meetings and small workshops involving direct observation of phenomena in the field; comparing series of seasonal calendars or maps; before-and-after matrices; impact diagrams; and ranking methods, often using techniques of proportional piling. Many of these tools are similar to those used in PM&E of NRM programmes, such as in watershed management (Shah *et al* 1991). There have been mixed experiences with using Venn diagrams to explore socio-organisational change (e.g. Waters-Bayer *et al* 1998, Catley 1999b).

The tools that have reportedly proved to be most useful (or, at least, are most popular) in PM&E of natural resources are described briefly below.

- **Mapping.** Comparing maps made by resource users at different points in time allows monitoring of activities and assessment of environmental impact. The maps facilitate group assessment, as the coverage of different activities can be visualised and the information can be shared by all present. Good experience has been made with maps in PM&E of watershed management in India (Shah *et al* 1991) and fire management by animal-keepers in Guinea (Tachez 1995). One variation on this theme is the interpretation of aerial photographs, which the PSB in Burkina Faso found useful for identifying resources and areas for different types of use. Comparing maps

depicting past and present allowed analysis of change in resource use and access. This led into discussion of current problems and conflicts. In some cases, the aerial photographs were first interpreted separately by settled and transhumant pastoralists and then discussed jointly (Hermann Grell, pers. comm. 2002).

- **Impact diagrams.** A line drawing by resource users of the flow of effects of change can serve as a basis for periodic joint analysis. The drawing can take the form of a tree, showing effects identified by local people, such as availability of forage resources, quality of rangeland, incidence of disease, relative numbers of different animal species, sources and levels of income, or expenditures. Culturally appropriate signs or colours can be used to depict positive or negative trends in these effects. Impact diagrams can also take the form of a series of seasonal calendars depicting periods before and after the introduction of an innovation such as a dam, borehole, grazing reserve or improved pasture. Maps are useful for comparing ecological conditions and resource use over time. Calendars are more useful for showing changes in the seasonal distribution of activities or of resource availability. With Tuareg herders in Mali, ACORD used impact diagrams to bring out local perceptions of the effects of an irrigated area (Capezzuoli 1994).
- **Proportional piling.** With this very easy and quick tool, people can show their perceptions of relative proportions by placing local materials such as stones or beans in piles of different sizes. A facilitator then stimulates discussion around reasons for differences and, when done for different periods, reasons for changes in proportions over time. Pastoralists have worked with this tool, for example, in Somaliland and Uganda (Catley 1996, 1999b, 1999c), Mongolia (Cullis 1994) and Sudan (Waters-Bayer *et al* 1998).
- **Resource flow diagram.** This depicts the flow of nutrients and/or other inputs into a production unit or area and between components of it. Such diagrams have been used by ICLARM (International Center for Living Aquatic Resources Management) in experimenting with changes in resource-use systems. By drawing the diagrams,

the producers and scientists make a joint inventory of available resources. The producers then discuss and seek alternative ways of using the resources. Changes in resource use resulting from local experimentation are monitored over time in a series of diagrams. In Malawi, farmers drew bio-resource and cash flows before and after integrating fishponds into their farms. Comparison of the drawings allowed them and scientists to monitor change and supported producer decision-making in resource management (Lightfoot & Noble 1993). Similarly, farmers working with Defoer *et al* (1996) in Mali used their own drawings of resource flows (feed sources for animals, crop residue use, manure application to cropland etc) to plan and monitor their experiments.

- **Historical matrices** show the relative importance of different activities at different points in time over several years or even decades. These are useful for monitoring change and as a basis for discussing the causes and consequences of change, e.g. after a change in access rights to post-harvest grazing (Schoonmaker Freudenberger K & M 1994). Historical matrices were also used in Mongolia by Cooper & Gelezhamstin (1994) to help the people analyse changes in seasonal consumption patterns after economic liberation.
- **Oral testimony** is another means of comparing strategies, activities and conditions before and after development interventions in terms of local subjective experience. Inclusion of oral accounts in an evaluation report can introduce a wider dimension and draw attention to unexpected ways in which interventions have changed the lives of the local people (Slim & Thompson 1993). Perhaps the greatest impact of an oral-testimony approach to evaluation is that it changes how the development workers doing the interviews see the local people (Cross & Barker 1998). In addition to oral testimony in response to interviewers' questions, local poetry and song are traditional ways in which changes can be expressed. An analysis of clan poetry in pastoral Somalia was used to trace trends in conflicts (Rirash 1993, cited in Hussein 1998). However, this covered a period of several decades; the same tool may not be so effective in monitoring changes over the short periods of most pastoral projects.

- **Participatory video.** Within a DFID-funded project on “Impacts of Privatisation on Range and Livestock Management in Semi-Arid Central Asia”, the Turkmenistan Participatory Video Project worked with men, women and children to let them express their views. The video catalysed community action and the community used it for policy lobbying. A follow-up project uses participatory video to document livestock-keepers’ perspectives on the changes they are experiencing and the impacts these changes are having on their patterns of resource use. This form of monitoring is meant to open up communication channels between scientists, herders and policymakers (Lunch *et al* 2000). Similarly, Maasai pastoralists in northern Tanzania, with the support of the Forest, Trees and People Programme (FTPP) and the International Institute for Environment and Development (IIED), used video to express local perspectives on natural resource management, specifically to make known the Maasai’s evaluation of the planning process for the Ngorongoro Conservation Area (Taylor & Johansson 1996).

With respect to PM&E of local institutions of NRM, many of the same tools applied in other processes of local organisational development are applicable equally well among pastoralists. For example, the local management committees among the Beja in Eastern Sudan used depictions of waxing and waning moons to assess their functioning and consider how to improve this (Waters-Bayer *et al* 1998). The “moons exercise” had been adapted from the community self-assessment technique described by Uphoff (1991).

Another tool for PM&E of local institutions and of intervention projects is the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, the use of which is documented among pastoralists in southern Sudan (Catley 1999c), as well as in Eastern Sudan (Waters-Bayer *et al* 1998), Somaliland (Catley 1999b) and Morocco (Acherkouk *et al* 1995). It proved to be an effective way of structuring self-evaluation discussions.

Records in PM&E by pastoralists – whether in NRM, local institutional development, intervention projects or participatory experiments – are most commonly kept in pictorial form, often using visualisation tools

such as maps or flow diagrams. Among the Gabra and Turkana pastoralists in Kenya, ITDG East Africa (1999) developed a system for monitoring project activities based on records kept by local monitors among the pastoralists. To record changes toward better or worse conditions, the herders used colour codes with cultural significance for good or bad, or drew numbers of legs on an animal to denote relative well-being and flexibility of movement.

The extent to which written records are kept depends on levels of literacy and on the degree of trust that pastoralists are prepared to put in literate people. ACORD reported that monitoring notebooks were kept by members of local management committees, e.g. for herd reconstruction, and that the community demanded a shift from visual to written records for assessment and planning (Capezuolli 1994). In contrast, working with the Beja in Eastern Sudan, Plastow and Pantuliano (2001) noted problems when only one adult in the community (the teacher) is literate, and found that the use of symbols led to greater community understanding and control of what was happening. (This was a case of monitoring purchases and sales in a cooperative shop.) It is clear that any recording system must be assessed by the participants and changed if necessary.

Good experience has been made in using village logbooks and charts in the local language in community-based M&E in NRM in Kenya and Madagascar (Ford *et al* 1998), but this was in farming villages where there was some level of literacy. SARDEP, the GTZ-supported project in communal areas of Namibia, encourages livestock-keepers to keep files with minutes of meetings, including an attendance list and a short protocol of what was discussed and decided. These protocols are used to check which decisions were followed by actions (Fitter *et al* 2001).

As PM&E in NRM is meant to be a tool of communication between partners with the aim of stimulating improvement in managing the resources, an important component of the process is the presentation of results and scrutiny by a wider audience of people who can take action. Results can be presented in drawings, maps, graphs, charts, photographs, posters, audio-tapes, drama, poetry, songs and reports.

Video films, such as those produced in Turkmenistan (Lunch *et al* 2000), have been used in stimulating discussion and action at local level, as well as to convey local assessments to policymakers at higher levels. However, the funds, equipment and skills needed to present PM&E results in this way are not reported.

### 3.2 Opportunities for enhancing participatory learning

The approaches to PM&E introduced by projects and other outside agencies<sup>3</sup> come from two directions:

1. **Starting with scientific concepts** the outside agency brings in its own concept of M&E, proposed indicators, modes of measurement (almost exclusively quantitative) and forms of recording and reporting, and adapts these in interaction with local people. This approach is most commonly taken by environmental research projects that wish to bring in local perspectives, and by development projects that wish to help local people understand and use more scientific methods for assessing the environment. The joint testing of the externally conceived system and reflection on the process and outcome leads to adaptation, usually simplification, of the scientific methods.
2. **Starting with the local people's informal practices of M&E**, including their indicators of change, trying to understand/validate these practices and indicators, and seeking ways to combine local capacities and external capacities for M&E. This approach is more commonly taken by NGOs that are pursuing aims going far beyond environmental monitoring. They seek to strengthen self-help capacities and improve the local basis for decision-making, often in ways that include otherwise marginalised or overlooked groups.

The second approach was taken, for example, by ACORD in Mali in monitoring progress in regenerating the riverine grass *bourgou* (*Echinochloa stagnina*). Both men and women pastoralists were

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<sup>3</sup> We found no examples in which pastoralists took the initiative and sought external collaboration to develop PM&E approaches to improve their own informal M&E practices.



included in the process of identifying indicators. The men's main indicator was the amount of milk available to drink, whereas the women stated that they would judge the success of the activity according to the amount of '*kundou*' (a sweet drink made from the grass) that their children could drink. They could make *kundou* only when there was enough *bourgou* to satisfy the animals' needs. This was a single and simple indicator that both the pastoralists and the project staff could use to monitor the project (Roche 1991).

This approach starts with dialogue rather than preconceived M&E systems and lists of possible indicators. The few promising cases of PM&E with pastoralists indicate some of the entry points or strengths that can be built upon to engage in mutual learning about process and impact in NRM. Some lessons can be drawn from these cases.

**Indigenous M&E.** In comparison with other natural resource users, mobile pastoralists probably have a stronger indigenous system of assessing environmental conditions, to be able to judge when and where to move with their herds. Indicators may include low water tables in wells, low forage supply, declining productivity of animals (e.g. unusually low milk yield for the season). Much more attention needs to be given to understanding existing systems of monitoring and information exchange by pastoralists and how these can be strengthened through PM&E.

If a project deals with issues important to pastoralists, they will make their own informal evaluation, individually and during discussions among themselves, whether or not they are formally involved in the project's M&E system. Many of the tools of visualisation, such as mapping, diagramming, matrices, drawings and proportional piling, help stimulate and structure discussions between project staff and pastoralists about local concepts and indicators implicitly used in their informal evaluation. The visual tools also help in documenting the discussions. Starting up such semi-structured discussions and documenting the outcome will initially be the role of project staff, at the same time as they encourage pastoral organisations to develop appropriate ways to keep track of their own progress.

With respect to environmental monitoring, identification of local indicators can serve as a starting point to encourage pastoralists to set up their own, independent, more systematic monitoring system. It is likely that, in most cases, they will be satisfied with their informal M&E and will not, at least initially, see any need for more systematisation or for written or pictorial recording. In such cases, building a project-managed M&E system on local indicators can lead to a more participatory system if the results of the project's monitoring are periodically fed back to the pastoralists in an understandable form. They can then discuss their interpretation and that of the project and come to their own judgement whether they would benefit from more systematic PM&E.

**Iterative participatory evaluations for monitoring.** Instead of recording data at regular intervals, e.g. every week or month, short but concentrated participatory evaluations (PEs) – perhaps once every year or two – can serve the purpose of relatively low-input participatory monitoring and continual adjustment of plans. Either one large workshop can be organised involving all project partners, or a series of meetings with focus groups can be followed by a larger meeting of representatives of pastoral groups and other organisations and persons involved in the project. Change between evaluations can be assessed using visualisation techniques such as matrices or proportional piling for the previous and the current situation (e.g. ActionAid-Somaliland 1999).

The local resource users and local project staff will be the best judges of the appropriate approach to take in iterative PEs for the purpose of joint monitoring. Repeated PRA exercises imposed by projects are likely to encounter a reaction such as that of the villagers in India, who were so disappointed that the recommendations from a prior PRA evaluation workshop had not been acted upon that they scorned any suggestion of "playing games" again with a team wanting to apply PRA methods in a follow-up evaluation (Devavarum 1994). There should be an agreement among all partners that the repetition of drawing resource maps, Venn diagrams etc is to be able to compare the present with the previous situation. For this purpose, it is important that the results of each PRA exercise be documented in ways that are accessible for all participants.

### **Focused monitoring of short trials as entry to longer-term PM&E.**

The review revealed that livestock-keepers were willing and sometimes even eager to monitor more regularly if they were involved in trials they had planned and were implementing themselves, either on their own account or on behalf of a group of interested peers. Livestock-keepers in Mali who carried out and monitored experiments on the basis of resource-flow maps found that this way of keeping records motivated them to implement a new idea, such as building a fodder storage facility (Defoer *et al* 1996). Most people associate M&E with negative connotations of external control. It is conceivable that, if livestock-keepers and project staff experience benefits of joint monitoring in short-term participatory research, they will be more willing to engage in longer-term PM&E of environmental or livestock condition. This is a hypothesis that would have to be tested.

### **Time-limited PM&E as a contribution to mutual understanding.**

Having come across so few examples of PM&E with pastoralists, it is not at all surprising that we discovered no examples of assessment of the longer-term impact of engaging pastoralists and project staff in PM&E. This would become evident in, among other things, the degree to which the pastoralists' decision-making processes have been improved, the degree to which the perspectives of others are being considered by different stakeholder groups in their own decision-making, or the degree to which local-level PM&E is contributing to M&E on higher levels. It may not necessarily be reflected in a continuation of the PM&E system as was originally set up with the facilitation of an intervention project. The time-limited experience with more structured PM&E, during training sessions and during a project phase, can contribute to changing the attitudes of the participants and increasing their capacities to listen and communicate with other actors, even if this is not within a discernible PM&E system.

## **3.3 Issues, dangers and traps**

One would expect that pastoralists, NGOs and government agencies in developing countries would share a common interest in monitoring data on the natural environment at least to provide early-warning systems

and better long-term prediction of drought. Why is it then so difficult to find well-documented examples of environmental PM&E with pastoralists? We can only speculate on the reasons:

- In many developing countries, pastoral peoples are politically marginalised or poorly understood by policymakers. This can reinforce a tendency among pastoralists to keep their information to themselves and not share it with others, especially not with persons whom they associate with government authorities.
- Livestock and range management can be strongly affected by localised events, including not only drought but also fire, floods, epidemics and – in some mountainous areas – unexpected snow and frost. With the exception of droughts and possibly epidemics, these hazards have a very short warning period, require quick response and cannot be substantially reduced or avoided through systematic monitoring.
- Many pastoralists live in remote areas, where communication with other groups is often difficult and sporadic and modern communication technologies are not available. They had to develop their own forms of environmental monitoring and, even if they would be willing to share their information, they have few opportunities to do so.
- Some pastoral groups pursue potentially lucrative activities, such as trade or smuggling, which they may not like to be transparent for others. PM&E systems ideally make data available for both the local participants and the outside agencies involved, but pastoralists may not find this to be ideal for them.
- The types of PM&E systems being promoted by outside agencies are too demanding in terms of time and yield too few data regarded as useful by pastoralists.
- Because they have numerous tasks in the field and office that make immediate demand on their time and because the PM&E process in itself can be both exciting and exhausting, project staff members who are heavily engaged in PM&E may give low priority to documenting their experience.

Another reason why there are so few documents on the actual functioning of PM&E systems may be that many do not function well. Where the process of developing and improving the PM&E system is well documented (e.g. Plastow & Pantuliano 2001), many of the initial weaknesses became apparent and appropriate adaptations could be made.

Intervention projects wanting to introduce PM&E systems are often unaware of some of the difficult issues and dangers involved and fall into typical traps. Some are highlighted here:

**Ignoring basic questions.** It appears that most of the “participatory” M&E systems are driven by the information needs of external agencies. The most basic questions in M&E are often not answered: Why is monitoring needed? What should be monitored? By whom? Who wants the information? How will they get it and use it? The more mobile the livestock-keepers, the more important becomes the question: What is so important to the livestock-keepers that they would be prepared to engage in local processes of change that requires PM&E in order to be successful?

Posing such questions helps to make clear who can and should be doing the M&E and if it can really be participatory. If a project wants to know how many trees were planted but the pastoralists are not interested in this information and will not be using it, why should they be involved in the monitoring? Much of the information being requested by project staff or funding bodies or government agencies is of interest primarily or solely to them, and there is little reason for pastoralists to do the work of providing this information, unless they can expect other types of benefit from doing so (e.g. free veterinary care or better access to external inputs, at least for as long as the project works in their area).

Especially in these times, as international treaties and conventions related to biodiversity, climate change or combating desertification become increasingly important in development cooperation, there may be interest in PM&E to measure the impacts. However, it is unlikely that pastoralists are going to be concerned with how their pasture management affects, e.g., the carbon cycle of the planet, as long as there are no

visible and tangible benefits for them. International conventions are too abstract to interest pastoralists in PM&E for this sake.

**Possible biases.** Some of the difficult aspects of involving pastoralists in environmental monitoring are revealed by experiences with drought monitoring in Australia. Here, it was in the interest of the pastoralists to have their area declared as drought-stricken, so that they would gain access to significant funding from the federal government (White & Karssies 1999). In such cases, it is most obvious that the results of local participation in monitoring may be somewhat biased. Also in other parts of the world, biases based on personal or local (also ethnic) interests are likely to occur. If PM&E is meant to improve environmental management, these biases must be openly addressed.

Biases can also be brought in by the participatory approach itself. In the case of participatory evaluation of an intervention project, who among the local people should be participating? Project activities can have impacts on both “targeted” and “non-targeted” groups in the project area. Involving project staff and project beneficiaries in an evaluation which they co-design and co-implement may make it more difficult to discover the views of non-beneficiaries than if external persons consulted different local people in a more conventional evaluation (Harnmeijer *et al* 1999).

**Difficulties in choice and interpretation of indicators.** Judging primarily from experiences in participatory monitoring of NRM projects concerned with cropping, forestry and/or water, considerable difficulties are encountered with the selection of indicators. Monitoring needs to be done on different levels and with different partners, who will have their own perceptions of reality according to their own worldviews. Indicators need to be clear and appropriate for the people involved at any given level. Even within a stakeholder group, such as mobile pastoralists, perceptions may differ depending on gender, age or social rank.

For each situation, participants have to identify and agree on indicators; prepared checklists can merely serve to give some ideas of how certain changes could be measured. If agreement is to be reached on the

meaning of the indicators, then these have to be understood and accepted by the different groups involved. If community action is to be stimulated by observation and interpretation of the indicators, then these need to communicate something to the community. Range scientists may feel that complex biodiversity indicators or an index combining several indicators is more accurate in measuring change. However, observation of trends in the abundance of a single plant known locally as an indicator species may be of more value in communicating with the resource users and in stimulating change in behaviour and resource management.

**Indicator overload.** There are repeated reports of elaborate attempts to set up PM&E systems for NRM, with particular emphasis on drawing up long lists of indicators, only to discover at the stages of collecting and analysing the data that the system suffers from indicator overload. The warning is repeatedly given that the partners in PM&E should choose and test only a small number of indicators that give them the essential information and can be interpreted locally and quickly. Moreover, because the usefulness of indicators may change over time, there must be room to review and adapt them (Conroy & Rangnekar 1999, MDP 1998, Guijt 1998).

**Power plays.** Projects promoting participatory approaches must remain constantly aware that reconciling interests of multiple stakeholders is a highly political process. When discussing indicators for sustainability at different levels from global to local, MacGillivray and Zadek (1995) note that “Community-level indicators are in almost all cases marginalised by key international and national institutions because they are considered technologically inadequate or cannot be “scaled up” to fit the focus or way of working of decision-makers. This is not merely a question of which indicators are best for describing a particular process or set of events. It is more a matter of who is empowered or disempowered in the process of selection, development and application”. This same principle applies in choice of indicators in negotiations at the interface between project and community or between scientists and community or between different categories of resource users (settled farmers versus mobile pastoralists, men versus women, old versus young etc).

**Preoccupation with indicators.** The importance given by projects to measuring environmental change through PM&E seems to have led to a preoccupation with indicators. A better and more differentiated picture of pastoral livelihoods could be reflected in a PM&E system that is not a slave to fixed sets of indicators and takes a more open approach. One possibility would be to hold a series of reflection sessions on the key things that have changed since the previous session (Abbot & Guijt 1998), relying primarily on verbal presentations and accepting new types of change that had not be contemplated when collaboration began. This approach is likely to suit communities with a strong oral tradition, as pastoral communities in developing countries generally are. It can bring different values to a wider debate if the traditional power relations can be made less rigid through appropriate facilitation techniques, such as small groups discussing and reporting to the larger group.

**Costs and benefits.** Developing a PM&E system requires much time and funds (see “Acknowledging the cost of participatory monitoring” in Abbot & Guijt 1998, p73). When considering costs and benefits of PM&E at project level, it must also be taken into account that PM&E can contribute to capacity building. However, it must still be assessed whether the substantial funds that need to be invested in developing a PM&E system bring the expected benefits in terms of capacity building.

**Project-internal resistance.** Some difficulties in realising PM&E can doubtless be attributed to resistance among personnel of intervention projects, probably more among administrative than field staff. PM&E makes administration more complicated and, as all participatory processes have something to do with the sharing of power, people who are involved in power games within their own organisations are not likely to welcome an approach that deprives them of some of their power. Truly participatory approaches also make public relations to the outside world more difficult and can affect the “corporate identity” of a project. It is therefore not surprising that some people in development circles hope that participatory approaches will go “out of fashion”. A hesitant behaviour with respect to power-sharing in participatory planning, monitoring and evaluation is also not unknown among government officials.



Not only the project and the other intervening agencies but also the local people need to assess the costs and benefits of the time and energy, including emotional transaction costs, that they put into the PM&E process and what it brings them. The results of all partners' informal assessment of the PM&E process will be reflected in their willingness to continue. It can be constructive to make the costs and benefits explicit. In so doing, partners may realise that, for example, the interaction in PM&E allowed the participants to become better acquainted with each other's perspectives. Or the space for negotiation offered by the PM&E process helped to reduce tensions or conflicts between pastoralists and other groups of resource users. Or it may have intensified conflicts, in which case it will become obvious that something must be changed in the process.

#### **4. CREATING FAVOURABLE FRAMEWORK CONDITIONS FOR PM&E WITH PASTORALISTS**

During the session on “International Perspectives on Rangelands” at the VI<sup>th</sup> International Rangeland Congress in 1999, major donors such as the World Bank, the Global Environmental Facility, IFAD, USAID and the GTZ presented their views on range development (Bayer & Sloane 2002). The unanimous opinion was that range development needs to be decentralised and that there is a strong move towards participatory approaches and local empowerment. As already shown in this review, this trend does not seem to extend to PM&E, yet this is an integral part of successful participatory development.

Preconditions for successful PM&E strongly overlap with those for participatory development. States and – in the case of bilateral or multilateral projects – donors need to be committed to decentralisation and prepared to relinquish power to allow decision-making at the local level. This does not mean that higher levels of decision-making are superfluous, but the principle of subsidiarity must prevail: only that which cannot be managed on a lower level should be taken on by a higher level. As an example: the day-to-day management of grazing resources can best be done on a local level by the resource users, but a legal framework to provide more security for their use needs to be established on a higher level (district, provincial or national). Similarly, a shop for veterinary drugs can very well be managed by an individual or group at the level of a pastoral community, whereas declaring quarantine measures and enforcing them will be beyond the power of a local group of pastoralists, and state authorities will have to meet their responsibilities (de Haan 1999).

In any case, participatory development should be approached as a process. It can and should start even if framework conditions are sub-optimal. During an iterative process of development, the framework conditions can gradually be improved (or they may improve in leaps and bounds if, for example, a new law is passed that regulates rights to natural resources in a better way). This process approach with a view to improving framework conditions is taken by pastoral development pro-

grammes with a strong component of institutional development, such as SARDEP in Namibia (Fitter *et al* 2001). Some form of PM&E, as a mechanism for mutual learning and improved management, is key to an iterative process of development. In other words, although framework conditions may not be ideal for applying PM&E in an equitable way, including all relevant groups, the very process of PM&E should create awareness of weaknesses and constraints in the framework conditions and increase capacities to address them.

All partners in such a process need to develop capacities to do PM&E. This is equally true for local communities, government administrations and development projects. Training courses can help to build up the necessary skills, but cannot replace the “learning-by-doing” process.

In their review of participatory evaluation in non-governmental and international projects, Martin and Quinney (1995) found that there were weak institutional capacities in NGOs and projects to embark on participatory evaluation. It is likely that merely more courses on participatory methods will be of little use unless the institutions involved allow or even encourage their staff to apply the participatory methods in their day-to-day work. Some form of post-course on-the-job coaching also helps. As an increasing number of projects gain experience with participatory situation analysis and project planning with pastoralists, the skills will gradually be developed that can lead into more participatory forms of M&E.

To be able to be partners in PM&E, communities need to have appropriate organs that can express their interests, such as a village assembly, a village development committee, or some other kind of platform of social actors for negotiating pasture use and resolving conflicts between individuals or groups. As with organisational development in general, PM&E activities should be carried out by existing institutions, rather than groupings created artificially for the purpose. In many cases, it may be necessary to invest time in strengthening local organisational skills, before a well-functioning PM&E system will be possible. However, encouraging local groups to work out their own ways of monitoring one or two small activities important to them

can, in itself, contribute to strengthening local organisational capacity. Groups with such initial experience will be better able to assume co-ownership of more challenging forms of monitoring, such as of environmental change (Catley 1999b, Plastow & Pantuliano 2001, ActionAid-Somaliland 1999).

Within donor and implementing agencies, there is a need for institutional support to PM&E from higher levels of management. The interest shown by the head office in documenting participatory methods provides a positive learning environment. Through evaluation of their own experiences with PM&E, the ACORD-supported Red Sea Hills Programme in Eastern Sudan has been able to learn about new participatory approaches and tools and to adapt them to local conditions and available skills (Pantuliano 1998; Plastow & Pantuliano 2001). Higher-level institutional support includes allowing the projects or local offices the flexibility to adjust their activities depending on what emerges out of the process of PM&E. This requires a fairly open approach to project planning.

If a project is committed to a participatory and process-oriented approach, then a staff member of relatively high seniority should be in charge of M&E, for this is the key element in such an approach. The tasks of this person – possibly with support staff – would include not only monitoring the activities planned together with the pastoralists and stimulating self-monitoring by the pastoralists, but also monitoring the interactions within the project team and between its members and the pastoralists. In other words, project self-criticism of the participatory planning process should be built into the activities and staffing of the project. At the same time, the person responsible for M&E should have an "ear on the ground" to ensure that the pastoralists' assessment of project activities and of interactions with project staff is given strong attention during day-to-day project work. As more responsibilities for project-supported activities are taken over by the pastoralists themselves, organising the monitoring process and documenting the outcomes should become increasingly the task of the pastoralists.

## 5. CONCLUSIONS

Over two years of seeking documentation, tapping into a wide net of personal contacts, going through literature databases and searching in the Internet yielded numerous “grey” reports on PM&E training, several guidebooks and some cases of facilitating multi-stakeholder platforms for NRM and resolving local conflicts. We found, however, few examples of implementation of systematic PM&E together with pastoralists or other livestock-keepers. Given the strong verbal commitment to participatory development by virtually all major donors and by many governments in developing countries, this was somewhat of a surprise.

The most likely reasons for this lack of documentation are:

- ***Under-reporting:*** PM&E is indeed being practised, but the staff of neither the development agencies nor the other partner organisations has the time to report on and analyse the experience for a wider audience, or the PM&E takes a form that is so loosely structured that it is difficult to describe;
- ***Rarity of implementation,*** possibly because 1) pastoralists in remote areas have to or prefer to manage their affairs themselves and are reluctant to share their information; 2) development agency staff and government officials are not willing to relinquish control; and/or 3) projects, administrations, pastoral groups and other local institutions do not yet have the capacities and motivation to carry out PM&E.

The literature on PM&E and the reports on attempts to develop PM&E systems in NRM in a more general sense point to some important prerequisites. The issues to be monitored need to be of real interest to the partners involved. Indicators need to be simple and capable of communicating something to the people who will be acting upon the results. The recording needs to be in a form that partners can manage. Here it must be remembered that pastoral communities in developing countries have a strong oral tradition, low levels of literacy and little access to information and communication technology, with the exception of the radio.

Only rare cases in the documentation (e.g. ActionAid-Somaliland 1999, Catley 1999c, Kiema 2000, Marty 1985, Plastow & Pantuliano 2001) give the impression that the pastoralists find the PM&E process sufficiently beneficial for themselves that they might continue the system with local stakeholder groups, including local services, without external support. The notable exceptions are quite simple PM&E systems with low intensity of data collection, using methods of recording and analysis that depend more on memory and discussion than on written records.

Many of the more data-intensive forms of PM&E are not accepted by extensive livestock-keepers as a useful way to spend their time. This applies to pastoralists in Australia just as much as to those in Africa. People who live in sparsely populated areas, as drylands tend to be, appreciate the opportunity to discuss with peers. Periodic meetings, during which environmental or socio-economic (e.g. market, organisational, conflict) conditions or project processes and outputs can be discussed in a semi-structured way seem to be preferable to data-intensive monitoring, e.g. on a daily, weekly or monthly basis. At such meetings, various visualisation techniques can be useful, particularly before-and-after matrices, maps, proportional piling, flow and impact diagrams and SWOT charts. The repeated use of such tools in successive workshops at intervals of several months or a year can form an element of PM&E. Thus, instead of monitoring and recording frequently and continuously, repeated evaluation workshops could be used to monitor progress.

Indigenous or grassroots indicators, particularly with respect to NRM, could be a good entry point into PM&E. However, where scientists have studied these, it has been primarily in an extractive way rather than as a first step towards integrating the grassroots indicators during joint development of a PM&E system. Few efforts appear to have been made to encourage local development agents to identify indigenous indicators themselves, although these are the local actors who are most likely to continue a PM&E system with pastoralists.

PM&E is an integral part of local capacity building and institutional development. It can create a feeling of ownership among all participants in a project or activity. Locally acceptable forms of PM&E can help local people manage their own affairs better and increase the likelihood that

project-supported activities will continue after the project ends. Some of the strengths, weaknesses, opportunities and threats of PM&E are summarised in Table 1. This assessment was made by local staff of a project working with pastoralists in southern Sudan in semi-structured PM&E based mainly on the use of PRA tools and group discussions.

**Table 1: SWOT analysis of PM&E in a pastoral area**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Use of local indicators well understood by community members</li> <li>• Easy to use by the community</li> <li>• Encourages frank, open discussion</li> <li>• More open-ended than other methods; interesting leads can be followed up</li> <li>• Time-efficient</li> <li>• Fun and dynamic</li> <li>• Diversity of opinions become apparent</li> <li>• Decisions for action can arise from consensus of opinion</li> <li>• Immediate feedback to wider community</li> <li>• Increases local ownership of information</li> <li>• Methods are flexible; can be adapted according to local experience and conditions</li> <li>• Information easy to collate</li> <li>• Many tools available</li> <li>• Less chance of interviewer bias compared with formal surveys</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Needs careful preparation</li> <li>• Needs good group management skills</li> <li>• Group pressure can suppress divergent opinions</li> <li>• Results can be influenced by local expectations of outside assistance</li> <li>• Courtesy bias: people respond politely rather than frankly</li> <li>• Produces less numerical data than other methods; technicians and donors like to see quantitative data</li> <li>• Results need to be presented with care so that readers not familiar with participatory methods do not misinterpret the results</li> <li>• The composition of the discussion groups can be biased, and people who have much work may be unable to attend</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Development of monitoring and impact assessment systems that local people can sustain after project</li> <li>• Increases participation of community as a whole</li> <li>• Can be used as management tool</li> <li>• Training in these methods can change attitudes</li> <li>• Methods can be incorporated into routine activities</li> <li>• Methods useful for visioning and assisting local bodies to plan ahead</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Too much other work – PM&amp;E must be made a priority</li> <li>• Insecurity</li> <li>• Natural disasters</li> <li>• Operational constraints, e.g. logistical</li> <li>• Varying capacities of local development committees; some may not yet be ready to use PM&amp;E</li> <li>• Scepticism among officials about using participatory methods</li> <li>• Reluctance of officials to hand over ownership of information and decision-making to local people</li> </ul>

**Source:** *Catley (1999c), adapted*

There are, however, a number of traps into which a project trying to pursue PM&E can fall. The most basic one is ignoring the questions: Why monitor? Who needs and will use what information? Participatory approaches to information generation and interpretation can lead to biases, especially where pastoralists are involved who do not have a relationship of trust with outsiders or who see the exercise as an opportunity to seize advantages. This can be the case, for example, in drought monitoring, when declaration of a state of drought can bring financial assistance to livestock-keepers. There is also the danger of indicator overload, which wastes the time of participants and gives M&E a sour taste. Finally, many intervention projects are, at least initially, not aware of the extent to which PM&E of environmental trends, organisational development or project-supported activities can become part of a power play between different groups of resource users or between different levels of government.

Exactly in such situations, PM&E can be used deliberately as a means of shifting power relations in the sense of giving voice to previously marginalised or ignored user groups such as women or nomads. This is possible in the framework of multi-stakeholder platforms that function as monitoring mechanisms for better management of common resources. Negotiation is needed so that different interest groups can reach an agreement on what to observe and measure, and what is possible within their capacities and means. This negotiation process must continue through joint assessment of the very PM&E system the platform has put in place, examining whether the concerns of all stakeholder groups have been included. Thus, platform building becomes a continuous process fed by self-evaluation.

It is clear that not all aspects of development can be and should be monitored in a participatory way. PM&E is applicable only with respect to those issues that are important enough to the participants that they are willing to invest their time and other inputs in the implementation. Pastoralists and other resource users will participate in M&E only if they see clear benefits. If scientists wish to monitor certain parameters that are not of interest to the livestock-keepers, or not to the exactitude that scientists want, there is no alternative but to hire enumerators or provide



other forms of incentive (e.g. free veterinary care) to persuade livestock-keepers to make the measurements and keep the records.

Similarly, reference plots for calibration of satellite imagery, which can be useful tools for monitoring the state of rangelands on a large scale, should be left to the staff of project staff and government agencies. Some forms of M&E may be very useful to pastoralists even if they cannot participate in collecting the data. For example, a drought early-warning system operating on a large scale can help pastoralists in managing their livelihoods, provided the information reaches them in time and in an understandable form. What can be monitored and evaluated jointly with the pastoralists is whether and how they have access to the information and whether it helps them in their own decision-making about using the resources.

The results of PM&E must be followed by action. An intervention project needs to be able to respond positively to the findings, even if this means that it has to change direction and become a water and health programme instead of a pasture improvement programme.

The low population density in pastoral areas, their remoteness and their poor infrastructure in terms of roads and telecommunications can make the costs of PM&E very high, even if indicators and records are limited to the most essential. These costs must be justified in terms of the contribution that the PM&E process makes to building capacities for managing natural, including human, resources. Capacity building for PM&E is necessary not only at the level of local beneficiaries, but also among the other partners in the development process. Development agencies that are truly committed to pastoral development must be prepared to invest the necessary time and money in participatory approaches within the framework of process-oriented projects and programmes. PM&E can then be a very useful means of enhancing joint learning by pastoralists and other development planners about sustainable use of the rangelands and improving pastoral livelihoods.

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