



A 12 a - RISK ANALYSIS and MANAGEMENT SYSTEM (RAMS)

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[NB: Risk Analysis and Managements Systems was known formerly as Risk Assessment.]

1. THREATS, HAZARDS AND RISKS

A **threat** is a situation existing in the destination country or in the journey to and from that country, including security threats, political threats, natural hazards, and health threats. [A threat assessment and identification of control measures needed may be carried through separately to the RAMS but also it may form part of the RAMS.]

A **hazard** may be described as a situation or set of circumstances which can cause harm to people (e.g. a stream in spate, a crevassed glacier, a truncated spur at the end of a mountain ridge, a hidden reef at sea, an electrical storm, an endemic disease). Hazards may be known or unrecognised. A known hazard may be avoided, but where the hazard is unknown, unforeseen, or not recognised, it is then impossible to make the conscious choice to avoid it and the level of risk is greatly increased. This suggests clearly the importance of comprehensive pre-expedition research, planning, preparation, briefings and, where appropriate, reconnaissance in order to identify hazards.

A **risk** is the chance, great or small, that someone will be harmed by the hazard. Once a hazard has been identified the risk to expedition members can be assessed. The importance of trying to anticipate the existence of a hazard cannot be over-stressed; it is one thing to anticipate a problem, but a much more serious task to extricate a group from an unforeseen emergency.

There are risks to the whole venture as well as personal safety risks. For instance, as well as physical threats to the person, in-country problems may lead to risks of failure of transport and other providers, with unexpected financial loss to the expedition in the field. It is necessary when leading expeditions with young people to be clear beforehand about the nature of the hazards which may exist, to assess the level of risk carefully, and then to take steps to manage the risk. If, even so, the risk is considered to be too great for a youth expedition, remembering the duty of care of leaders, then the programme needs to be adjusted.

Young people, and their parents / guardians need to be aware fully of the level of risks involved and how the expedition proposes to manage them, and informed written consent, from young members and their parents / guardians, needs to be obtained.

2. THE RISK ANALYSIS

Risk assessments are necessary because of the "duty of care" of all the Leadership Team on an expedition. The aim should be to improve the standards and enjoyment of activity and the expedition experience of science fieldwork, adventure, and personal development, not to reduce them.

The process of risk analysis is as follows:

- to list all tasks and activities and environmental locations that may be involved in an expedition;
- to identify critical tasks and activities, namely those which might cause injury;

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- to identify who might be harmed;
- to make an analysis of the likelihood of accident or injury.

Risks need to be identified and graded: how serious is the foreseeable risk, and how can it be reduced? Where the hazard or combination of hazards is great, and the assessed risk too high, then it will be necessary to modify plans, move elsewhere, or find alternative activities.

The standard approach (HSE) to risk analysis is as follows:

Step 1	IDENTIFY THE SIGNIFICANT HAZARDS (see 4 below)
Step 2	DECIDE WHO MIGHT BE HARMED AND HOW (see 5 below)
Step 3.	EVALUATE THE RISKS arising from the hazards identified (see 6 below) and DECIDE whether existing PRECAUTIONS are adequate or whether more precautions should be introduced
Step 4.	RECORD THE FINDINGS and PUT SAFETY MEASURES IN PLACE
Step 5.	REVIEW the analysis and UPDATE as plans modify

3. IDENTIFYING HAZARDS

The sensible approach is to recognise that hazards and risks exist on expeditions and to concentrate on the Risk Analysis and Management System (RAMS). This should involve all the members of the expedition as there is evidence that awareness is more effective than rules and regulations. The aim should be to produce a "CULTURE OF SAFETY" in which safety is a normal and natural background to all activities and in which expedition members look after each others' welfare at all times. Every expedition will encounter hazards. As far as possible, these should be identified systematically beforehand.

The main hazards fall under the following headings:

- Environmental hazards
e.g. steep terrain, deep water, bad weather, heat, dangerous wildlife, etc.
- Health hazards
e.g. endemic disease, AIDS, polluted water, poorly prepared local food, etc.
- Human and behavioural hazards
e.g. temper, violence, robbery, kidnapping, and behaviour brought on by fatigue, stress or drugs, etc.
- Activity hazards
e.g. moving on deck under sail, swimming, lead climbing, glacier movement, jungle trekking, spontaneous games and competitions, etc.
- Travel and camping hazards
e.g. driving, public transport, hazards of fire in camp cooking, etc.
- Accommodation hazards
e.g. locked hostel fire exits and windows, the increased vulnerability of young people when using accommodation open to the general public.

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4. WHO MIGHT BE HARMED AND HOW?

- a. It will be necessary to consider the different people on the expedition and the various circumstances in which they might meet hazards; different members of the party may meet different hazards according to their different activities and ages.
- b. When working with young people, it is necessary always to err on the side of caution. For instance, on days of high avalanche danger it may be prudent to call off a planned mountain journey unless the team is exceptionally experienced.
- c. The range of experience, knowledge and skills of all expedition members will be relevant considerations, as will party stamina and matters concerning familiarisation with technical and safety equipment.
- d. Many accidents happen in and around camp in informal situations, and also in the last few days of an expedition when "guards are down" and members are more relaxed. The same may apply to the first few days when expedition members are excited, exhausted from travel, and lack the experience of, and the 'feel' for, the new environment.

5. EVALUATING AND MANAGING RISKS

Evaluation:

- a. Hazards should be identified as being of HIGH (3), MEDIUM (2), or LOW (1) risk.
- b. Concentrate on the activities that might cause serious harm to individuals or groups rather than being too concerned with the trivial.

Management:

The foreseeable risks arising from a hazard may be managed by a number of means:

- a. removal of the hazard;
- b. increasing the amount or quality of training;
- c. modifying the design of the activity or fieldwork task;
- d. substituting an alternative exercise, experience or route;
- e. protecting people, equipment or the environment more effectively;
- f. maintaining efficient communication within the group;
- g. supervising an activity more closely or more effectively;
- h. giving the expedition a systematic safety audit ;
- i. investigating thoroughly any incidents, near-misses or accidents which occur;
- j. revising the whole safety management system.

6. EXPEDITION RISK ASSESSMENT

a) Before the Expedition:

- i It is clear that the Leadership Team must make detailed, formal, written risk analyses during the planning stages of the expedition, and in time for the YET Expedition Approval submission. It is best if this is done with the young members of the expedition, but if this is not feasible, then evidence must be given to a YET Screening Panel that the young



members share the RAMS at the earliest opportunity, are involved with its ongoing revision, and give their written consent to the level of risk outlined.

- ii Youth Expedition Organisations should have generic RAMS produced for the various expedition environments (e.g. arctic, mountain, rainforest, desert) used by the Organisation, but each expedition must produce a specific RAMS based upon this generic model.
- iii The specific RAMS should be a co-operative process involving as many of the Leadership Team and young members as possible.
- iv The RAMS must include (in the Managing Actions / Comments column of the risk analysis template) mandatory instructions on methods to manage the possible identified hazards e.g. All expedition members will be roped when walking on snow-covered (wet) glaciers.
- v When completed the RAMS should be seen and approved by the Organisation's recognised Technical Advisors for the relevant environment.
- vi The specific RAMS should identify the name of the author(s), principal sources, date compiled, and date of any updates.
- vii The Risk Analysis should cover:
 - Expedition Leadership Team
 - Expedition Members
 - Political Considerations
 - Culture Shock Aspects
 - Transport to and from Base Camp
 - Accommodation to and from Base Camp
 - Transport during the Expedition
 - Camping
 - Food
 - Health & Hygiene
 - The Expedition Environment - physical hazards
 - The Expedition Environment - weather hazards
 - The Expedition Environment - human hazards
 - The Expedition Environment - fauna hazards
 - Scientific fieldwork programme
 - Adventurous Activities programme
 - Community Project programme
 - Environmental Project programme
 - Rest & Relaxation Programme
- viii All RAMS should have a date to signify when it was last reviewed, and by whom.
- ix Expedition members should be taken through this risk assessment during pre-expedition training; expedition members should signify acceptance of the consequences of this risk assessment in a signed letter accepting a place on the expedition; copies of the RAMS should be sent to parents / guardians for their signed acceptance of the level of risk involved obtained.

b) During the Expedition

- i The Expedition's Safety Officer must ensure that risk assessment and the ethos of safety remains at the forefront of the expedition's thinking.

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- ii A specific RAMS should be prepared for field use, concentrating on those risks relevant to field conditions.
- iii The Expedition Safety Officer, in consultation with relevant members of the Leadership Team, must be prepared to change the perceived risk grading of hazards once in the field, and the Leadership Team must adjust the programme accordingly, if any thereby unacceptable risk cannot be moderated (see above) and safely managed.
- iv All members of the Leadership Team must be aware of the possibility of previously unexpected hazards on an expedition, and be prepared to draw the attention of other members of the Leadership Team to such hazards.
- v The Leadership Team must take the expedition members through an evaluation of the RAMS at the commencement of each new activity, and after any incident or near miss during any activity.

REFERENCES:

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