

**Monitoring and evaluation (M&E) is an essential component of any successful management activity. Managers need the information generated to improve their management, and donors and stakeholders need results to ensure accountability. This sheet provides an introduction to the topic.**

The principle reasons for developing an M&E programme are to (1) Assess the status of the key values (biodiversity and socio-economic aspects) of the MPA; and (2) Determine whether management is having its intended impact and is effective (see sheet G9). Because M&E terminology, methods and approaches can be confusing, thus it is useful to distinguish the following terms:

**Monitoring** - A continuous systematic process of collecting and analyzing information, through the use of indicators. Ecosystem and biodiversity health (see sheet H5) and the well-being of local communities dependent on the MPA should be monitored, as well as the management process.

**Evaluation or Assessment** - A one-off activity (preferably repeated regularly e.g. every 2-3 years) that assesses how well the objectives of the MPA are being met. Individual projects may be evaluated, or the management effectiveness of the MPA as a whole may be assessed. The word 'assessment' also means a survey to establish a situation at any one point in time; for example, baseline assessments (see sheet C1) are essential when an MPA is first established.

Most MPAs in the WIO have monitoring activities underway, including the following:

- Review of management plans (see sheet C3);
- Regular tracking of implementation through planning and reporting schedules (see sheet C5);
- Long-term monitoring of environmental and socio-economic parameters (see sheets G3, G4, H2, H3, H4, G5, G6, G7);
- Assessing management success (see sheet G9);
- Evaluations and reviews of donor-funded projects (see sheet G10).

Unfortunately, few MPAs have integrated M&E programmes, and many invest time and resources in collecting data that are never used. Monitoring of single environmental variables (e.g. coral reef health) or tracking of implementation through mechanisms such as annual reports, financial accounting and project reviews, are important but cannot alone show whether the MPA objectives are being met. For this, a more analytical and integrated approach is needed, incorporating the data from all monitoring components.

## DESIGNING M&E PROGRAMMES

The first step is to decide on the scope, recognising that all the activities described above may be necessary, but that the resources and capacity of the MPA for M&E are likely to be limited. Specific M&E requirements (e.g. for donor-

funded projects) will be priorities. Beyond these, a careful balance is needed between investing resources in management activities and in assessing their impact. Second, appropriate indicators (i.e. units of information that when measured over time will document change) must be selected, as it is not possible to monitor every species or process. A baseline assessment of ecological and socio-economic characteristics and of the threats is thus essential. In many cases, unrealistic indicators are selected, that are too difficult to measure regularly with available skills and capacity, or that are found later not to measure impact or success.



## SELECTING INDICATORS

Selection must be based on:

- First, a careful analysis of the objectives and the types of changes wanted, as well as how progress might be measured.
- Second, an analysis of available human, technical and financial resources.

A good indicator should closely track the objective that it is intended to measure. For example, abundance and diversity of coral species would be good indicators if the objective is to maintain healthy coral reefs. Selection should also be based on an understanding of threats. For example, if El Niño events are a potential threat, indicators should include sea surface temperature and coral bleaching. Two types of indicator are necessary: 'impact indicators' which measure changes in the system (e.g. coral abundance as a measure of coral health), and 'process indicators' which measure the degree to which activities are being implemented (e.g. number of patrols undertaken).

Note that it may be difficult to attribute a change, or effect, to one particular cause. For example, an increase in nesting turtles could be due to good management of the beach or to a decline in harvesting of turtles outside the MPA.

A good indicator should be precise and unambiguous so that different people can measure it and get similarly reliable results. Each indicator should concern just one type of data (e.g. numbers of nesting turtles rather than numbers of turtles in general). Quantitative measurements (i.e. numerical) are most useful, but often only qualitative data (i.e. based on individual judgements) is available, and this has its own value. Selecting indicators for visible objectives or activities (e.g. mooring buoys installed, reef survey undertaken) is easier than for objectives concerning behavioural changes (e.g. awareness raised, women's empowerment increased).

Indicators must reflect the human capacity available; e.g. genera diversity would be more appropriate for corals if there is no one to identify species. An indicator must also be present frequently enough for meaningful data to be gathered; e.g. very rare species or events are generally not good indicators as there will be many 'zero' observations and trends will be difficult to determine. A few good indicators may therefore be better than many weak ones, even if this means, for example that it is not possible to monitor overall biodiversity health. WCPA-Marine has provided generic biophysical (physical conditions, species and ecosystems), socio-economic and governance indicators that can be used to help develop monitoring programmes in MPAs (see Pomeroy *et al.*, 2004).

## IMPLEMENTING M&E PROGRAMMES

Given the complexity of M&E, a general plan should be developed for the MPA comprising:

- A timetable for the main activities and components;
- Indicators and data collection methods;
- Responsibilities for each component;
- Reporting requirements (i.e. formats, frequency) for the protected area agency, donor and other authorities;
- Budget (note that funding for different components may come from different sources).

Since monitoring often appears less immediately important than day-to-day management issues, M&E responsibilities must be clearly specified in the TOR of relevant staff, and adequate time made available for analysis and interpretation. Compliance with the tasks specified in the M&E plan should be monitored and adjustments made as appropriate. Separate plans may be required for particular components (e.g. for coral reef monitoring, which will involve specific methods, schedules and personnel). However, the various sectoral components must be integrated into the overall M&E plan.

Monitoring is best carried out by, or with the full involvement of, MPA personnel and relevant stakeholders. It may be necessary, and is often beneficial, to use external researchers (and in the case of evaluations, external consultants) but in such cases it is essential that results

are passed back to the MPA and used for management decisions. Involvement of stakeholders such as local communities and tourism operators can raise awareness about the MPA and provide useful information and feedback.

The frequency of data gathering (e.g. annually, monthly, daily) depends on the parameter monitored. For example, annual monitoring of tree growth may be adequate, but monitoring of sediment levels in an estuary might need to be done weekly. Simple methods are often the best.

### KEY POINTS FOR THE MPA

- Where budgets allow, appoint someone to oversee all components of the M&E plan.
- Monitoring activities should be set up as soon as an MPA is established, following the initial baseline surveys and assessment.
- Develop an overall M&E plan that covers all components – ensure that monitoring programmes are in place for all the MPA objectives.
- Involve stakeholders in all components of M&E whenever possible.
- Ensure that data from all monitoring programmes and tracking tools are collated, analysed, interpreted and made available.

## Sources of further information

(see also sheets G9 and G10)

Gosling, L. & Edwards, M. 1995. *Toolkits: a practical guide to assessment, monitoring, review and evaluation*. Development Manual 5. Save the Children. London, UK. 254pp.

Johnstone, R. & Mohammed, S. 2003. Monitoring and Evaluation in a Marine Protected Area. Module 9. In: Francis, J. *et al.* (eds.) *Training for the Sustainable Management of Marine Protected Areas: a Training Manual for MPA Managers*. CZMC/WIOMSA.

Larson, P. & Svendsen, D.S. 1996. *Participatory monitoring and evaluation: a practical guide to successful integrated conservation and development*. WWF, Washington D.C.

Maine, R.A., Cam, B. & Davis-Case, D. 1996. *Participatory analysis, monitoring and evaluation for fishing communities*. FAO Fisheries Technical Paper 364. FAO, Rome, 142pp.

Pomeroy, R.S., Parks, J.E. & Watson, L.M. 2004. *How is your MPA doing? A Guidebook. Biophysical, Socioeconomic and Governance Indicators for the Evaluation of Management Effectiveness of Marine Protected Areas*. IUCN, Gland, Switzerland and Cambridge UK. 230pp. <http://effectiveMPA.noaa.gov>

Salzer, D. & Salafsky, N. 2003. Allocating resources between taking action, assessing status and measuring effectiveness. TNC/FOS Working Paper. Foundations of Success <http://fosonline.org> (this website has other useful M&E materials and an online bibliography).

UNDP 1997. *Who are the Questionmakers? A Participatory Evaluation Handbook*. Office of Evaluation and Strategic Planning, UNDP. [www.undp.org/ea/documents/who.htm](http://www.undp.org/ea/documents/who.htm)

UNDP 2002. *Handbook on Monitoring and Evaluation for Results*. UNDP Evaluation Office (in English and French).

<http://stone.undp.org/undpweb/ea/evalnet/docstore3/yellowbook>