

3.12 FIELDWORK

INTRODUCTION

This document has been produced by a Topic Group set up by the Universities' Safety Association. The intention has not been to produce comprehensive guidance but rather to outline the necessary steps to be taken for the safe management of fieldwork activities and to indicate sources of further information and assistance.

DEFINITION OF FIELDWORK

For the purpose of this document, fieldwork is defined as any practical work carried out by staff or students of a University for the purpose of teaching and/or research in places which are not under University control but where the University is responsible for the safety of its staff and/or students and others exposed to their activities.

This definition will therefore include activities as diverse as e.g. factory visits, social survey interviews and scuba diving as well as the well recognised survey/collection work carried out by geologists and biologists. Voluntary and leisure activities are excluded.

ACKNOWLEDGEMENTS

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SECTION 1 - FIELD WORK PLANNING

Legal Background

Universities must exercise a "duty of care" to employees and to those they supervise and this duty is recognised in both criminal and civil law. There is, of course, also the moral duty that the teacher has towards the pupil. These responsibilities of the employer are stated in broad terms in Section 2 and 3 of the Health and Safety at Work etc Act 1974 (HSAWA). Under the Management of Health and Safety at Work Regulations 1992 (MHSW) this duty of care is defined more explicitly as a duty of line management. In the University sector, this responsibility will fall primarily upon the Head of Department, who, under paragraph 3 of the MHSW Regulations "shall make a suitable and sufficient assessment of (a) the risks to the health and safety of employees and (b) the risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking".

In this context, a "suitable and sufficient" assessment will:

- Identify foreseeable significant risk;
- Enable the assessor to decide on action to be taken and priorities to be established;
- Be compatible with the activity;
- Remain valid for the period of the work;
- Reflect current knowledge of the activity.

It is therefore for the Head of Department to ensure that the risk assessment of the fieldwork is made and to ensure that a safe system of work has been established for all staff and students. Frequently the Head of Department will delegate this responsibility to the lecturer, research fellow etc who is organising the fieldwork. If such delegation occurs then the Head of Department must be satisfied that the organiser is competent to lead, and has sufficient awareness of the legal obligations of those under supervision. In any case, the Head of Department must ensure that the organisation of the fieldwork meets departmental safety criteria and that any accidents that do occur are reported in compliance with the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1997 (RIDDOR).

Staff and students undertaking fieldwork should be fully informed of the nature of the work and the associated hazards. This is a legal requirement under the MHSW Regulations, but will also serve as the first stage in health surveillance as some staff and students may be unable to carry out certain types of fieldwork because of physical or psychological problems. The early identification of such problems will allow liaison with Trade Union representatives, University Health Services etc to ensure a suitable resolution of the problems. Health matters are dealt with in more detail in section 4 below.

In addition to the duty of the Head of Department to ensure that workers are adequately informed, there is a separate requirement in the MHSW Regulations that workers should be adequately trained. The distinction between information and training is significant and should not be underestimated. Fieldwork involving e.g. mountain walking is potentially very dangerous for the untrained, no matter how well informed they may be.

The HSAWA also lays duties on employees to take reasonable care for their own safety and those affected by their acts or omissions and to co-operate with their institutions with regard to health and safety arrangements.

INSURANCE

All fieldworkers must be adequately insured. Staff and students visiting commercial concerns MAY be covered by the site owners insurance.

However the laws covering liability are complex and often made more complex by the use of disclaimers, which may or may not be of value in law. Whether or not the fieldwork takes place on commercial premises, it is prudent to purchase cover for all staff and students. Even if the fieldwork takes place at a recognised field centre, the organiser must clarify the insurance liabilities and for virtually all it will be more expedient to arrange adequate cover through the University. Heads of Departments should thus ensure that the University has arranged appropriate insurance to cover all parties and eventualities before the trip commences. In addition, members of the fieldwork group should be informed of their insurance cover through the University and should be advised of the need to take out additional personal insurance.

RISK ASSESSMENT

The object of any risk assessment procedure is to identify all the hazards associated with the work and then to assess the actual risk that these hazards present under the particular circumstances. Following the exercise it should be possible to identify areas of work that present particular problems and act to reduce the risk to an acceptable level.

The assessment of risk, by definition, calls for a thorough and systematic consideration of all aspects of the work and this level of detail falls outside the scope of this advisory document. However checklists are presented in Appendix C, which provides a framework for a more practical approach.

As mentioned above, risk assessment of work activities is now a legal requirement under the MHSW Regulations, but a complexity of the assessment should be in line with the level of risk. For local visits of a routine nature that are well supervised, it may be appropriate to include the assessment with the standard departmental assessment and this approach may facilitate compliance with other legislation such as the COSHH Regulations. For distant visits involving small groups working on an irregular basis, there is clearly a need for more extensive planning and assessment. The risk assessment procedures for fieldwork should therefore be geared to the perceived level of risk and will run in parallel to the planning procedure. By recording such planning, evidence is made available to the enforcing authorities that a serious and systematic attempt has been made to establish safe systems of work.

In performing risk assessment, there will be an identification of hazards specific to the work which will highlight the key elements for action. A number of unfortunate incidents in the recent past have however pinpointed the need for a general approach to safety based upon adequate management. The manager, usually Head of Department, can do much to control risk by ensuring that:

- A suitable number of supervisors are always present;
- Supervisors are competent under the circumstances likely to be encountered and have adequate first aid training;
- All fieldworkers are adequately prepared, (clothing, footwear, training etc);
- Suitable lines of communication are available and that accidents are reported.

As an extension to this approach, Expedition Leaders should compile details of the relevant emergency services. Contingency planning for reasonably foreseeable emergencies must be made, bearing in mind the likely hazards of the environment and the type of work undertaken. Items such as those listed below should be considered:

- Provision of adequate emergency equipment (e.g. first aid kits, stretchers, fire fighting equipment, bivouac tents);
- Means of summoning aid;
- Evacuation procedures;
- Liaison with police and emergency services;
- Correct treatment of casualties and equipment (e.g. decontamination).

The Head of Department and the Expedition Leader are thus responsible for the planning of the fieldwork at broad and detailed levels. The importance of the "human factor" is such that these topics are considered in more detail in Section 2 and 3 below.

ENVIRONMENTAL CONSIDERATIONS

Many types of fieldwork will take place in open country involving, for example, the study of flora, fauna, soils or geological conditions in that area. Under these circumstances it is the duty of the fieldwork organiser to ensure that access to the site is legal. If the work takes place off public land then permission of the landowner **MUST** be obtained. The permission of the landowner to enter the site does not free the fieldwork leader from responsibilities under the Wildlife and Countryside Act (1981), and leaders should be familiar with the Act if their work is likely to have any impact, directly or indirectly, upon the flora and fauna.

If the work takes place on a Site of Special Scientific Interest (SSSI) then the site owner should, in theory, seek permission from the appropriate authority e.g. English Nature (A list of these authorities appear in Appendix 2). In practice, it may be more expedient for the University to liaise with such authority directly and to inform the landowner that this has been done. The authority will also be able to advise the fieldwork leader if the work is likely to contravene the Wildlife and Countryside Act and to discuss the granting of

licence if necessary. Local offices of these authorities will also be able to advise on the hazards associated with the area. For fieldwork overseas, supervisors are advised to establish a clear and written agreement on permitted work practices. This would often be with a host institution, but the country's embassy will advise.

REGISTRATION AND AUTHORISATION

Once the risk assessment procedure has been completed then the Head of Department may authorise the commencement of the work. More detailed advice on the conduct of the fieldwork is given in Section 3, but all fieldwork should be supported by a base that has knowledge of:

- All work involved;
- Itinerary and return times;
- Details of how they may be contacted.

Depending upon the nature of the work, the University may wish to authorise their staff and student workers by the issue of identity cards. For overseas work, in particular, it is prudent for the base to retain passport and visa details and names and addresses of next of kin.

DEALING WITH PRESS AND PUBLIC

Any queries addressed to members of a field trips about their activities should be referred to the Expedition Organiser for comment. It is important to ensure that the academic purpose of the field trip is accurately represented and this is best done through one senior representative. Everyone on the field trip should be advised not to comment to strangers about the field trip so as to avoid distortion and incorrect reporting.

SECTION 2 - SUPERVISION AND TRAINING

Responsibility for Safety in Fieldwork

In the light of the results of an appropriate risk assessment, a safe system of work should be devised and discussed and agreed with the Head of Department or their representative (Departmental Safety Officer). The nature of the document will vary with the type of activity being undertaken but it should be made familiar to each member of the field trip. It is not considered sufficient for students just to sign a declaration that they have read and understood the document; the supervisor should satisfy her/himself that the individual appreciates the salient points.

Responsibility for the health and safety of participants in fieldwork lies, ultimately, with the Director of an establishment, the Head of Department or the person in overall authority. He or she must ensure that field trip leaders and supervisors are adequately trained in basic work techniques, possess any necessary skills such as first-aid training, are capable and competent in leading a party in the field and appreciate the hazards involved in the undertaking. They should also ensure that there is a general appreciation of safety measures and that this appreciation has been passed down the chain of management to the individual worker or student. Supervision will be the last layer of the management effort to implement and ensure compliance with appropriate safety measures.

It is important that, during a field trip, there is a clear command structure within the group. While this structure may be perfectly obvious on most field trips, there can be confusion when command passes from the Expedition leader to a Boat Skipper, Diving Organiser etc. When this type of transfer occurs, all members of the party must be kept fully informed.

The Expedition Leader is to be responsible for ensuring that all safety precautions are observed for the duration of the trip, and this duty may require positive logging in high risk areas such as quarries, mines, cliffs or on water. This duty may be passed to other responsible persons (Boat Skipper etc.) but the overall duty to ensure the safety of the expedition lies with the Leader.

FIELD TRIP SUPERVISOR

Organisers of field trips (which in most cases will be the academic supervisor) are responsible to the Head of Department for ensuring that adequate safety arrangements exist and are observed by field-trip members. Where appropriate, supervisors may appoint one or more field trip leaders to act on their behalf in the field. This may be necessary when parties are split into sub-groups or when a person other than the academic supervisor has more experience of a locality or work process; such appointees may not necessarily be employees of the university or college, e.g. boat-skippers, mountain guides, site foremen etc. In law, responsibility devolves along the chain of command and, where a hierarchy exists, responsibility is denoted by rank. If the field trip leader is not the most senior person present. This should be made clear at the outset. It should be clearly understood by all fieldworkers that they are in a work situation and are acting under supervision. It is the responsibility of individuals to heed, understand and observe any instruction given them by a supervisor and to bring any questions or problems to the attention of their supervisor.

A department must be kept aware of the activities of fieldwork groups; a plan of work that includes the proposed itinerary and timetable should be deposited with the departmental office and updated as necessary. If the work is in a remote or hazardous environment, a detailed and accurate itinerary should be deposited with a suitable person or organisation (E.g. police, coast guard, mountain rescue team etc.). Independent workers should do this on a daily basis and also maintain communication on a planned basis. Suitable response action should be decided upon in the event of contact times being missed.

Supervision levels for field trips will vary tremendously. An inexperienced group of first year students will require a higher level than is appropriate for postgraduates and while fieldwork cannot usually be as closely supervised as other activities; a responsibility lies with the leader to ensure that the level of supervision is adequate for a given situation. Three different levels of supervision can be recognised:

- Fully supervised courses;
- Field expeditions;
- Lone working.

FULLY SUPERVISED COURSES

These will normally be of short duration (a working day or less) and usually conducted in low hazard environments although visits to tidal zones, rugged terrains, industrial sites or urban localities for sample collection or observation can have their own particular associated risks which should be assessed beforehand.

Participating students may be inexperienced; safety instruction should be integral part of the excursion and they should be made aware of any local rules applying to industrial or commercial sites. Students should not normally be allowed to work independently and must not be intentionally exposed to hazardous situations.

Consideration should be given to appropriate staff/student ratios, which may vary according to the activities being carried out and the nature of the site being visited. As a basic standard, the maximum number of inexperienced students involved in low risk activities (E.g. geological or botanical specimen collection, surveying etc.) in reasonably rugged countryside in summer should be 10 per experienced staff member. Each party should contain at least 2 such staff members and adequate deputising provision should be made for the leader and driver(s) in case of incapacity. Maximum and minimum party sizes should be set bearing in mind the environment, the activity undertaken, and the logistics of foreseeable emergencies. Parties of >15 inexperienced people may be difficult to manage in rugged country and a minimum of 4

people to a sub-group will mean that, should an accident or injury occur, one person can stay with the casualty while two others go for help.

FIELD EXPEDITIONS

Such trips may be prolonged and in environments which are remote and potentially hazardous. Participants will normally be experienced and/or will have received instruction in work techniques and safety procedures. The leader of such a trip must be adequately trained in appropriate skills which may include survival, communication and navigational techniques; he or she should be aware of local hazards and conditions and be familiar with particular precautions to be taken where the terrain is particularly hazardous (E.g. glaciers, rock faces) or where dangerous animals, diseases or substances may be present. The Head of Department should be satisfied that the leader has the personal capability and competence to lead, especially under adverse conditions. The authority and responsibilities of the leader must be clearly defined and understood by all members of the party and serious consideration should be given to excluding people unable to accept such authority. Adequate deputising arrangements should be made in case of incapacity or if the party splits up into smaller groups so an adequate number of experienced and trained members of staff should accompany the trip.

Lone Working

Working alone is to be discouraged as far as possible but it is recognised that in some situations it is not reasonably practicable to avoid it. Lone working should only be sanctioned after a thorough assessment of the risks has been carried out taking into account the nature of the work, the hostility and location of the site and the experience of the worker. A safe system of work should then be devised in order, as far as is reasonably practicable, to safeguard the health and safety of the worker as required by Section 2 of HASAWA and reduce risks from foreseeable hazards to the acceptable level. There are specific situations lone working is highly inadvisable or contrary to legal requirements (e.g. work in confined spaces, fumigation or diving operations).

In most cases the lone student will be post-graduate or final-year undergraduate undertaking project work. The student or worker should be involved in the risk assessment process and must be made aware that he or she is still under the supervision of the academic supervisor back on campus who must take immediate responsibility for the student's safety. The student must not leave campus without informing the supervisor (or department) of their destination, nature of the work (hence hazard involved), and estimated time of return. They must then advise the department upon return. If the student departs for field directly from home, the supervisor must be given the relevant information by telephone and appropriate emergency plans should be

in place should the lone worker fail to check in at the arranged time. Departments must formulate clear guide-lines on the scope of activities which may be undertaken alone, the types of terrain where these may take place, the supervisory arrangements (checking-in, emergency plans, etc.) and the training and experience required on the part of the student.

Because the lone worker may be at greater risk than a group member, it is important that an effective means of communication is established. Any safe system of work should include arrangements to determine the whereabouts of a lone worker and contingency plans in case of failure to make contact. As well as the danger of personal injury, the possibility of exhaustion or hypothermia should be considered, although any such risk should have come to light during the risk assessment and would strongly mitigate against lone working.

A check at the end of the working period, at least once a day, should be the minimum level of monitoring which might take the form of periodic visits by the supervisor, regular communication by telephone or radio (see Appendix D).

TRAINING

Various skills may be required for field trips it is important that personnel are adequately trained before or during the expedition; training requirements should be clearly specified in codes of practice. All staff engaged in trips to remote locations must be trained in first aid and if the expedition is particularly remote or long-term there might be a case for training all group members in first aid, survival, and rescue techniques. At least one other member should be qualified to take over should the leader become incapacitated, and at least one reserve driver, (or pilot, or boat-handler etc) should be included in the party. All participants in activities on or near water should be able to swim at least 50 metres and an appropriate level of physical fitness for the activities to be undertaken should be attained.

The training of leaders is particularly important and for some activities, formal qualifications may have to be sought in excess of those relating to work process. Qualifications in specific areas may be attained from various organisations, some of which are included in Appendix E.

SECTION 3 - CONDUCT OF FIELDWORK

EXPEDITIONS ON FOOT

Itineraries must be planned carefully with adequate time allowed to accomplish objectives. Leaders must exercise considerable vigilance, particularly if the terrain is hostile or participants inexperienced.

Great care must be taken when crossing dangerous terrain (e.g. ski slopes, glaciers, crevasses, rivers, estuaries, mud flats etc.). A watch for stragglers should be kept and an experienced walker should be at the rear. Loads must be tailored to physical ability and walking pace matched to the capabilities of the slowest walkers. Regular breaks should be taken.

Walkers in remote areas should be alert to the possible sudden weather changes and must be adequately equipped. If skis, snowshoes, crampons climbing gear and other aids are necessary, participants must be adequately trained in their use.

People walking roads at night should wear light or reflective clothing. A rear light should be carried.

TRANSPORT (LAND, WATER AND AIR)

Vehicles, boats and aircraft play an essential part in many expeditions, particularly in remote areas. It is essential that appropriate types are used that are suitable for the use required. Adequate backup transport must be available and sufficient spare parts carried to meet foreseeable emergencies. Transport must be maintained in a safe state by competent persons.

Drivers, pilots etc must possess appropriate licence's and must be in a fit state.

Transport must not be used in a reckless, careless or dangerous manner. Navigational rules and conventions must be observed and an adequate lookout must be maintained. Loads must not be excessive, dangerously distributed or improperly secured. Local regulations (speed limits etc) must be observed (see the Highway Code etc). Seat restraints must be used if available.

Animals used for transport must be cared for humanely and be handled and/or ridden by people with adequate expertise.

EQUIPMENT

The provision & Use of Work Equipment Regulations 1992 requires that equipment must be selected carefully to ensure that it is suitable for the intended use and conditions. All safety considerations must be taken into account. Appropriate British, European and International standards should be complied with.

Equipment must be checked and tested before use at appropriate predetermined intervals during use. Schemes of examination must be drawn and inspections by competent persons must be carried out if necessary. (See also the Pressure Systems and Transportable Gas Container's Regulations 1989). Equipment must be maintained in a safe state by competent persons. Damaged equipment must be suitably repaired or taken out of service. Items essential for survival should be duplicated where practicable. Duplicate items should be transported separately.

Equipment must be operated safely by competent trained persons.

The requirement of the Electricity at Work Regulations 1989 must be complied with. Reduce voltage (e.g. 110 volts) should be used out of doors with earth leakage/residual current protection where practicable. Waterproof/spark proof etc equipment must be used as appropriate. Damage to cables and insulation must be avoided.

Firearms etc must be used by competent persons and stored safely and securely. Licences must be obtained as appropriate.

PROTECTIVE CLOTHING

Adequate and appropriate protective clothing must be worn by all participants. It must be checked regularly, maintained in good condition and worn correctly as required by the Personal Protective Equipment at work Regulations 1992 and other legislation. Equipment complying with appropriate British, European and International standards should be used where practicable.

The following types of clothing should be considered:

- Safety helmets where there is a risk of falling objects;
- Eye/face protection (tools, chemicals etc);
- Ear defenders (machinery use);
- Respiratory protection (dust, toxic vapours etc);
- Warm/weatherproof clothing for cold/wet conditions;
- High visibility clothing (remote areas, traffic etc);
- Wet suits and life jackets;
- Aprons (risk of splashing);

- Gloves (sharp objects, chemicals, cold conditions);
- Foot protection where there is a risk to the feet.

After use, protective clothing must be removed carefully and stored, repaired, decontaminated or disposed of safely as appropriate.

DANGEROUS SUBSTANCES

Suitable and sufficient assessments of risks from dangerous substances (explosives, chemicals, biological hazards, radioactive sources etc) used on field trips must be made and adequate arrangements made for their control.

Risk from potentially dangerous substances, which might be encountered as a result of the work undertaken, or sites visited must also be assessed and controlled. E.g. a trip to sample river sediments for heavy metals might also entail exposure to potentially harmful microorganisms.

Dangerous substances must be used by competent persons and handled, so far as is reasonably practicable, with the same degree of care as in the laboratory. The requirements of the Ionising Radiations Regulations 1985 and the Control of Substances Hazardous to Health Regulations 1988 etc must be complied with. Risk assessments must be carried out and effective systems of control adopted.

Where practicable, hazards should be eliminated or reduced by substituting less harmful substances. Dangerous substances must be disposed of safely and in accordance with environmental legislation.

EXCAVATIONS, BOREHOLES ETC

Excavations must be carefully planned and made by competent persons. They must be protected against collapse and inspected regularly. Care must be taken to avoid hazards from underground services and spoil heaps. Sites must be adequately cordoned off and appropriate warning signs displayed. Visitors must be supplied with adequate safety information and protective clothing. The Construction Regulations must be complied with where appropriate.

MANUAL HANDLING

Loads carried must be matched to physical ability. Where it is not reasonably practicable to avoid operations with a risk of injury, a risk assessment must be made and safe working procedures instituted in accordance with the Manual Handling Operations Regulations 1992.

MECHANICAL HANDLING

Operators of cranes, hoists etc must be trained in correct lifting and slinging techniques. Lifting equipment must be suitable for use and inspected as necessary by competent persons. Safe working loads must not be exceeded.

MAKING OBSERVATIONS

Before starting, the surroundings should be examined carefully and any hazards noted. Examples are:

- Extremes of climate;
- Heights;
- Unstable rock, soil, ice or snow formations;
- Mine shafts, potholes, crevasses, confined spaces etc;
- Dangerous buildings;
- Marshes or quicksand;
- Forest or brush fire hazards;
- Overhead power lines;
- Tides, rough seas, swift currents, high winds etc;
- Traffic (roads, quarries etc);
- Mines or unexploded bombs;
- Venomous, lively or aggressive animals;
- Infectious hazards (see section on health).

The possible effect of reasonably foreseeable climatic conditions must be considered and up to date weather forecasts obtained where practicable. Local knowledge can be very useful.

The Workplace (Health, Safety & Welfare) Regulations 1992 require that workstations should be suitable for persons using them for work to be done.

Arrangements should be made to protect against adverse weather (if reasonably practicable), to guard against slipping or falling and to allow swift evacuation in emergencies.

A safe scheme of work (including emergency action) must be devised and communicated to all participants.

Examples of precautions that could be necessary include:

- Appropriate protective clothing (see above);
- Provision of maps, compasses, tide tables, first aid & medical equipment etc;
- Provision of shade or shelter

- Fixed safety lines, nets, safety harnesses etc;
- Readily available rescue and emergency equipment;
- Posting of lookouts;
- Control of sources of ignition;
- Permit to work systems (e.g. in confined spaces);
- Gas detection equipment;
- Erection of barriers and warning signs;
- Safety boats;
- Adequate supervision, "buddy" systems etc;
- Establishment of a radio or other communication system.

Participants must be warned not to become too engrossed in their tasks and to be alerted to changing conditions.

SECURITY - THE HUMAN HAZARD

Theft, vandalism and violent crime can be a problem in both remote and urban areas. Hazards to workers, particularly people working alone, must be considered carefully. Local crime rates, social and political factors should be considered and police, social workers etc consulted if necessary.

Preventative measure could include the following:

- Pre-visit appointments and checks;
- Making visits in pairs or with companion in earshot;
- Security locks on vehicles, buildings, stores etc;
- Anti-theft devices and alarms;
- Personal alarms (preferably linked to a central control system);
- Radios or radio phones;
- Monitoring and reporting systems;
- Training in interpersonal communication skills.

CATERING

Although it may be difficult to maintain adequate food hygiene in the field, every effort should be made to do so as intestinal upsets can have a devastating effect on an expedition.

Organisers should aim to provide a wholesome, balanced and varied diet. Special dietary needs must be taken into account. Local foods should be selected carefully. High-risk foods should be avoided. Food should be stored so as to minimise risk of spoilage or contamination.

Food should be prepared in as hygienic a manner as possible. If practicable, expedition cooks should have a food hygiene qualification. People with skin, nose, throat or bowel infections should not prepare food. Preparation areas must be kept as clean as practicable. Prepared food should be kept clean and covered. It should be cool (below 50°C) or piping hot (above 70°C).

An adequate supply of potable water must be obtained. If necessary, water should be sterilised by boiling, filtration or the use of tablets.

Toilets must be maintained in as clean and hygienic condition as is practicable.

SECTION 4 - HEALTH MATTERS AND EMERGENCY ACTION

HEALTH MATTERS

Organisers of field work expeditions and outdoor activities must give careful consideration to the maintenance of the health of participants and where necessary, the advice of the University Health Service (or other expert help) should be sought.

BASIC FITNESS

Activities may be much more strenuous than the normal work of the participants and organisers should ensure that, as far as is reasonably practicable, the people intending to take part are sufficiently fit. If necessary they may be encouraged to improve their level of fitness. Participants should also be asked to make declaration as to whether or not they are knowingly suffering from any disability or medical condition that could compromise their health or safety during the particular activity. Examples of such conditions could include haemophilia, diabetes, epilepsy or taking of certain drugs. While every effort should be made to enable the handicapped student to participate fully in fieldwork, it may sometimes be necessary, after discussion with the University Health Service, to make exclusions.

HEALTH MONITORING

The need for health monitoring and/or immunisation must be considered. Where necessary, consultations must take place between the University Health Services and the person(s) concerned and these consultations may, when appropriate, be extended to include Trades Union representatives or other interested parties. The following items could be necessary and might be a condition of engaging in the work:

- Questionnaire, interview or medical examination;
- Immunisation (see below)
- Serum samples for future reference;
- Tests of immune status, or other suitable tests;
- Health reviews.

HEALTH EDUCATION

Participants must receive adequate instruction on the likely health hazards associated with the work; particular attention should be given to:

- Physical hazards of the environment (hypothermia, frostbite, snow blindness, dehydration, altitude sickness, nitrogen narcosis, sunburn etc);
- Chemical hazards;
- Infection by pathogens (including leptospirosis);
- Dangerous animals and plants;
- Avoidance of gastro-intestinal disorders and food poisoning;
- Basic personal hygiene and care of the feet;
- Safe use of insect repellents.

IMMUNISATION

Medical advice on the need for immunisation must be sought where necessary. The requirements for various countries are to be found in the DHSS Traveller's Guide to Health leaflet. Immunisation should also be given if the fieldwork could result in exposure to certain pathogenic organisms and immunisation against tetanus is recommended for all fieldworkers, but is particularly important for those performing manual tasks in contact with soil or animals. If a new worker is being asked to undertake a project that would require immunisation, then this immunisation would normally be carried out by the University Health Service, but individuals may make other arrangements, provided that the records are made available to the University.

DENTAL HEALTH

Members of expeditions are strongly advised to have a dental check up before undertaking extended fieldwork visits. For visits to very cold climates, or to areas with a high incidence of HIV, leaders may wish to make such a check up obligatory.

INJURY AND ILLNESS IN THE FIELD

Prompt medical attention must be sought in the event of an illness. Under field conditions, relatively, trivial injuries may become serious if not treated quickly and expedition leaders should be alert to signs of illness, injury or fatigue in the party. As a part of the Expedition planning there should be adequate medical insurance and for visits within the European Community fieldworkers should carry a certificate of health insurance (Form E111) available from the DHSS. It is strongly recommended that for visits abroad, if there is any doubt about the standard of health care in the country or area concerned, the expedition should carry sufficient sterile packs to ensure that clean needles, sutures etc are always available. The University Health Service will advise on the composition of the packs. (Packs may be lent on payment of a deposit which is returnable if the pack is unopened.)

FIRST AID COVERAGE

It is strongly recommended that a member of staff attending a field trip should, as a minimum standard, hold a HSE approved first aid certificate (i.e. 4 day training) and have received authorization from the University to administer first aid.

A first aid kit is to be taken on every field trip. The University Health Service will advise on supplementation of the kit, according to the nature of the work and the expertise of the Leader. A field first aid kit should be available to all groups away from the field base control point.

ACCIDENT AND EMERGENCY PROCEDURES

For each group, the Expedition Leader is to be responsible for organising emergency procedures and ensuring that all members of the group are aware of the arrangements. Fieldwork will often take place in remote areas and some of these areas will have been used by the Armed Services for training. It is self evident that under these circumstances, fieldworkers should be instructed NOT to touch suspect objects. These are to be left in place, the place marked and the emergency services alerted. Similarly, scrap and material that has been dumped should be treated with caution. Fieldworkers handling such scrap should receive medical attention if cut or scratched. Those fieldworkers working in fresh water should be aware of the dangers of Weil's disease and should carry the HSE pocket card on leptospirosis.

If an accident does occur then there should be a clear plan of action to deal with the situation and the following points should be borne in mind:

- Ensure that one accident does not produce more - withdraw the remainder of the team to the safe place as conditions may be dangerous or may deteriorate
- Attend to the injured person, keeping only the minimum number of persons to assist as necessary;
- Send for help, if the injuries are serious. Ensure that the emergency services are given the exact location (e.g. by OS map reference);
- Warn others of dangers, if these exist (e.g. falling cliffs);
- Inform the University Safety Office;
- Do not discuss the situation with anyone other than the emergency services and University officials.

As stated above, it is important that all accidents are reported and as soon as conveniently practicable a factual report, including any statements taken, should be forwarded to the University Safety Officer.

This procedure is important because serious accidents may have to be reported to the appropriate authorities. All members of the expedition must be aware of the emergency arrangements and the means of contacting the emergency services.

Expedition Leaders must be aware of the duty (for incidents in the UK) under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1997 (RIDDOR) to notify the Health and Safety executive immediately in the case of a death, a specified major injury or a specified dangerous occurrence at work, or within seven days in the case of any injury resulting in an incapacity to work for more than three complete days. Reports should be made through the usual channels e.g. the University Safety office, from which full details of the legislation may be obtained.

APPENDIX A - REFERENCES

Acts of Parliament

Health and Safety at Work etc Act 1974 ISBN 0-10-543774-3 HMSO

Wildlife and Countryside Act 1881 ISBN 0-10-886330-4 HMSO

Environmental Protection Act 1990 ISBN 0-10-544390-5 HMSO

Regulations

Construction (General Provisions) Regulations 1961 SI 224 (HMSO)

Construction (Lifting Operations) Regulations 1961 SI 1581 (HMSO)

Food Hygiene (General) Regulations 1970 SI 1172 (HMSO)

Safety Representatives and Safety Committee Regulations 1977 SI 500 ISBN 0-11-070500-9 (HMSO)

Safety Signs Regulations 1980 SI 1471 ISBN 0-11-007471-8 (HMSO)

Health and Safety (First Aid) Regulations 1981 SI 917 ISBN 0-11-016917-4 (HMSO)

Diving Operations at Work Regulations 1981 SI 399 (amended 1990 & 1992)

Ionising Radiations Regulations 1985 SI 1333 ISBN 0-11-057333-1 (HMSO)

Control of Substances Hazardous to Health Regulations 1988 ISBN 0-11-087657-1 (HMSO) (amended by SI 1990/2026, SI 1991/2431 and SI 1992/2382)

Electricity at Work Regulations 1989 SI 635 ISBN 0-11-096635-X (HMSO)

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Noise at Work Regulations 1989 SI 1790 (HMSO)

Pressure Systems and Transportable Gas Container Regulations 1989 SI 2169 ISBN 0-11-098169-3 (HMSO)

Construction (Head Protection) Regulations 1989 SI 2209 ISBN 0-11-098209-6 (HMSO)

Control of Explosives Regulations 1991 SI 1531 ISBN 0-11-014531-3 (HMSO)

Simple Pressure Vessels (Safety) Regulations 1991 SI 2749 ISBN 0-11-015902-0 (HMSO)

Management of Health and Safety at Work Regulations 1992 SI 2051 ISBN 0-11-02051-6 (HMSO)

Provision and Use of Work Equipment Regulations 1992 SI 2932 ISBN 0-11-025849-5 (HMSO)

Manual Handling Operations Regulations 1992 SI 2793 ISBN 0-11-025920-3 (HMSO)

Personal Protective Equipment at Work Regulations 1992 SI 2966 ISBN 0-11-025832-0 (HMSO)

Workplace (Health, Safety and Welfare) Regulations 1992 SI 3004 ISBN 0-11-025804-5 (HMSO)

Government Publications

Management of Health and Safety at Work - Approved Code of Practice 1992 ISBN 0-7176-0412-8 (HSE Books)

Personal Protective Equipment at Work - Guidance on Regulations 1992 ISBN 0-7176-0415-2 (HSE Books)

Work Equipment - Guidance on Regulations 1992 ISBN 0-7176-0414-4 (HSE Books)

Manual Handling - Guidance on Regulations 1992 ISBN 0-7176-0411-X (HSE Books)

Control of Substances Hazardous to Health Regulations - Approved Codes of Practice (4th Edition) 1993 ISBN 0-11-882085-0 (HSE Books)

The Safe Use of Portable Electrical Apparatus (1990) HSE Note PM 32 (Revised) (HSE Books)

Guns (1988) HSE Note AS7 (HSE Books)

Tree Felling, Hauling and Scrubland Clearance (1982) HSE Note AS 15 (HSE Books)

General Access Scaffolds (1982) HSE Note GS 15 (HSE Books)

Safe use of Ladders, Step Ladders and Trestles (1984) HSE Note GS 31 (HSE Books)

Tower Scaffolds (1987) HSE Note GS 42 (HSE Books)

Safety with Chain Saws (1986) HSE Note AS20 (HSE Books)

Safety in Outdoor Education (1989) Department of Education (HMSO)

The Traveller's Guide to Health (updated annually) Department of Health

The Highway Code (updated regularly) Department of Transport

Guide for Small Boat Users () Department of Trade

Guidance Note on Tree Climbing () National Environmental Research Council

Other References

Outdoor Pursuits for Disabled People (2nd Edition) 1981 Croucher N Disabled living Foundation (London)

Safety in Biological Fieldwork (1983) Institute of Biology

Safety Book Handbook (1983) Royal Yachting Association

Management of Wilderness and Environmental Emergencies 1983 Aurbach PS and Geehr EC (Macmillan)

Mountaineering and Leadership 1984 Langmuir E, Scottish Sports Council and Mountain walking Leader Training Board

British Sub-Aqua Club (1984) Training and Qualifying Standards for BSAC Divers

Cruising Yacht Safety (1986) Royal Yachting Association

Health and Safety in Field Archaeology (1986) Standing Conference of Archaeological Unit Managers

Outdoor Education, Safety and Good Practice (1988) Duke of Edinburgh's Award Scheme

The SAS Survival Handbook (1989) Wiseman J (Collins/Harvill)

Safety in Universities Notes for Guidance - Part 2:1 Lasers (Revised Edition) 1992 CVCP

Survival in Cold Water (1989) Amateur Swimming Association

Saving Life (1989) Royal Life Saving Association

British Geographical Society () Safety in Fieldwork

Expedition Leaders' Manual () Royal Geographical Society (Expedition Advisory Centre)

Pre-ski Exercises () Ski Club of Great Britain

Ride more Safely () British Horse Society

The Canoe Handbook () British Canoe Union

Safety on Mountains () British Mountaineering Council

Code of Practice for Scientific Diving () Underwater Association

APPENDIX B - USEFUL ADDRESSES

Amateur Swimming Association, Harold Fern House, Derby Square,
Loughborough, Leics LE11 0AL, 01509-230431.

British Canoe Union, Mapperley Hall, Lucknow Avenue, Nottingham NG3
5FA,
01602-455423.

British Horse Society, British Equestrian Centre, Stoneleigh, Kenilworth,
Warwick, CV8 2LR.

British Red Cross, 163 Eversholte Street, London NW1 1BU, 0171-388-8777.

British Sub-aqua Club, 16 Upper Woburn Place, London WC1H 0QW.

British Mountaineering Council, Crawford House, Precinct Centre, Booth
Street East, Manchester, M13 9RZ, 0161-273-5835.

Central Council for Physical Recreation, Francis House, Francis Street,
London.

Countryside Commission, John Dower House, Crescent Place, Cheltenham,
Gloucester
GL50 3RA, 01242-521381.

Cyngor Cefn Gwlad Cymre (Countryside Council for Wales), Plas Penrhos,
Fford Penrhos, Bangor, Gwynedd, LL57 2LQ, 01248-370444.

Department of the Environment, 2 Marsham Street, London SW1P 3EB,
0271-276-0900.

Department of the Environment for Northern Ireland, Parliament Buildings,
Stormont, Belfast, BT4 3SW, 01232-230560.

Houseway Ltd, Winchester, Hampshire, 01962 881051 (Sterile packs).

Nature Conservancy Council for England (English Nature), Northminster
House, Peterborough, PE1 1UA, 01733-340345.

Forestry Commission, 231 Corstophine Road, Edinburgh EH12 7AT, 0131-
334-0303.

Ministry of Agriculture, Fisheries and Food, 3-10 Whitehall Place, London SW1A 2HH, 0171-270-3000.

Mountain Leadership Training Board, Crawford House, Precinct Centre, Booth Street East, Manchester M13 9RZ, 0161-273-5839.

National Association for Outdoor Education, 50 Highway Avenue, Grays, Essex RM17 6RU.

National Rivers Authority, Eastbury House, 30-34 Albert Embankment, London SE1 7TL, 0171-820-0101.

Royal Geographical Society, Kensington Grove, London SW7 2AR.

Royal Life Saving Society, Mountbatton House, Studley, Warks.

Royal Yachting Association and Association of Sea Training Organisations, Victoria Way, Working, Surrey GU21 1EQ.

St John Ambulance, 1 Grosvenor Crescent, London SW1X 9AF.

Scottish National Heritage, 12 Hope Terrace, Edinburgh EH9 2AS.

Ski Club of Great Britain, 118 Eaton Square, London SW1W 9AF.

APPENDIX C - CHECKLISTS

Notes on the Checklists

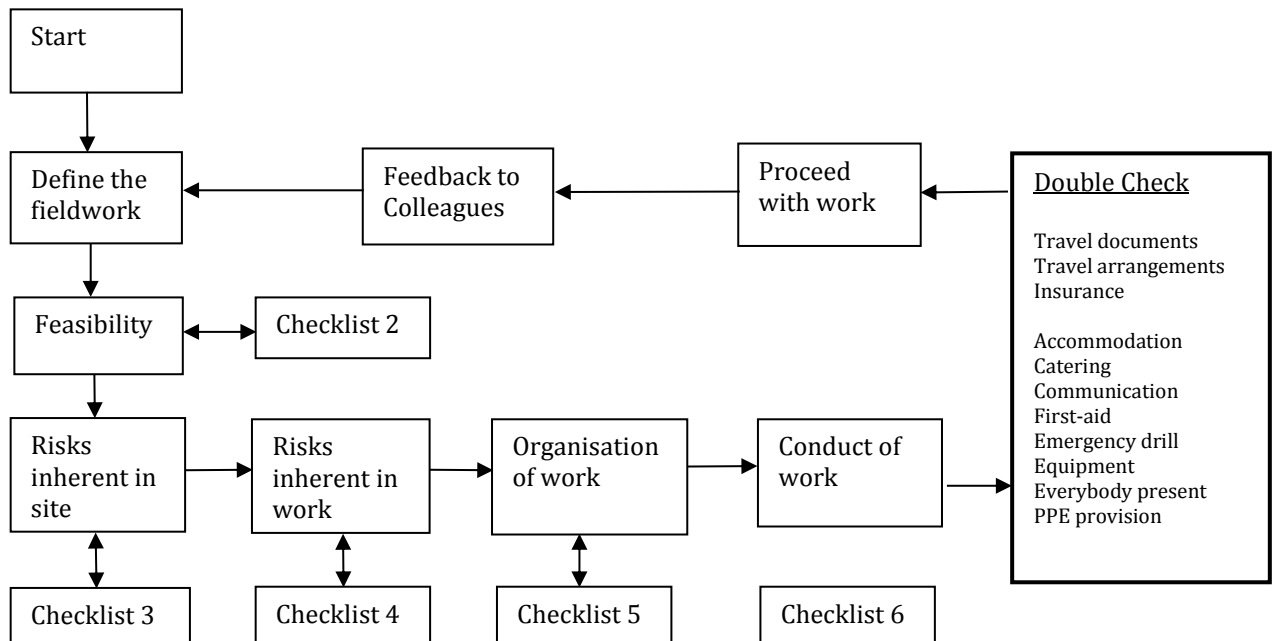
The Checklists supplied are meant as an aid to planning rather than a means to planning. Because of the diversity of fieldwork, the hazards and risks will show great variation and it is for those leading, or otherwise responsible for the fieldwork, to make appropriate plans and risk assessments.

As with any form of risk assessment, there is a need for a careful and systematic approach and it is useful to talk through the assessment with a colleague who has some knowledge of the work to be undertaken and the conditions that are likely to be encountered. While there is no requirement to attempt to quantify the risk assessment, a semi-quantitative approach to the assessment does allow a more systematic approach to reducing risk scores.

The checklists can never be fully comprehensive, but checklist 1 gives a general flow chart to take the assessor through the basic planning stages, while the subsequent lists are directed to more specific items of the work.

The lists overlap, and although this is an inevitable part of the planning process, it may prove more useful to rewrite and extend the checklists to meet specific requirements and to act as a more specific aide-memoir.

Checklist 1



Checklist 2 - Feasibility of Project

Access	<ul style="list-style-type: none"> Travel Arrangements Permission to work on site Provision for disabled Availability of assistance Accommodation Insurance
Fitness	<ul style="list-style-type: none"> Pre-expedition training
Training	<ul style="list-style-type: none"> Navigation First Aid Languages Interpersonal Skills Hygiene/health education Specific skills - e.g. diving, chain saws
Health	<ul style="list-style-type: none"> Health questionnaire Medical/dental check-up Vaccination (especially tetanus) First Aid Kit(s) Sterile packs
Staffing	<ul style="list-style-type: none"> Staff to student ratios Deputising arrangements Competence of ALL leaders

Checklist 3 - Risks inherent in the Site

Physical Hazards	<ul style="list-style-type: none"> Extreme weather Mountains and cliffs Caves, mines and quarries Forests Freshwater Sea and seashore Roadside
Biological Hazards	<ul style="list-style-type: none"> Animals Plants Pathogenic microorganisms (Tetanus, Weil's disease etc.)
Chemical Hazards	<ul style="list-style-type: none"> Agrochemicals and pesticides Dusts (COSHH assessment) Chemicals on site

Man Made Hazards Machinery and Vehicles
Power lines and pipelines
Electrical equipment
Insecure buildings
Slurry and silage pits
Attack on the person or property

Hazards of environment Pollution
Disturbance of eco-systems
Waste minimisation

Checklist 4 - Risks inherent in Work

Training Navigation e.g. map and compass work
Survival/rescue
First aid
Specialist training e.g. Chainsaw
Conduct on boats
Defensive/advanced driving
Diving
Electric fishing
Firearms
Ladders and scaffolding
Tree climbing

Chemical Hazards COSHH assessment for the work ON SITE

Biological Hazards COSHH assessment for the work ON SITE
Animals
Plants

Personal Safety Risk of attack
Communication as routine
Communication in emergency

Checklist 5 - Organisation of the Fieldwork

Pre-planning Travel documents
Next of kin and G.P. noted
Medical problems noted
Appropriate authorities informed (Police, Mountain
Rescue, Coast Guard etc)

Catering	<ul style="list-style-type: none"> Provision of food Hygiene Potable water Food preparation and storage Fuel for cooking
The Group	<ul style="list-style-type: none"> Leader (experience, qualifications competence) Chain of Command (deputies etc) Staff to student ratios Personal inter-group relationships Size of working groups (maximum, minimum) Responsibilities for aspects of work Accommodation
The Individual	<ul style="list-style-type: none"> Working alone avoided? Adequate clothing? PPE provided? Is the individual trained and fit?
Equipment	<ul style="list-style-type: none"> Fit for purpose? Used properly? Well maintained? <p>Is it repairable on site?</p>

Checklist 6 - Conduct of fieldwork

Local conditions	<ul style="list-style-type: none"> Weather forecast Local knowledge Farming practices Itinerary and return times
Transport	<ul style="list-style-type: none"> Appropriately licenced driver(s) Correctly maintained Correctly loaded Appropriate spares Seat Belts Fuel
The Group	<ul style="list-style-type: none"> Present and correct (roll calls) Correctly equipped? Not overloaded First Aid Kit(s) Survival Aids Group size and supervision

Working Practices

Working alone avoided?
Communication
"Buddy" system or lookouts
Safe working systems
Permit to work
Worker trained and fit?
Limitation of time spent working

Emergencies

Communication
Protection of remaining party
Evacuation
Recovery of casualties
Chain of command

APPENDIX D - METHODS OF COMMUNICATION

An effective system of communication must be established between a party in the field and the base or monitoring organisations such as police, coast guard, mountain rescue etc. Available methods vary greatly in cost, and not all establishments will have access to the more sophisticated items. Systems available include:

Cell phones: Give 2-way contact and independence from a base but reception is not available in some parts of Britain. Moderately cheap initial cost but call charges are quite expensive. small size and portable.

Personal mobile radio: Gives 2-way contact but is dependent on a base, has limited range and licensing frequencies and interference problems. There is a high initial outlay but low running costs.

Citizens' band radio: 2-way contact and not dependent on a base but has limited range and unrestricted reception so may attract unwelcome response.

Public telephone: No capital outlay and low running costs but limited availability, especially in remote areas. Not always functional when needed and money/card needed for call.

Satellite communications: Has the potential for global cover but, at present, availability is limited and costs are very high.

Whistle/torch: 1-way contact (coded message). Very low cost and simple to operate but limited use in poor weather.

Movement detectors: 1-way contact (alarm signal). Could be useful for internal workplaces but limited for external use.

Flares: 1-way contact (alarm signal), universal distress signal with low cost but limited in poor weather and by physical number of flares one can carry.

First-Aid: An approved course of instruction by a recognised body. A mountain first-aid course may be more useful in some cases.

Life Saving: Medallion of the Royal Life Saving Society (minimum of bronze medal).

Mountain Walking: Possession of the British Mountaineering Council's Mountain Leader Training Board's Log Book.

Sailing: Instructor or Sailing Master's Certificate of the Royal Yachting Association or National School Sailing Association (with tidal endorsements if necessary).

Skiing: National Ski Federation of Great Britain's Ski Party Organiser's Certificate.

Swimming: Bronze, Silver or Gold Survival award of the Amateur Swimming Association.

Wireless Operation: Radio Telephony (Restricted) Certificate.