

**An MPA manager will normally have overall responsibility for the procurement, operation and maintenance of all equipment needed in the MPA. This sheet provides a general introduction to this topic, stressing the need to buy appropriate, cost-effective equipment, and to develop maintenance plans, train personnel in and provide guidelines for its use and maintenance.**

Many equipment purchases are made without careful consideration of what is really required, what is most appropriate for the operating environment, and whether the skills and funding are available to operate and maintain it.

The types of equipment likely to be required in an MPA are:

- Electrical power generating equipment including solar and wind power (see sheet F2);
- Boats and engines (see sheet F5), vehicles and trailers (see sheet F6);
- Radios and other communications equipment (see sheet F7);
- Diving gear and air compressors (see sheet F8); cameras and binoculars;
- Office information technology equipment (computers and other hardware, TV, video);
- Specialised laboratory analysis, field monitoring and meteorological equipment;
- Domestic household equipment, lighting, water supply and pump systems.

The three key words governing the procurement and management of equipment are Availability, Reliability, and Maintainability or ARM, all of which are equally necessary for effective MPA management. They can be further explained as follows:

**Availability** - enough suitable equipment is ready and available for use when needed.

**Reliability** - equipment works immediately and does not breakdown or fail when used.

**Maintainability** - service and repairs are straightforward, staff are trained, and spare parts are in stock or readily accessible.

## PROCUREMENT

There are two main steps in procurement: deciding what to buy, and obtaining estimates.

**Deciding what to buy** - think ARM and make a note of the key technical requirements for the equipment. It helps to think ahead: e.g. one to two years for a computer, two to five years for a vehicle, longer for a boat. Equipment manufacturers and suppliers are always keen to offer equipment specifications, which can then be used as guidelines or for comparison, and are useful later when tendering.

Consider the level of sophistication that is appropriate for the MPA, particularly if access to technical support, advice and troubleshooting may be difficult. It is best to avoid being tempted by suppliers offering equipment with

attractive features that are not needed. Where relevant, try and balance quantity versus quality. For quality, the old adage “you get what you pay for” still applies.

If there is a choice of suppliers, which one can offer the most cost effective backup and support? Which critical spare parts should be purchased? What guarantees are being offered and against what failures or breakages? If an overseas purchase is being considered, how will the guarantees be honoured? Seek advice from other MPA managers and learn from their experiences.

Think about standardizing on one product type/range/manufacturer, if this is likely to simplify operation, maintenance and spare part inventories. What level of skill is required to operate and, more importantly, maintain the equipment. What level of maintenance can realistically be carried out on site in the MPA? If staff training is considered necessary, who will provide it and where?

**Obtaining estimates** - It is essential to get more than one quotation, and three are advisable, and often required by government departments and donor agencies. It is equally important to be clear on what is requested, otherwise comparisons between quotations become difficult or impossible. An open invitation to tender may be required for the procurement of expensive items such as boats and vehicles. Establish the tax position of the MPA with respect to Value Added Tax (VAT).

When comparing apparently ‘attractive’ overseas prices with local prices, ensure that reliable estimates for freight costs (usually termed FOB) are included, plus all the other insurance, handling and storage (demurrage) costs, particularly those associated with sea freight, as well as import duties and taxes (if applicable).



Purchasing from a local agent or dealer may save a lot of time and effort in dealing with freight and clearing agents, if the equipment is to be imported. Local agents should be willing to provide the names of other customers whose opinion on the agent's level of customer care, during and after the sale, can be valuable.

Equipment has several costs including the initial purchase price (usually the main focus of attention), the through life running and maintenance costs, and the residual value, if any, on sale and disposal (a credit). For large and expensive items such as vehicles and boats, the through life running costs can be equal or greater than the purchase price, especially if labour for operation and maintenance is taken into account. When comparing quotations and tenders, ask questions about running costs i.e. fuel consumption and replacement of spare parts.

## INSTALLATION

All new equipment should be unpacked and handled carefully, whether it is obviously delicate or not. It may have already been paid for and may have travelled round the world to reach the MPA. The last thing any one wishes to see is it being dropped off the back of the MPA pickup!

All components must be checked (if possible) before delivery is accepted, or notes made of any missing or damaged components. Instruction manuals should be read carefully. Installation may require the supplier or someone professionally competent. This is a small price to pay for increasing the chance of trouble free service. Instruction manuals are usually available in major languages, and individual requirements should be specified at the time of purchase.

Purchasing equipment without having sufficiently trained staff to operate and maintain it is a waste of resources and will quickly lead to problems. In some cases, training may be available from the supplier, but the MPA manager should try to recruit staff with the necessary skills or to plan a training programme that can start as soon as the equipment arrives. Local technical and vocational training to meet most of the basic operator skill needs of the MPA is available in most WIO countries. Some training will lead to nationally recognised qualifications. Training areas to consider include:

- Vehicle drivers and mechanics;
- Boat operations and maintenance;
- Radio operators and maintenance;
- Information technology and computer skills;
- SCUBA diving, mooring installation and maintenance;
- Electrical installation and maintenance;
- Water plumbing and piping systems;
- First aid, secretarial and office management, foreign languages.

## MAINTENANCE

Equipment manuals usually provide the manufacturer's recommendations for care of the equipment, including periodic servicing (called planned or 'preventative' maintenance). It is vital that these recommendations are carefully read and followed, particularly with new

equipment. There are often specific recommendations to 'break-in' equipment (e.g. running of a new outboard engine at low revolutions for so many hours).

For major industrial plants, maintenance is often the largest single controllable expense. There are far fewer items of equipment in MPAs but the fact remains that maintenance is critical to ensuring a long useful life for equipment. Maintenance records for all major equipment should be carefully kept and a maintenance plan developed, perhaps linked to the busy and quiet seasons during the year, with their corresponding demands on equipment. The emerging approach in industry is for 'proactive' maintenance whereby attention is given particularly to cleanliness, at all times, with a focus on the causes of equipment failure (e.g. contamination of fuels or oils, and dust intrusion).

To prevent damage and accidents, only MPA staff with the required skills should have unsupervised access to key equipment. Adequate controls regarding access to keys, storerooms, boats and vehicles, need to be established.

Equipment, buildings, furnishing and even supplies are part of the assets of the MPA and may be examined in the course of the annual audit. An up-to-date inventory of all assets should be maintained and revised at least annually, to incorporate new equipment and remove from the list items that have been disposed of. All equipment and furnishings should be labeled in a permanent manner. A good storekeeper is recommended to maintain stocks and spares.

### KEY POINTS FOR THE MPA

- Identify what equipment is really needed; it may not be what people think they need.
- Take advice and ask questions before committing funds.
- Develop and follow maintenance plans; an operations person should oversee the management of all the equipment.
- Assign individuals (i.e. driver, boat captain, mechanic and plumber) responsibility for the equipment they use and provide the necessary training.
- Construct appropriate storage and maintenance areas for different types of equipment (see sheet F1 MPA buildings).

### Sources of further information

Corfield, T. 1993. *The Wilderness Guardian: A Practical Handbook*. African Wildlife Foundation/The David Sheldrick Wildlife Trust. Longman, Kenya. 701 pp.

Kareko, J. & Musyoki, B. 2003. Module 3. Marine Protected Operations. In: Francis, J. et al. (eds.) *Training for the sustainable management of Marine Protected Areas: a training manual for MPA managers*. CZMC/Univ. Dar es Salaam, WIOMSA, The World Bank.

Use a search engine on the internet to find websites for manufacturers of equipment needed by the MPA.