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HAZARD PREVENTION AND CONTROL PROGRAMMES

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9.1. GENERAL CONSIDERATIONS

Noise-induced hearing loss is, at present, incurable and irreversible, however, it is definitely preventable, therefore the implementation of adequate preventive programmes is essential.

Specific measures for the prevention and control of exposure to noise are discussed in detail elsewhere in this document; however, it is important to keep in mind that such measures should not be implemented in an ad hoc manner but as part of a comprehensive strategy.

The objective of this chapter is to discuss basic principles for hazard prevention and control programmes and their management, relating them to the prevention of noise exposure and associated effects, whenever relevant.

A programme to protect workers from the effects of hazardous noise exposure in the workplace is often called a “hearing conservation programme”. However, rather than an isolated effort, this should preferably be integrated into the overall hazard prevention and control programme of the workplace in question.

Hazard prevention and control programmes should be designed to meet the specific needs of each situation, in view of the existing hazards and of the many other factors that characterize a workplace; furthermore, programmes should be adaptable to new scientific and technological developments, as well as to eventual changes in the socio-economic context.

As previously seen, noise control programmes are often mentioned or defined by national legislation or international standardization. For example, the ISO 11690-1 states that:

“In order to reduce noise as a hazard in the workplace, individual countries have produced national legislation. Generally, national legislation requires the implementation of noise control measures in order to achieve the lowest reasonable levels of noise emission and exposure, taking into account:

• known/available measures;
• the state of the art regarding technical progress;
• possibilities for noise reduction at the source;
• appropriate planning, procurement and installation of machines and equipment.”

Another example is the European Directive 86/188/EEC on noise at work which requires appropriate hearing conservation and noise control programmes whenever a workplace falls into the “noisy” category (according to the EU definition).

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9.2. REQUIREMENTS FOR EFFICIENT PROGRAMMES

Hazard prevention and control programmes require:

- political will and decision-making;
- commitment from top management, with a clear and well circulated policy basis;
- commitment from workers;
- well defined goals and objectives;
- adequate human and financial resources;
- technical knowledge and experience;
- adequate implementation and competent management of programmes;
- establishment of multidisciplinary teams;
- mechanisms for communication;
- monitoring mechanisms (indicators);
- continuous improvement of the programme.

Political will and motivation require awareness and understanding of the problems caused by hazardous exposure, in this case to harmful noise levels, as well as of the available prevention and control solutions and of the benefits resulting from their application.

At the workplace level, the decision-making process starts with the awareness and acceptance that there is a problem; for example, a noise problem. This is followed by the recognition and localization of the noise sources and the conditions of exposure (e.g., duration). If there is obvious overexposure, a decision is already possible after this first step and the next stage will be the planning of a preventive strategy. If a decision is not possible, the next stage will require quantitative exposure assessments; for example, noise measurements.

The “decision-making ladder” can be used to analyze the decision-making process concerning hazard control in workplaces, as well as to pinpoint where blockages occurred, or are likely to occur, with a view to avoiding them (Antonsson, 1991). The “steps” in the ladder are:

1. Be aware of the problem
2. Accept the problem
3. Know the cause
4. Learn of possible solutions
5. Accept a solution
6. Know the supplier (of solution)
7. Finance
8. Implement solutions
9. Evaluate

So that efficient hazard prevention and control programmes may be implemented, concern for workers’ health should be included in the priorities of top management alongside productivity and quality. A clear policy, discussed, agreed upon and understandable by the stakeholders is essential. The objectives of the programme, the steps to be followed and the available mechanisms for implementation should be clearly defined and presented to all concerned, who must know what to expect and hope for; unrealistic and unattainable goals are very frustrating.

The design and implementation of hazard prevention and control programmes require involvement and commitment not only from management, but from production personnel, workers and occupational health professionals.
9.3. PROGRAMME COMPONENTS

9.3.1. Recognition of the Problem

Complaints of hearing difficulties among workers is too late an indicator that a noise problem exists; however, should this happen, control action must be immediately triggered. The recognition of a noise problem should take place much earlier, whenever noise levels exceed acceptable limits, or simply whenever there is a feeling that the workplace is just too noisy, particularly if there is any interference with verbal communication. In fact, the best approach is to foresee problems and avoid them; for example, by selecting quieter equipment and processes, whenever possible.

The recognition that a noise problem exists is followed by a qualitative assessment of the situation, which includes identifying and localizing noise sources, defining noise exposure patterns, including which are normal and which are unusual exposure conditions. In view of their experience with tasks, work processes, equipment and machinery, workers can provide valuable assistance in gathering such information, which is needed to design an adequate strategy for any subsequent quantitative evaluations, in this case, noise surveys.

9.3.2. Exposure Assessment Issues

Although “strategies for noise surveys”, including measurements and instruments, are presented in detail in Chapter 7, some aspects are hereby summarized so that they may be put into perspective as important elements of an overall noise prevention and control programme.

If hazards are obvious and serious - for example, a workplace where people close to each other have to shout to be understood, the recognition of the problem must be followed by control; quantitative evaluations will come later, in order to verify the efficacy of the control system. It may sometimes be necessary to change the classical concept of "recognition-evaluation-control" to "recognition-control-evaluation". Decision-making as to control actions may have to rely on professional judgement and common sense, particularly if measuring equipment is not available. Impossibility to carry out noise measurements should never be a blockage to correcting obviously hazardous situations.

Measurements must be carried out in the most usual conditions; appreciable fluctuations should be fully appreciated. In fact, as discussed in chapter 7, particularly if there are appreciable noise level fluctuations or workers move around, noise dosimeters offer the best monitoring solution. In order to study noise sources and their relative importance as contributor to exposure, as well as to check the efficiency of implemented noise control measures, the best approach is to use integrating sound level meters, adequately positioned (e.g., at the operators’ ear position).

The initial noise survey constitutes a decision-making tool, and also provides base line data which, together with results from subsequent surveys, may serve as an indicator for future evaluations of any implemented control strategy.

Noise surveys to assess workers’ exposure should be carried out by specialized professionals, for example, occupational hygienists or other occupational health professionals with specific training in noise measurements. Occupational hygiene technicians, if specially trained for this purpose, provide valuable support. Workers’ collaboration is essential.
9.3.2.1. Selection of Measuring Instruments

The type of hazard to be evaluated and the purpose of the survey will determine the type and the required “reliability” of the measuring equipment; for example, sound level meters. If qualitative, or semi-quantitative measurements are sufficient, or if preliminary surveys are a priority, it is useless to spend money on very expensive and sophisticated equipment.

Even if funds are available, equipment should only be purchased, if and when a real need has been established, and, operational capabilities have been ensured, including competent personnel to properly operate, calibrate and maintain the equipment.

If a new programme is being developed, only basic equipment should be purchased initially, more items being added, as the need arises and personnel competencies are developed. When selecting any occupational hygiene equipment, in addition to performance characteristics, practical aspects should also be considered, including:

- portability
- source of energy needed
- calibration and maintenance requirements
- availability of expendable supplies
- conditions of use (including infra-structure and climate)

If the above requirements are overlooked, and unfortunately they often are, the result may be that expensive equipment is inadequately utilized, or not utilized at all. The importance of routine calibration cannot be over emphasized.

All steps of the noise evaluation must be equally well planned and carried out; the complete procedure must be considered as one, since “no chain is stronger than its weaker link”. It would be a waste of resources to allow for unequal quality in the different steps of a same noise evaluation. For example, results obtained with a very accurate and precise integrating sound level meter might not be reliable if it had not been properly calibrated, or, the results might be far from representative of the workers’ exposure, if the measuring strategy had not been adequately designed and followed.

9.3.3. Control Strategies and Measures

Any hazard prevention and control programme involves measures related to the work environment and measures related to the workers. Efficient control strategies usually rely on a combination of engineering (technical) control measures (e.g., quieter equipment and enclosures) and health/personal measures (e.g., work practices).

Noise prevention and control strategies usually involve elements from the following groups of measures, that is, measures which relate to:

- the work process (including tools and machinery), for example: quieter equipment, good maintenance;
- the workplace, for example: noise enclosures or acoustic treatment, and,
- the workers, for example: work practices and other administrative controls, audiometry, hearing protection and workers’ education.

Control measures should be realistically designed so as to meet the needs of each particular
situation and the different options should be considered in view of factors such as effectiveness, cost, technical feasibility, socio-cultural aspects.

The control hierarchy should be the following:

**control of the noise source → control of the noise propagation → control at the worker level**

The standard ISO 11690 (part 1) provides more details on this hierarchy, in its clause on the concept of noise reduction, as follows:

“Noise control can be implemented using various technical measures (see ISO 11690-2) and there may be several ways to solve a noise problem. These measures are noise reduction at the source (e.g., machines, work processes), noise reduction by preventing/attenuating its propagation (e.g., using enclosures, barriers, absorbing materials), noise reduction at specific positions (e.g., cabins). Technical measures for noise control should be applied in order to implement the state of the art with regard to noise control. For this purpose, it is necessary to compare and determine the effectiveness of these measures. Acoustical quantities are used for this purpose, which describe the acoustical features of the sources, the noise reduction attained in workplaces, especially at work stations, when noise sources are operating and control measures have been implemented.”

The first priority is to reduce noise through technical measures. When engineering controls are not applicable or not sufficient, noise exposure may be reduced through measures such as:

- hearing protection (adequately selected, worn and maintained);
- administrative controls, which are changes in the work schedule or in the order of operations and tasks, for example, limitation of time spent in a noisy environment (then wearing hearing protection), performing noisy operations outside the normal shift, or during a shift with very few workers (wearing hearing protection), or, in a distant location, if at all possible.

Very often solutions are sought among the most known measures, such as noise enclosures and personal protective equipment; however, the former may be too expensive or unfeasible, and the latter is not always efficient or acceptable to the workers, particularly in hot jobs and hot climates. Approaches to prevention should be broadened, with proper consideration of other control options, particularly of source control through, for example, substitution of materials and process modification, as well as good work practices (as seen in chapters 5 and 10).

Both personal measures and engineering controls should be discussed with the workers, so that they understand their importance, contribute to their design and learn how to best contribute to their continued efficiency. In view of their knowledge and experience with work processes, operations and machinery, workers can make valuable contributions to the design of control strategies. Workers may contribute to, or decrease, the efficacy of engineering measures; for example, by closing or not closing doors of acoustical enclosures when machines are operating. Personal experience with tasks is indispensable for the design of adequate work practices, particularly when different ways of performing them (e.g., the manner to operate tools and machinery) influences the resulting noise levels.

Workers’ education and training, as well as audiometric examinations, are essential components of hearing conservation programmes.
9.3.4. Hazard Communication, Education and Training Programmes

Successful hazard prevention and control programmes should include hazard communication, as well as education and training for workers, supervisors and all other persons involved. If a programme is to be successful, all stakeholders must be aware of its importance and motivated to collaborate.

Workers should be clearly informed of any known, suspected or potential hazards associated with their work, for example, noise levels to which they are or may be exposed, and, of the possible harmful consequences, for example, hearing loss or accidents due to impossibility of hearing warnings. Workers should also be informed on the best available means for prevention and control, and on how they can contribute to their implementation. This information should be linked to the purpose and proper use of any noise control system, be it based on engineering controls, work practices or personal protection.

Persons involved with prevention and control should have opportunities to continuously update their knowledge and should:

- be alert to new developments concerning effects of overexposure to noise, as well as new guidelines and new standards which may be applicable;
- keep well informed on current developments concerning hazard recognition and control, which may be applicable to the work processes and operations in question.

9.3.5 Health Promotion

According to the concept spelled out in the Ottawa Charter and accepted by WHO, "health promotion is the process of enabling people to increase control over, and to improve, their health". In the same context, it is considered that “...in order to reach a stage of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment...”.

In view of the multiplicity and diversity of health determinants, global and dynamic approaches are needed to protect and promote health in a comprehensive manner. Although the different health determinants will not have the same relative importance in different settings, all must be considered. For example, efforts to control noise may be wiped out by “off-the-job” activities, such as shooting, if practiced without adequate hearing protection. Workers should be encouraged to carry over their good hearing conservation practices to off-the-job situations, whenever relevant.

9.4. IMPLEMENTATION OF PROGRAMMES - PROGRAMME MANAGEMENT

Timely and realistic planning is essential for the establishment of any programme, and a plan of work must be elaborated, according to the real needs and accounting for the available resources. Other factors to be considered include legal requirements (legislation, standards), infrastructure and support services (including for equipment maintenance).

It should be always kept in mind that anticipated prevention is the best approach; for example, to achieve noise reduction in already installed and operational workplaces is very difficult and very costly.

Programmes must be efficient and sustainable; continuity must be ensured, as well as the possibility to eventually adapt to new needs and circumstances which may arise in the long run.
9.4.1. Management

Management involves decision-making concerning the goals to be achieved and the actions required to efficiently achieve them, through active participation from all concerned; it also involves foreseeing and avoiding (or recognizing and solving) problems which may create obstacles.

Good management should be able to make the difference between “work done” and “work well done”. The importance of implementing and enforcing correct procedures cannot be overemphasized. Moreover, the real objective, not the intermediate steps, should serve as a yardstick to measure success; for example, the efficiency of a hearing conservation programme should not be evaluated by the number of noise surveys or audiometric tests carried out, but rather by the number of successful preventive actions which they triggered.

Furthermore, a distinction should always be made between what is “impressive” and what is “important”. A very detailed noise survey with very accurate and precise sound measuring equipment, including 1/3 octave-band frequency analysis, may be very impressive but what is really important is that its results are adequately used for a fully justified and relevant purpose.

Management tools needed to efficiently implement a policy include, for example: transparent organization, clear working procedures (for standard operation as well as for maintenance, inspection and abnormal situations), adoption of standards and guidelines, human resources programme (selection, education and training, information, maintenance of staff competence), effective of lines of communication, development of performance indicators (environmental and health parameters, e.g., results from audiometric tests), and establishment of evaluation mechanisms.

Good communication within and outside the programme is essential for well coordinated team work, sharing of information and enhanced collaboration.

9.4.2. Team Work

The initial step should be the creation of a multidisciplinary team and the elaboration of mechanisms for efficient team work. The multidisciplinary team in charge of hazard prevention and control programmes should include the required occupational health and safety professionals, as well as representatives from management, production managers/engineers and workers. Moreover, all persons concerned should be somehow involved. The team should include, or have access to, professionals with competence in occupational hygiene, occupational medicine and occupational nursing, ergonomics, work psychology, and, in the case of noise control, also acoustical engineering and audiology. In all cases, workers’ participation is indispensable.

Persons assigned to the hazard prevention and control team should have, in addition to the required knowledge and experience, also enthusiasm, commitment, spirit of collaboration and possibility to actively participate, including available time.

Measures and actions should never be imposed, but rather discussed. Moreover, teams and individuals should be provided with the resources and the freedom of action needed to fulfill their responsibilities, which should be clearly characterized and assigned. All members of the team can make a contribution and all must feel part of the programme. Joint efforts, involving all stakeholders, are needed to achieve full protection of workers’ health.
9.4.3. Special Situations

Maintenance, repair and other non-routine activities usually receive less attention than required. Experience shows that such jobs may lead to overexposure since workers often make repairs without the required personal protection, for example, no hearing protection even if other noisy work processes are still operational.

Maintenance personnel usually works without any hearing protection because they feel that they have “to hear” the machinery; moreover, they often have to place themselves in awkward positions thus “dispensing” the additional burden of personal protection. It also happens that such operations are conducted outside normal working hours and unsupervised.

Maintenance and cleaning workers must also be protected, as needed, and should receive appropriate health and safety training. Particularly when maintenance and cleaning jobs are subcontracted (which happens quite frequently) safety rules tend to be overlooked. This is more critical when dealing with hazards responsible for acute health effects, which is seldom the case of noise exposure.

9.4.4. Time Frame

A realistic appreciation of the time factor should be made at the planning stage. It is impossible to solve all problems at the same time, particularly if and when their solution requires medium to long-term interventions.

Therefore, priorities for action should be established considering aspects which include the following: number of workers exposed; nature and magnitude of exposure, hence the degree of hazard; feasibility of the action; availability of the required equipment and supplies, and, degree of interference with production.

Appropriate work practices and the use of personal protective equipment, such as hearing protection, can be implemented in a relatively short time. The full implementation, however, may take longer, as it depends on factors which often are out of the control of the occupational health professionals, such as having full cooperation from workers and supervisors, as well as from managers. Therefore, any preventive actions should be accompanied by adequate hazard communication, training and education of all stakeholders.

On the other hand, the design and implementation of engineering control measures - such as lining barrels or wheels with vibration-absorbing materials, acoustical enclosures, or acoustical treatment of surfaces, take time and usually require temporary shut-down of certain operations. Therefore, detailed timetables are indispensable.

Proposals presented to management should be feasible. Timetables should be prepared in collaboration with production managers/engineers and workers, and based on a realistic appreciation of the time needed to complete the installation of the controls.

9.5. PROGRAMME EVALUATION

Programmes should be periodically and critically evaluated, with a view to assessing their relevance and ensuring continuous improvement.

9.5.1. Monitoring Control Systems

Once a control system has been put into operation, it is necessary to ensure that the desired level
of protection has been achieved and is maintained thereafter. In order to obtain the best possible performance, both engineering controls and personal protective equipment must be routinely inspected, maintained and, whenever necessary, replaced.

9.5.2. Indicators

An initial survey (ideally involving noise measurements and audiometric tests) should be carried out before a programme is implemented or reformulated. This provides good basic data for subsequent assessments of the effectiveness of the programme.

Indicators, which should be sensitive to changes in the work environment or in health parameters, usually relate an environmental condition to a health effect (e.g., noisy environment/hearing loss), or relate a certain environmental agent to an exposure factor (e.g., noisy machines/noise level at operator’s ear).

Some indicators are used for decision-making purposes, others to monitor the efficiency of a preventive programme. For example, the “percentage of workers with a certain degree of hearing loss” indicates the need for immediate action. However, this should not be allowed to happen and a more acceptable decision-making indicator in this case would be “noise levels above a certain acceptable value”.

Initial and follow-up audiometric examinations of workers provide valuable data for indicators.

In order to have scientific and user relevance, indicators should have characteristics which include the following: based on known linkages between, for example, noisy work environment and auditory effects; unbiased, reliable and valid; based on data of a known and acceptable quality; easily understood and acceptable by all stakeholders; based on data which are readily available or easily collected, at an acceptable cost, or, data which are needed anyway. Furthermore, indicators should be timely for policy and decision-making, and, appropriate to monitor the resulting actions.

For example, if the issue is noise control, it would not be “timely” to base a “decision-making indicator” on audiogram results, if audiometers were not available; the required equipment would have to be ordered and delivered, people trained in their use, hence a long time would elapse until the data could be obtained and the decision made. If, for example, it is impossible to understand normal conversation in the workplace in question, this would already serve as an indicator that noise control action is needed.

9.5.3. Environmental Surveillance for Control Purposes

Routine monitoring (continuous or intermittent) is a means to detect any alteration in the exposure conditions. This may result, for example, from changes in the process or materials utilized, from wearing off and deterioration of tools and machinery (such as unbalanced bearings), from deficiencies and breakdown in existing control systems, or from any accidental occurrence. Sound survey meters, although mostly not compliant to standards for integrating or normal sound level meters, have a wide application in “control” surveys.

It should be said that very accurate and precise quantitative evaluations are not necessary to check controls on a routine basis. Less sophisticated methods can be used to indicate alterations. Even some “practical surveillance” may be used; for example, observation of factors such as workers suddenly finding difficulties in understanding instructions, or reduced understanding via telephone.
In view of their familiarity with the operations, workers are usually in a position to provide valuable information about unusual occurrences and alterations that should be investigated in order to ensure the continued efficiency of the control systems.

Visualization techniques, for example, the “Picture Mix Exposure - PIMEX” (Rosen, 1993) can be very helpful in demonstrating the usefulness and relative efficiency of different control measures. This method combines a video image showing the worker performing his/her tasks, as well as a graduated bar displaying, for example, noise levels which are continuously measured at the worker’s ear with a real time monitoring instrument. In the case of noise exposure, this method is particularly efficient in designing and evaluating work practices, since it enables one to “visualize” how noise levels vary while a task is performed in different manners.

9.5.4. Health Surveillance for Control Purposes

Health surveillance of workers includes pre-employment, periodic and special health examinations, including clinical observations, investigations of specific complaints, screening tests or investigations, and early detection of health impairment. In the case of noise exposure, audiometric tests are an important component of health surveillance.

Occupational hearing loss occurs very gradually. An early change in hearing ability indicates overexposure and, if immediate preventive action is taken to prevent further exposure, a more important hearing loss can be prevented. Therefore, early detection of noise-induced hearing loss, which is feasible through audiometry (see Chapter 8), should be part of any preventive programme. Through early detection of health impairment due to occupational health hazards, it is often possible to identify the hyper-susceptible workers and also to prevent further damage (secondary prevention).

Health surveillance should never be considered as a replacement for primary hazard prevention; however, it is an essential complement, as it contributes in many ways to preventive strategies. In the first place, results from health surveillance may serve as useful indicators of the need to control, and thereafter, of the efficiency of control systems, by detecting problems or failures in the control system. Comparisons of audiometric tests (of the same worker(s), at a time interval) that show some hearing loss can help trigger prompt preventive interventions and motivate workers to actively collaborate in order to prevent further damage. However, from an occupational hygiene point of view, this is much less desirable than actions triggered by the perception that there is overexposure but before any irreversible damage occurs.

Personnel responsible for health surveillance of workers should be kept informed about any hazard evaluation conducted in the workplace, and should have information on exposures observed at specific processes or operations, and vice versa.

Continuous communication, teamwork and exchange of data between health personnel and occupational hygienists are essential for the success of any hazard prevention and control programme. The establishment of correlations between working conditions and the health status of workers contributes to total exposure assessment and is indispensable for the evaluation of control strategies.

Workers should always be informed of the reasons for any health examinations and agree with the procedure. Participation of workers in surveillance and control actions may be spelled out in national legislation or supranational directives, for example, the European Directive 86/188/EEC on noise at work.
9.5.5. Record-keeping and Reports

It is important to keep good records and clear reports on measurements and tests, measuring instruments and control systems, as well as on the programme itself.

As to noise measurements and audiometric tests, the results should be well organized, identifiable and easily retrievable. Data to serve as indicators should be consistently gathered and analyzed. However, national legislations differ concerning to whom results from individual audiometric tests should be delivered. Usually such results are to be treated as confidential medical data and only group data used in connection with indicators of success (or failure) of programmes.

As to measuring instruments and hearing protection, all details concerning purchase (including contact person at the manufacturer’s), as well as adequate logs on maintenance should be carefully kept. Measuring instruments also require records on routine calibration and hearing protection, on replacement deadlines.

Moreover, complete and accurate records of working conditions, materials used, and performance of control measures, should also be kept.

Objective and clear reports on the programme should be periodically prepared and critically analyzed by the team.

9.5.6. Continuous Improvement

In order to achieve continuous improvement, it is necessary to perform routine evaluations of how the programme is proceeding, including analysis of the selected indicators. It is important to establish an adequate system for the recognition and due appreciation of both failures and successes. Failures should be considered as learning experiences towards programme improvement, rather than as reason for criticism; pinpointing possible sources of mistakes, in order to correct and avoid them, is more important than “finding the guilty”. On the other hand, successes should be fully recognized, given ample credit and celebrated by the team; this contributes to job satisfaction and improved performance.

9.6. REQUIRED RESOURCES

9.6.1. Human Resources

Even when the need for noise control has been established and the decision to implement the required preventive measures has been taken, there may be practical difficulties. One usual “stumbling block” is the shortage of adequately trained personnel, with specialized “know-how”.

The required scientific, technical and managerial competence should be available among the members of the responsible team. For very specific technical issues, external professionals (for example acoustic engineers) may be engaged; however, their work should follow the specified control strategy and should be integrated into the comprehensive approach designed by the team.

In order to ensure that a programme is efficiently run, programme managers should have, in addition to knowledge and experience, also managerial competence.

9.6.2. Allocation of Financial Resources

The financial resources required for a hazard prevention and control programme have to be
identified and secured before starting its implementation.

Financial resources must be optimized and carefully allocated within a framework of priorities, always keeping an appropriate balance among the different components, namely human resources and information, instrumentation and control systems. In certain situations, appreciable funds may be necessary for initial staff development.

In order to ensure sustainability of a programme, operational costs must be appropriately foreseen. These include, for example, expenses for: maintenance, repairs and purchase of spare parts for measuring instruments; maintenance, repairs and eventual replacement of personal protective equipment (e.g., hearing protectors); maintenance of staff competence, including continuing education and participation in scientific meetings; eventual hiring of external consultants, and, update of information systems (e.g., books, journals, CD-ROMs, access to databases and the Internet - depending on the size and scope of the programme).

Some degree of financial flexibility should always be allowed, in order to respond to new needs which may eventually arise from periodic reassessments.

REFERENCES


INTERNATIONAL STANDARDS

Titles of the following standards referred to in this chapter one will find together with information on availability in chapter 12:

ISO 11690-1, -2.