BEST PRACTICES CONCERNING TRAINING AND QUALIFICATION FOR ENVIRONMENTAL INSPECTORS

FINAL REPORT

IMPEL

NETWORK

European Union Network for the Implementation
and Enforcement of Environmental Law

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EXECUTIVE SUMMARY

This report examines the systems in place in Member States for the Training and Qualification of Inspectors and aims to identify best practices from them. These best practices are more than "minimum criteria".

It begins with a summary of the position in the Member States: more complete information can be found in the annexed report. It then describes a framework for identifying qualification and training needs for staff undertaking inspections, or preparing permits for those Member States where these inspection and permit activities are undertaken by the same people or within the same body. These include entry level requirements such as academic qualifications, personal attributes and general suitability. Initial training will often be needed before the new recruit can work alone, which will include practical experience on the job gained under supervision from a senior member of staff. His or her competency will need to be assessed and an evaluation should be undertaken. Continuing professional development will be needed in order to keep abreast of changes and to maintain the required level of competence. Some specialist training may also be appropriate, in order to have specialist knowledge within a particular team or organisation. The effectiveness of training given should also be checked.

Skills and competencies need to be assessed according to the inspector's role within a particular team. Inspectors need to plan their inspections, carry out site visits and draw conclusions on appropriate action to take as a result. It is important to define how well these tasks should be performed, which in turn assists in defining core competencies. Broadly similar steps are often followed in order for a permit to be issued. The permit writer has to be able to assess the operator's application against the requirements of the relevant legislation. He/she will decide whether to issue a permit with conditions or to refuse an application for a permit, with reasons. If more than one authority is responsible for issuing a permit, it is important to ensure that conflicting permits are not issued for a particular activity.

In any group of individuals in a profession, qualifications, skills and attributes will vary widely. A distinction can be made between "core competencies" at individual level (of which an inspector should have at least a basic understanding) and at the team level (which are necessary within a team but need not be found in each inspector). These competencies cover administrative framework and legal skills, inspection, permitting, technical skills and communication and management tools.

Entry qualifications will depend on the specific role (inspector or permit writer) and the sector or level in which they work. Generally studies for 2 or 3 years leading to a diploma after secondary education completed at the age of 18 or 19 or relevant experience in science, technical or legal matters or the environment. According to the needs of the organisation, specific skills and competencies that may be required are technical skills, knowledge of national environmental legislation and organisations' roles, technical report writing and communication and negotiation techniques.

Each new entrant has to have some core competencies before he or she can work on their own. If necessary their knowledge must be developed and further assessed while an inspector will need refreshment training and possibly training in a speciality. Competencies can be divided into three levels – awareness, knowledge and full understanding. Training can be at the levels of entry qualifications, initial training and further training for generalists and specialists.

The inspecting body responsible for training should plan and report about it as an integrated part of the quality management system and annual planning procedures. Assessment means a comparison of the desired qualifications and skills necessary to perform a particular role. It is recommended that inspectors should be assessed during the selection procedure, after the beginners' training and periodically throughout the career, this latter in order to assess whether there are further training requirements.

FOREWORD

The European Union Network for the Implementation and Enforcement of Environmental Law is an informal network of the environmental authorities of EU Member States. The European Commission is also a member of IMPEL and shares the chairmanship of management meetings.

The network is commonly known as the IMPEL Network

The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on certain of the technical and regulatory aspects of EU environmental legislation. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. It promotes the exchange of information and experience and the development of greater consistency of approach in the implementation, application and enforcement of environmental legislation, with special emphasis on Community environmental legislation. It provides a framework for policy makers, environmental inspectors and enforcement officers to exchange ideas, and encourages the development of enforcement structures and best practices.

Information on the IMPEL Network is also available through its web site at:

http://europa.eu.int/comm/environment/impel

This report on best practices concerning training and qualification for environmental inspectors is the result of a project within the IMPEL Network. These best practices are more than "minimum criteria". The content does not necessarily represent the view of the national administrations or the Commission.

The report was adopted under written procedure on 18 March 2003.

1. SCOPE OF THE REPORT

1.1 INTRODUCTION

This project is based on Recommendation of the European Parliament and of the Council of 4 April 2001 providing for minimum criteria for environmental inspections in the Member States (2001/331/EC), further referred to in this report as the recommendation. This recommendation was published in the Journal of the European Community on 27 April 2001.

The scope of this project is restricted to the scope of the recommendation, as described in art. II.1.a:

> *This recommendation applies to environmental inspections of all industrial installations and other enterprises and facilities, whose air emissions and/or water discharges and/or waste disposal or recovery activities are subject to authorisation, permit or licensing requirements under Community law, without prejudice to specific inspection provisions in existing Community legislation.*

This project also takes in account the preamble 5 of the recommendation:

> *Different systems and practices of inspections already exist in the Member States and should not be replaced by a system of inspection at Community level, and Member States should retain responsibility for environmental inspection tasks.*

According to this resolution in the recommendation, **this project intends to establish best practices for training and qualifications for inspectors within Member States.** However, the working group has extracted from this report minimum criteria concerning the qualifications for inspectors within Member States, added to this report as Annex 5. Training will remain a responsibility of the Member States.

In some Member States, these inspection and permit activities are undertaken by the same people or within the same body. This report studies then the training and qualifications for both processes. In other Member States, inspectors and permit writers operate in separated bodies and may have different training and qualifications. Training for these permit writers is not studied in this report. Although there are common issues for both inspectors and permit writers, there are also differences. This report strives to point out these differences and similarities.

In preparing this report, the working group have tried to be as comprehensive as possible in outlining the qualifications, training and core competencies required for an inspector/permit writer. It is however important to point out that this has been done based on the requirements to regulate of all environmental media. In reality, the actual competencies required for an individual or an organisation will constitute a subset of those specified in this report and will ultimately be defined by the legal role of the organisation and the functions that it performs. As such it is the matter for each country to select those competencies, which are necessary to achieve the inspection, or permitting tasks as defined by the regulatory system in place in the Member State.

The list below sets out examples of the main sectors of Community legislation, which contain permitting and inspections requirements and which will fall within the recommendation's scope. (Cf. annex 2 for references to legal acts existing at the date of the report). The list is not intended to be exhaustive given that Community law is continually added to or amended:

1. Legislation relating to integrated pollution prevention and inspection
2. Legislation relating to water quality
3. Legislation relating to waste
4. Legislation relating to Major accidents

1.2 DEFINITIONS

This section defines key concepts and expressions that are relevant to the work of an inspector or a permit writer and that are used in this report.

Assessment	Examination/evaluation to determine if the required qualifications/standards are met.
Competences	A set of qualities (in terms of knowledge, skills and personal attributes) a person brings with him to fulfil a specified job.
Compliance	Full implementation of environmental requirements. Compliance occurs when requirements are met and desired changes are achieved. *Principles of environmental enforcement, 1992*
Compliance monitoring	Collecting and analysing information on compliance status. *IMPEL Reference Book* Measurements of pollutants and physical parameters (e.g. flow) in emissions and receiving environment, for the purpose of checking compliance with permitted limits for emissions and ambient pollutant loads. *The term "monitoring" therefore has a broad range of meanings in its general regulatory usage. For the purposes of this project, "compliance monitoring" was taken to refer to measurements of process conditions, process emissions and levels in receiving environments; and reporting of the results of such measurements to demonstrate compliance with numerical limits specified in laws, regulations, permits or injunctions.* *IMPEL Report on Best Practice in Compliance Monitoring*
Continuing Professional Development	The systematic maintenance, enhancement and development of knowledge and skill, and the development of personal qualities necessary for the execution of professional and technical duties throughout the permit writer/inspectors career.
Core competencies	Those competences that are specific for an inspector/ permitter and on which each inspector/permitter should have at least a basic understanding.
Emission monitoring	Collecting and analysing of the direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources in the installation into the air, water or land. *Based on the IMPEL Reference Book*
Environmental monitoring	Collecting and analysing data on all kinds of environmental performance, including operator's self-monitoring and other monitoring of emissions, noise, immissions, impacts etc.
Initial training	Training undertaken by an inspector before he/she is allowed to operate independently

Inspection

"environmental inspection" is an activity which entails, as appropriate:
(a) checking and promoting the compliance of controlled installations with relevant environmental requirements set out in Community legislation as transposed into national legislation or applied in the national legal order (referred to hereinafter as "EC legal requirements");
(b) monitoring the impact of controlled installations on the environment to determine whether further inspection or enforcement action (including issuing, modification or revocation of any authorisation, permit or licence) is required to secure compliance with EC legal requirements;
(c) the carrying out of activities for the above purposes including:

- site visits,
- monitoring achievement of environmental quality standards,
- consideration of environmental audit reports and statements,
- consideration and verification of any self monitoring carried out by or on behalf of operators of controlled installations,
- assessing the activities and operations carried out at the controlled installation,
- checking the premises and the relevant equipment (including the adequacy with which it is maintained) and the adequacy of the environmental management at the site,
- checking the relevant records kept by the operators of controlled installations."

Recommendation

Inspector :

The person charged with compliance and enforcement in the broadest senses of the word. The term of inspector is consequently used for synonyms like, government official, enforcement officer, etc.

IMPEL Reference Book

An inspector is the one who may be responsible either alone or as part of a team for the entire control of an installation, so a person who is only responsible for the sampling does not fall within the definition of an inspector. As there are many tasks and many different levels of qualifications part of the inspection process, people who are not inspector can be involved in the process and work under the supervision of an inspector

License

See "Permit"

Operator self monitoring

Monitoring undertaken by the operator in accordance with a requirement of permit or relevant legislation. It may include monitoring of emissions and of impacts on receiving environments.

IMPEL Report on Best Practice in Compliance Monitoring

Self-monitoring, for the purpose of this paper, primarily relates to measurements of process conditions, process releases and environmental levels, and reporting of the results by the operator to the competent authorities in accordance with requirements specified in laws, regulations, permits or injunctions. However, self-monitoring of an operator's performance with regard to environmental targets, process/plant improvements and overall compliance is also considered to some extent.

IMPEL Report on Operator Self Monitoring

Permit	The part or the whole of a written decision (or several such decisions) granting authorisation to operate all or a part of an installation, subject to certain conditions which guarantee that the installation complies with the requirements. The term license is consequently used for synonyms such as permit, certificate etc. *IMPEL Reference Book* Permit shall mean that part or the whole of a written decision (or several such decisions) granting authorization to operate all or part of an installation, subject to certain conditions which guarantee that the installation complies with the requirements of this Directive. A permit may cover one or more installations or parts of installations on the same site operated by the same operator. *IPPC Directive 96/61/EC*
Personal attributes	A characteristic or feature of an individuals personality, not formed by knowledge and/or skills.
Qualification	Training, test etc. that qualifies a person, degree, diploma etc., awarded at the end of such training.
Quality management	A collection of rules, procedures and tools enabling members of a group to fulfil specified requirements.
Skill	A talent or an accomplishment naturally acquired or developed through training.
Team competences	Competence necessary in a team of inspectors or permit writer but which each person doesn't need personally to do his job.
Training	Different means of improving knowledge and skills for example by courses, conferences, seminars, and job exchange, coaching, self-learning.

2. BACKGROUND OVERVIEW

The following section provides an outline of the systems in place in each E.U Member State regarding the current situation vis-à-vis qualifications and training of inspectors and permit writers. Summary information is also provided with regard to the integration/separation of the permitting and enforcement roles of the competent authorities. The information is based on a questionnaire forwarded to participants of the working group, the full content of which is provided in annex 1.

Summary of the results

The summary of each country's system is provided in the following format:

(a) Permitting/inspection (separated or integrated)

(b) Entry qualifications for inspectors/permit writers

(c) Training provided

(d) Assessment undertaken

Austria/Salzburg a) Inspection and permitting is - for most laws - done on the provincial or district level. The permitting authority is also responsible for the enforcement. In the Austrian provinces at the moment inspection systems to fulfil the recommendation are developed. There are no separated inspection bodies. Inspections are in some cases delegated by the competent authorities to inspectors (e.g. inspections under the Chemicals Act or under the Water Act).

b) Officials writing permits are usually legal experts (university degree). The expert opinions given by the experts (inspectors) are no legally binding statements (these opinions do have the status of a proof in the permitting or inspection procedure. Environmental Inspectors are usually skilled in applied sciences (university level or advanced technical college).

c) Every province has its own selection procedure for personnel, there are no general regulations.

d) The unit in charge with the environmental inspectors in the province of Salzburg has a quality management system and is certified according to ISO 9001. The (introductory and advanced) training of the inspectors is assessed and planned according to an internal guideline. In addition, every official has to undergo an internal training e.g. for EU-law, administrative law, the constitution etc.

BE/Flanders a) There is a complete distinction between enforcement and permitting. The Environment Inspection Section (EIS) is responsible for the enforcement of the environmental legislation and does not interfere in the permitting. The Environmental Licences Section plays the central role during the permitting process, where the final decision is always taken by a political body.

b) New environmental inspectors are selected through an official test where the technical competence and the personal skills of the candidates are tested. The candidates have to have a university degree (at least four years after high school:

engineers, masters in science, …) or a degree after at least three years higher education (environmental science, …).

c) The new environmental inspector have to follow a traineeship of one year (university degree) or 9 months (others): training on the field with one or more senior inspectors and different courses about the organisation and working of the Flemish administration are combined. Only after the successful completion of this traineeship, they can obtain all the competences of an environmental inspector (execute inspections on their own, draw up an official report, …). Afterwards, the environmental inspectors have different opportunities to follow training programmes: general internal and external training programmes concerning technical and judicial aspects of the inspection and enforcement work, specific training courses for specialists, management training for supervisors and project leaders and sabbatical leave (a combination of working and learning by working for a certain time outside the own organisation).

d) Every year, an individual planning document with personal objectives is made after consultation between the environmental inspector and the hierarchical supervisor. This document can contain different objectives. Training can be a possible way to obtain good results in reaching these objectives. After every year, every environmental inspector undergoes an evaluation. The evaluation involves testing whether and especially how the agreed results have been achieved. The evaluation report is descriptive.

Denmark

a) The same authorities are responsible for both permitting and inspection, and in most cases the same inspector, who writes the permit is also controlling the compliance by inspection at the enterprise. Major enterprises are permitted and inspected by a regional authority (county) and minor enterprises are permitted and inspected by a local authority (municipality).

b) To be employed as an inspector you must have a university degree or 3-4 years of vocational training. Experience from the industry is considered an advantage.

c) No formal training system is in place, but the inspector is urged to use about five days a year for following courses. Courses are offered by the Danish Training Centre for Local Administration, trade unions and by the inspectors club, as well as the universities.

d) No formal assessment of the inspector's skills and knowledge is made, but at annual personal development interviews between the inspector and his/her daily leader the inspector's performance and training needs are discussed.

Finland

a) There are partly separate authorities for permits and for supervision. Three environmental permit agencies are responsible for permits to major plants and some other activities like harbours, airports and fish farming. Thirteen regional environment centres issue permits for medium size plants, and they also supervise these plants and the activities having permits from the environmental permit agencies. A considerable part of the regional permitting officials are also responsible for supervision, but there are additional inspectors working at the same office. Small plants are supervised by the local authorities, and their permits are granted locally.

b) To be employed as an inspector you must have a university degree or 3-4 years of vocational training. Experience from the industry, a consultancy or a municipal inspecting body is considered an advantage.

c) Samplers who monitor discharges and their impacts on watercourses and groundwater receive special training and certificates. Other inspectors, and those dealing with permits, are tutored by senior officials and learn by doing. Everyone is likely to participate in at least a couple of seminars (1-2 days each) annually. The Ministry of the Environment and the Finnish Environment Institute plan the annual seminar programme. The regional centres arrange seminars for the local authorities.

d) No formal assessment of the inspector's skills and knowledge (except for samplers) is made, but at annual personal development interviews between the inspector and his/her daily leader the inspector's performance and training needs are discussed.

France

a) The permit authority is also responsible for inspections.

b) The qualification required for permits and inspection activities is a 5 years degree in science or environment (or 2 years for technicians level).

c) Beginners are systematically trained before the job with two weeks courses and a 3-6 months' training on the job. New inspectors are given a training program with courses and on the job training, which they must fulfil within the first three years of the job. The Ministry of the Environment, together with a national monitoring committee, define the training's policy.

d) Individual assessment is made at several stages : recruitment, during the enabling procedure of each new inspector in front of his local hierarchy ; and every year trough the annual evaluation with the manager where the individual training plan is discussed.

Germany

a) The national government is usually in charge of legislation in the field of technical environmental protection; the 16 federal states are responsible for enforcing these laws. Normally, the permit authorities are also responsible for inspections.

b) The minimum qualification required for granting permits and inspections is a degree from a university of applied sciences, a degree from a technical university is required for management level. In the 16 federal states the preparation of the new entrants for their tasks is different. The preparatory training in some federal states amounts to 15 – 24 months. This preparatory training put the new entrants in a position to do all the tasks of the state authorities for environmental protection (permitting installations, inspection, enforcement, monitoring, sampling, lab). In the federal states without preparatory training the new entrants undergo an induction phase, during which they are instructed and supervised. In this induction phase they are only prepared for inspection and granting permits. Normally, they get the responsibility for a part of these tasks after six months.

c) In order to secure the high level qualification, the employees have to undergo further training. A lot of the federal states' environmental ministries draw up further training concepts for all employees. In addition to imparting technical

and legal knowledge, these concepts provide further training in software skills, communication skills, organisational and management skills.

d) Evaluation and offering of further-training courses can help to make sure that employees can attached courses in line with their needs so that they can perform their duty efficiently. The superior must discuss with the employee how latter can better put into practice what he or she has learnt and which further-training courses would help them perform their duties better. The performance and the abilities of civil servants are judged by their superior. Consequently, their qualifications are assessed indirectly.

Ireland

a) Permitting and enforcement of IPPC permits are undertaken by the same authority (The Environmental Protection Agency). . Currently the inspector who drafts the IPPC permit is responsible for the enforcement of that permit. Other environmental permits issued by the local authorities, mainly permits for discharges to sewer or waters for industries not covered under IPPC

b) Entry qualifications for an inspector within the EPA require a primary degree (Bachelors) in either science or engineering. In advertising for the posts it is stated that a postgraduate degree (MSc or PhD) will be an advantage in applying for the post.

c) The Licensing and Control Division within the EPA operates to ISO 9002, and is currently implementing ISO 9000:2000. Training is undertaking in line with the requirements of this standard and in line with the Agency's Performance Management and Development System (PMDS). In brief, a suite of courses has been identified as essential for an inspector (licensing or enforcement) to be complete on entry to the division. Depending on previous experience some of the courses may be omitted form an individuals training plan. In parallel the inspector is mentored by a senior inspector and initially works with the senior inspector in both permit preparation and enforcement duties. Upon completion of all required essential training courses and a satisfactory assessment form the senior inspector, the new inspector can work autonomously.

d) Inspectors participate in biannual assessments with their line manager under the Agency's PMDS scheme. During this assessment progress with the work portfolio are discussed. In addition the training requirements for the inspector are assessed, and are fed back to the training co-ordinator who considers incorporating them within the following years training plan.. On average 13 days per year are spent on formal training by an inspector.

Italy

a) There are separate authorities for permits and for inspections. Generally the Regions and Provinces are in charge of the permitting system while the controls/inspections are in the hands of the Environmental Agency’s system, the Carabinieri Corps for the Environmental Protection, The State’s Forestry Corps and some times the Financial Guards. These “bodies” are in charge of the implementation of environmental legislation. The Carabinieri Corps for the Protection of the Environment generally concentrate on complaints and by sanctions/violation of the rules and with the law 22/97 they gained full power as environmental and administrative inspectors. Some times they do their own sampling, while other times they are accompanied by the Environmental Agencies, so do the State’s Forestry Guards.

b) As every Region has its own organisation, at the moment there is no unified qualification requirements for inspectors. Some Regions require two years' specialisation in environmental protection at university level while other regions require a specialised technical diploma with working experience. Inspectors are divided according to media (air, land, water etc), but actually, on the national level, the IPPC directive is aimed to be implemented and the inspection system will change towards an integrated approach.

c) The Regional Agencies generally have an annual training plan or programme. In some Agencies, as well as for the Carabinieri Corps for Environmental Inspections, the training consists on specialization in specific environmental sectors, inspection techniques, innovation etc.

d) Generally the assessment is made through some questionnaires concerning the programme's subjects or by interviews undertaken or by senior inspectors or the course's manager.

The Netherlands

a) The Ministry of Housing, Spatial Planning and the Environment (VROM) develops and coordinates general environmental policy and the Ministry of Transport, Public Works and Water management (V en W) develops this relating to water management. At an operational level the central organisations, provinces, water boards and municipalities all have an important role in environmental permitting and inspection.

All operational organisations are in charge of the permitting process and the inspection task. In most organisations there is a permitting department and inspection department. The environment Act regulates who is licensed to control this Act.

b) In general, officials working with permits are equally trained (academic examinations (4 year) as those working with inspections

c) Both ministries and most of the other organisations have annual training programmes. Courses, mentorship and networking play important roles in raising vocational and professional skills.

d) Yearly an individual planning document with personal objectives is made between supervisor and inspector. This includes objectives for training. A formal assessment program will be developed between inspecting bodies (visitations) in order to bring the professional quality of inspectors on a higher level by an Inspection Academy. This initiative was taken by the Dutch government.

Portugal

a) Inspection and permitting functions are separate in different bodies of Portuguese administration. The Ministry for the Economy and, for certain activities, the Ministry for Agriculture, Rural Development and Fisheries issues industrial licences; the Ministry for Towns, Territorial Planning and Environment issues discharge permits in the regional Directorates; environmental licences under IPPC Directive and authorisations for Seveso II Directive are under the Environment Institute, as the competent authority; the Ministry for Health controls water quality from the public health standpoint. The Inspectorate General for the Environment (IGA) is a central body, created in

1997, as the Ministry of the Environment and Natural Resource's competent authority to carry out environmental inspections at national level; located in Lisbon, it retains technical and administrative autonomy and reports directly to the Ministry for Towns, Territorial Planning and Environment; part of its responsibilities were transferred from the Directorate General for the Environment (nowadays Environment Institute), where inspection activities started in the later eighty's: The regional governments of the two autonomous regions of Madeira and the Azores are responsible for their environmental policies and legislation.

b) At the Inspectorate there are technical and juridical inspectors, the last ones dealing mainly with administrative inspections. These senior inspectors are graded, with an University degree, specially chemical and environmental engineers and lawyers, among other e.g. biologists and civil engineers. By law there are four categories of inspectors, being the lower level the junior inspectors (without University degree), and the other 3 the senior inspectors. The Inspectorate has an integrated approach for inspections dealing with different types of pollution (air, noise, water, solid waste) and also other aspects related to environmental legislation, for example industrial safety and critical risk areas. The junior technical inspectors, with high school background, followed by technical professional education, are responsible for drive by visits, some complaints and sampling. The activity of the Inspectorate is covered by two types of inspections: routine inspections, as part of the annual work plan – approved by the Minister, and non-routine inspection in response to complaints, investigation of accidents, incidents and occurrences of non-compliance. In all cases it is a common procedure that inspections are carried out by unannounced on site visits. The main steps for a new entrant, may be advertising in the official newspaper or a non official, setting out the general requirements for the inspector role and asking for detailed CV for the applicant, followed by an interview in the Inspectorate.

c)Training on the job on a given subject with a final report approved by the Inspector General and about 3 months of learning by doing with the inspectors, including on site visits are the general training requirements to became a senior inspector in the Inspectorate. However for specific matters, e.g. IPPC sectors, Seveso II or others, the Inspectorate's procedure includes these subjects to be covered by teams of inspectors, according to priorities and annual planning. In this last cases there is additional training by appropriate courses and seminars.

d)The existing indicators for assessment are those coming from statistical data and other information required as part of the Inspectorate's Annual Report, and not in as a formal specific way for training assessment purposes

Spain/Galicia a) Permitting and enforcement are undertaken by the same authority, the Environmental Ministry. Permits are basically given on three levels: IPPC, waste and water management is performed by two DG´s within the ministry; Provincial Environment Departments (classified installations) and municipal level (minor installations). The environmental inspection is carried out by inspectors of the General Direction of Environmental Assessment and Quality. Inspectors may draw statements for permit writers.

b) All inspectors are Civil Servants and University Graduates in Sciences. They are required to pass a specific civil service exam consisting of theoretical and practical sections on general and environmental laws as well as their specific area of study (Engineering, Chemistry, Biology, etc). Qualifications and skills are matched by the Government, the regulating body.

c) New environmental inspector follows a period of traineeship of few months with training in the field with one or more experienced inspectors. Before practicing autonomously they learn by doing. The Government organises training courses and seminars. Specific training is addressed by the Ministry of Environment and general training by the School of Public Administration. Monthly meetings are held by the DG of Environmental Assessment and Quality within the Ministry of the Environment so relevant technical, policy and regulatory developments awareness are maintained within the Inspecting body. Skills of experienced inspectors are refreshed by internal means.

d) No formal assessment is done. Hierarchical supervisors within the Provincial Services and the Inspecting body Service at the DG are responsible for the evaluations of inspectors, as responsible for their staff they control and monitor their duties. The inspectors are informed of their results at two monthly intervals, but also immediate feedback is given by e-mail, phone... There is an internal checking and reviewing of reports and procedures concerning the administrative and/or criminal follow up of an inspection.

Sweden

a) There are either separate authorities for permits and for inspection/supervision or the decisions are taken in one and the same authority but by separate staff. Environmental qualified activities type-A obtain their permits from an Environmental Court. Environmental qualified activities type-B obtain their permit from a County Board. The operative inspections for both these types of installations are the responsibility of the county authority. After an application from the local authority the operative inspection may be delegated from the County authority to the local one. Environmental qualified activities type-C are notified to the local authorities, who has the operative inspection responsibility for these. When the inspection responsibility and the permit giving task is at the same county authority these tasks are separated and the permits are decided by a special delegation.

b) Those working with environmental issues are recruited from studies at university or equivalent level having competence on technical science, natural science, environmental science and, or legal exams. There are several programmes at the universities focusing on environmental studies and a special one is finalised with a Master of Science with a Major in Environment and Health, for which the study programme is based on four-years studies with a syllabus / curriculum including environmental legislation, methods of environmental and health management, environmental planning, environmental inspection methodologies, monitoring and measuring, inspection planning, inspection reporting, environmental auditing and practical training etc. Entry qualifications may be related to such education but may also vary according to the inspection task in question. There are detailed requests stated in the environmental legislation on the qualifications of the permit givers. The chairman of the Environmental Court must thus be a legally qualified and experienced judge assisted by an environmental adviser and two legal experts.

c) There are requests stated in the environmental legislation on the authorities to provide resources enough for the inspection tasks and to provide the inspectors with necessary competence. After being employed the inspector usually starts work immediately often in close cooperation with more experienced personnel. There are courses arranged for continued and further training and several networks available for exchange of experiences between inspectors.

d) There are requests stated in the environmental legislation on the authorities to provide the inspectors with necessary competence and this means that assessments have to be performed. However, there are no special instructions or guidance provided by law or from the central authorities on details concerning such assessments concerning further training of inspectors or permit givers.

UK (England and Wales)

a) Permitting, inspection and enforcement of IPPC permits is undertaken by a single competent authority.

b) Entry qualifications for inspection and permitting staff are normally a primary degree (Bachelors) in science or a related subject. In advertising for posts, industrial experience or a postgraduate qualification MSc or PhD) is an advantage.

c) Upon appointment, all staff undertakes induction training on the roles, aims and objectives of the Agency. This is then followed by role specific training to equip the inspector with the skills and competences for this role. Only when these are achieved is the inspector given authority to operate independently.

d) All Agency staff is subject to a Performance Assessment against annual objectives and are required to undertake quarterly reviews with their line managers. In addition, all staff members are required to maintain their own Personal Development Plans setting out key learning requirements for a period of time normally between one and five years.

3. FRAMEWORK FOR TRAINING AND ASSESSMENT

Minimum criteria for inspectors are related to the minimum criteria for environmental inspections, as specified in art. IV - VIII of the recommendation. These are:

- preparing plans for environmental inspections;
- undertake site visits;
- preparing reports and conclusions following site visits;
- investigate serious accidents, incidents and occurrences of non-compliance;
- report on environmental inspection activities in general.

Based on definition of the minimum criteria for inspections, as in the recommendation, the criteria, in terms of qualifications, skills and competencies etc, for the personnel undertaking inspections and those drafting permits may be defined.

This chapter gives a framework for identifying qualification and training needs for the personnel undertaking inspections, writing statements to permit writers and eventually drafting permits themselves. Priorities for qualification and training might vary with the Member State depending on the national authority's responsibilities and targets.

Entry Level Requirements

In determining the suitability of a candidate for recruitment as an inspector/permit writer aspects such as academic qualifications, personal attributes and general suitability are assessed during the recruitment process. Academic qualifications required are generally specified when the positions are advertised, where as personal skills and attributes are assessed during an interview process and on occasion by various aptitude testing and psychometric evaluation if appropriate. Entry level requirements are set by Member State organisations.

Initial Training

Following selection, an employee may need initial training before he/she can work autonomously within the specified area of inspection or enforcement**.** This initial training can consist of formal courses, self-learning and of practical experience gained on-the-job particularly under supervision by a senior member of staff. It should be relevant to his/her future duties, taking account of his actual qualifications and relevant previous professional experience, and also of the competences of the other members in the team.

Competency Assessment

Once an employee has undertaken the initial training planned, an evaluation should be undertaken to check that the inspector/permit writer has obtained all the core competences and can start his/her autonomous work This assessment may be undertaken by a staff member who has been responsible for overseeing the new employees during their initial training.

Continuing Professional Development

The need for training does not end once an inspector/permit writer is considered competent to work autonomously. Technologies, legislation, standards and management systems are in a

continuous process of development and advancement, and an inspector must keep abreast of such changes and maintain the level of competence required in their field of expertise that should be assessed. This process of keeping a persons competence "updated" is referred to as continual professional development. It includes such elements as participation in formal training, keeping up-to-date on relevant scientific literature, guidance documents and legislation etc. The responsible environment authority must provide a program for professional development and for **Assessment** of the individual's competence and further training need. An important element of continuing professional development is **Refresher Training** during which information/skills possessed by an individual are reinforced and enhanced. This is particularly for elements of an individuals work, which are considered core/critical to their role. This is normally undertaken during annual or bi-annual assessments of the inspector/permit writer by their supervisor.

Specialisation training

In order to develop and maintain specialisation in one or more field for an individual and/or a team, training in specialist areas must be provided. In general these specialists give professional advice to other inspectors/permit writers in the organisation. This allows that the spreading of the expertise inside the organisation happens in a cost-effective manner. Such specialists may also play a role in providing training to general inspectors/permit writers to allow them to reach the level of competence required for all in this field/specialisation.

Management training

In addition to technical skills, some staff within the organisation will need skills in management, including human resources management, project management and time management.

Assessment of Training Effectiveness

Training should be assessed to check the effectiveness of the delivery mechanism and to determine whether it has been beneficial to the person and the organization.

Quality management systems

The operation of a Quality Management System, within an organisation is regarded as beneficial for training purposes in the following way :

- The use of documented procedures provides a clear description of work practices for the new inspector/permit writer.
- The system provides for a transparent mechanism by which working procedures are updated and implemented and ensures all supporting documents are appropriately modified.
- The system requires that an annual training plan is prepared and that training records are maintained.
- A mechanism by which feedback/improvement can be made is provided for.
- The system is audited by an independent auditor who may give advice on how the system can be improved.

Framework for training and assessment

As soon as skills and competences are defined , we must distinguish which ones :

- *are immediately required* ***Entry qualifications***
- *can be provided later on* ***Training***

<u>So skills and competences can be provided and assessed at different moments</u>

Before being selected as an inspector/permit writer :

- *Education → selection* ***Entry qualifications***
- *Personal skills and attributes→ interview* ***Assessment***

Following appointment, the inspector/permit writer needs initial training before he/she can work independently :

Initial Training

After this initial training, an evaluation has to be made to check that the inspector/permit writer has obtained all the core competences and can start working on his/her own. ***Assessment***

The training and assessment doesn't stop when you are an inspector/permit writer. Every officer needs training to refresh existing knowledge and develop expertise

Refreshment training

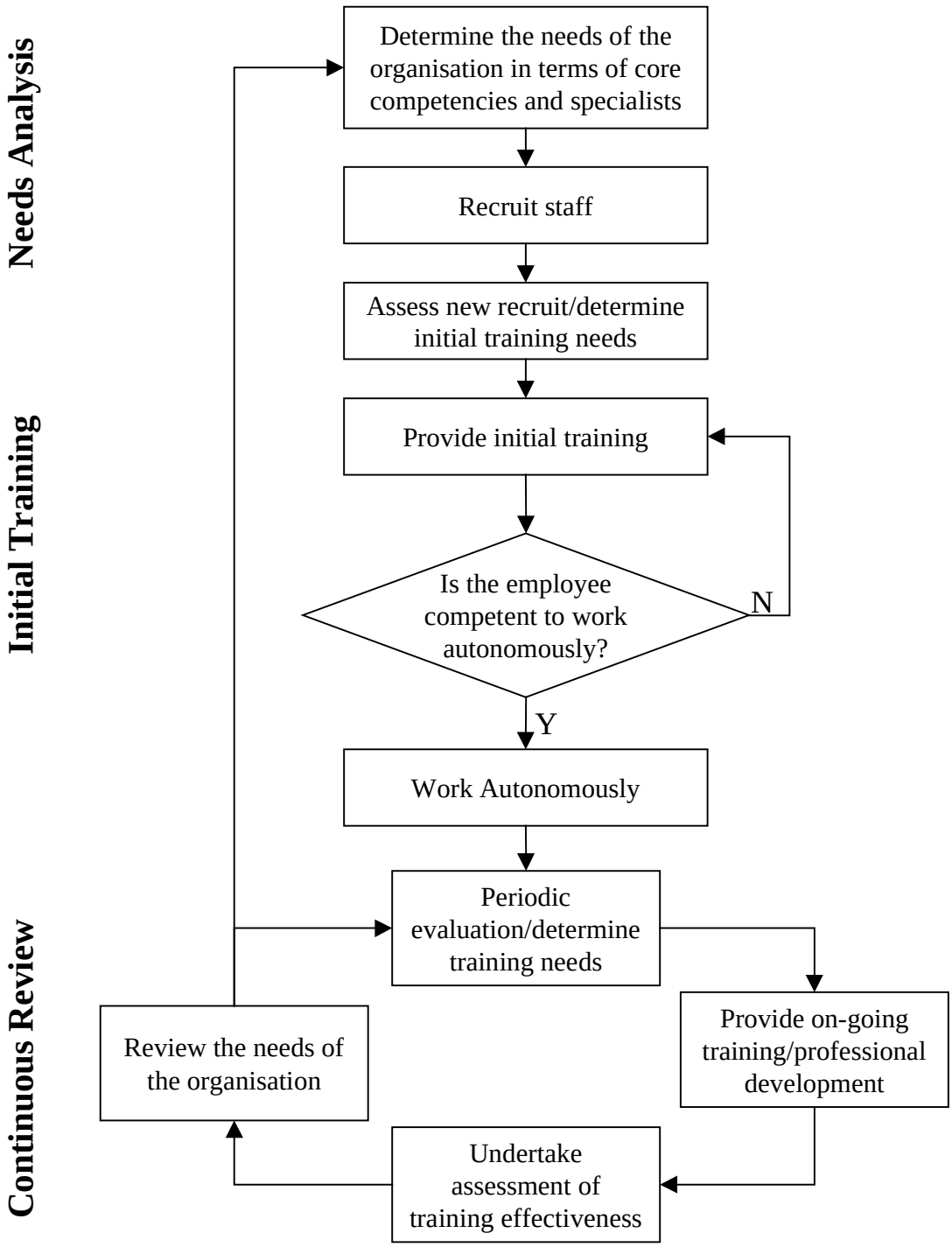
Some inspectors/permit writers become specialist in one or more fields and need further training in these fields.

Specialisation training

In addition to technical skills, some staff and the project leaders need specific training in project and people management. ***Management training***

Training should be assessed to check its effectiveness. ***Assessment***

Fig. 1 : Training and assessment process



4. SKILLS AND COMPETENCES

There are many systems for carrying out the tasks of inspection and permitting. Teams may be organised in accordance to their special tasks and to the competences of the different persons in the team.

An examination of the elements of the inspection process and the permitting procedure forms a basis on which the required competences to adequately perform an environmental inspection respectively issuing a permit can be identified.

4.1 THE ROLE OF THE INSPECTOR

According to the recommendation chapter II.2 :

"environmental inspection' is an activity which entails, as appropriate:
(a) checking and promoting the compliance of controlled installations …
(b) monitoring the impact of controlled installations on the environment to determine whether further inspection or enforcement action …
(c) the carrying out of activities for the above purposes including:
— site visits,
— monitoring achievement of environmental quality standards,
— consideration of environmental audit reports and statements,
— consideration and verification of any self monitoring carried out by or on behalf of operators of controlled installations,
— assessing the activities and operations carried out at the controlled installation,
— checking the premises and the relevant equipment (including the adequacy with which it is maintained) and the adequacy of the environmental management at the site,
— checking the relevant records kept by the operators of controlled installations."

As a result the inspectorate and therefore the inspectors have to perform following steps and tasks:

- *Inspection planning*. An inspection plan has to be prepared and adopted by the Inspecting body annually or at other appropriate frequencies. In the plan the installations are listed with data concerning priority criteria as for example environmental impact, earlier inspection experiences, chemicals handled, available self monitoring data, EMS results, special campaigns, set inspection frequencies, set criteria to react on complaints etc. Since there are many reasons to perform many sorts of inspections - and not always enough inspectors to fulfil all the demands - priority has to be set: the different reasons are compared with the priority list, depending on the origin of the reason, the environmental impact and the time frame.
- *Nature of the inspection*. The inspector or the competent authority has to decide on the type and nature of the inspection activities required. This may include, but not necessarily, a site visit as some questions can be handled at the office if all the information is available.

  The inspections can be divided between:

  - routine inspections: new or reviewed licences, planned inspections and specific inspection campaigns
  - reactive inspections: complaints, questions from the Public Prosecutor, orders from hierarchical supervisors, parliamentary questions, incidents etc.

- *Site visits*. For each inspection, a file may be prepared with available data on the installation, its permit, its monitoring results etc. Decision has to be taken on inspection date, unannounced or announced inspection, additional information…. etc.

  On site inspection is a very important activity: the inspector has to gather information by seeing, hearing, smelling, touching and sampling. When there is a serious danger to public health or the environment, the inspector may need to react immediately and take enforcement measures. Otherwise, there is time to ask for additional information (if necessary) and to take samples and have them analysed.

- *Reporting the on-site-visit*. After each inspection a report is drawn up and sent to the company, other authorities etc. and may be made available to the public. The inspector evaluates all the observations and all the information, including laboratory results where available.

- *Conclusions from each inspection.* Having considered all of the information it is possible that extra information or on-site-visit is needed and asked for. In the case of non-compliance different actions may be considered. One type of actions is administrative sanctions as for example a warning letter, issuing a notice/order requiring the operator to take action or issuing administrative fines.

- *Experts.* In some countries, especially in EIA and IPPC-related procedures, or risk assessment, inspectors might have a coordinating function in respect of coordination of the different (technical) experts needed.

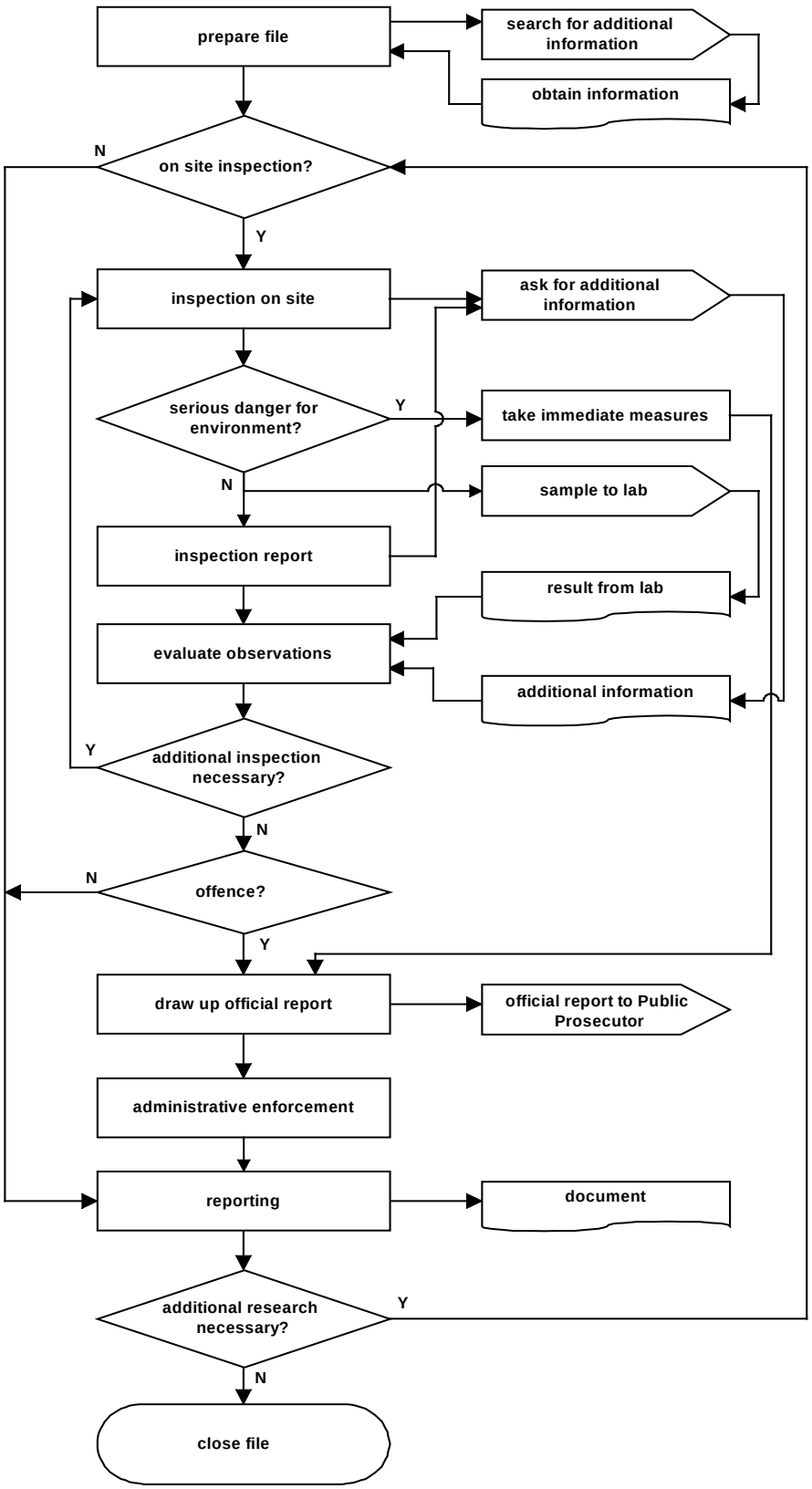
- *Offence*. Inspectors consider whether an offence has been committed and the appropriate enforcement action that should be undertaken in relation to such an offence. Where required appropriate enforcement action is taken. Where a prosecution is considered necessary, the inspector may draft a recommendation or a report for prosecution and forwards this to the Public Prosecutor or equivalent.

- *Reports on environmental inspections*. Annually or at other set frequencies the inspection activities at the inspection body are summarised, evaluated, compared with the inspection / enforcement plan, reported to relevant parties and made public.

A general overview of the inspector's task within the inspection process is provided in Fig. 2.

When considering inspection tasks, standards have to be defined **how well** these tasks should be performed. Then the translation from tasks to competences should be made. The definition of 'how well' gives us clues for the definition of the (core) competences.

Fig. 2 : Inspectors' tasks for inspection as a sequence of activities



4.2 THE ROLE OF THE PERMIT WRITER

To issue a permit the responsible authority has to follow the permitting procedure stipulated by the environmental legislation concerned. In most cases the permitting procedure includes the following steps:

The permitting process

- *Application for a permit*. Operators who seek an authorisation to operate must build up a file including some information and studies in accordance with the national formal requirements.
- *Information and studies*: the nature and the volume of the activities planned, the manufacturing processes, the materials used, the operator's technical and financial capabilities, the plans, environmental impact assessment, safety report…, etc. When the information is gathered, the applicant sends the file to the permit giving authority. The operator may wish to discuss the required information with the permit writer or the inspector.
- *Consultation*. The permit giving authority circulates the proposed application to the public and submits it to other authorities (authorities with special responsibility on certain issues as for example health and safety committee, spatial planning office, inspection body if separated from the permitting, etc) for consideration, comments and proposals. There may be enquiries and consultations with several bodies including the inspection one if separated from the permitting body, the public and NGO's.
- *Hearing and other information exchange activities*. A special public hearing may be arranged, a meeting with the public organised or an advertisement published in the newspapers in accordance with the regulation within the MEMBER STATE. Inspectors may participate in the hearing.
- Then the authorities communicate the observations to the applicant. The applicant may draw up a memorandum in reply and perhaps propose modifications to the project.
- *Permit decision*. If the application is accepted, permit conditions are decided and officially released.
- *Appeal procedures* may be engaged.

Integrated approach for IPPC

As regards the IPPC Directive it has to be ensured that this procedure is fully coordinated where more than one competent authority is involved, in order to guarantee an effective integrated approach by all authorities competent for this procedure.

The permitting job

The process by which environmental permits are prepared and issued varies greatly from Member State to Member State. In some Member State the permits are drafted by administrative or legal staff, while in others the permit is drafted by technical staff. In this report the term "permit writer" relates only the role of technical staff and not to those of administrative or legal staff which may be involved in the permit process.

Permit writers may have to assess applications from various types of environmental permits. Preparation of these permits include the following activities:

- Assessing the permit application to ensure that it complies with the requirements of the permitting legislation. If it does not comply, the permit writer may seek additional information from the applicant or may decide to abandon the application ;
- If the application complies with the permitting legislation, the permit writer must assess the content of the application and ensure that the activity complies with all national and EU environmental legislation. The permit writer must also have regard to any submissions received from interested parties, including statements from the inspectors. In assessing the application the permit writer must be familiar with issues pertaining to all environmental media covered by the permit ;
- Regarding IPPC installations/activities (and in many countries regarding smaller plants, too) the permit writer must decide what is considered Best Available Techniques (BAT) for the facility. Where the facility is currently not at BAT, the permit writer must ensure that improvement programs are implemented within an appropriate timeframe.
- The permit writer may visit existing installations before issuing a new or modified permit. Inspectors may participate in the visit.
- The Permit writer may then either :
    - propose a permit with conditions. The conditions may generally be categorized in two parts: one part with general rules of proper behaviour of the management of the enterprise towards the environment and improvement action plan and a second part with a number of strict enforceable conditions that concern emissions, safety measures, monitoring obligations and reporting. The first part is difficult to enforce but functions as an indicator of the behaviour of the management of the enterprise and may trigger further investigations while the second contains the real enforceable conditions.

    Or

    - propose to refuse the application for a permit. An application may be refused where the permit writer is of the opinion that the activity is causing significant environmental pollution or that it does not comply with national or EU environmental legislation.
- Permits may specify design and operating conditions in a way that ensures compliance with existing legislation (rules, regulations and decrees) whatever is applicable for the installation and environmental impact that may be anticipated.
- The permit writer must explain the reason of his proposals.
- Where there is a mechanism to provide for comment on the proposed permit by interested parties (e.g. objection period, or leave to appeal the permit), the permit writer and inspector may be involved in providing comment or clarification to the appeals body or the authority in charge.
- In some Member States, upon consideration of any objections/appeals the permit is amended where necessary, or in the absence of any objection/appeal, the permit comes into force. On issue of the final permit, the permit writer may be involved in providing information regarding the decision to other environmental authorities.
- Where more than one authority is responsible for issuing environmental permits, the authorities must ensure that conflicting permits are not issued to an activity. It is essential that before the starting of an activity, which is the subject of an

environmental permit(s), all permits have been checked and issued with regard to their enforceability.

- In the case of IPPC, where more than one authority is responsible for issuing environmental permits the permit writer may be responsible for coordinating the contributions of other competent authorities to the IPPC permit.
- There are also notification procedures stating requests / conditions the operator has to fulfil.

See annex 3: "*Example of Tasks for permitting as a sequence of activities"*

4.3 CORE COMPETENCES AND QUALIFICATIONS

As with any group of individuals in a profession, individual qualifications, skills and attributes will vary widely across the group. However in describing the general roles of inspectors and permit writers it is possible to identify those qualifications, skills and attributes which are needed or essential to fulfil these respective roles. These are termed the core competences.

A distinction can be made between « core competences » (those which any inspector should have at least a basic understanding of) and « team competences » (needed within a team of inspectors but not necessary for each inspector).

A competence may be needed at a low level for each inspector but with an expertise level in the team according to the responsibilities of the inspecting body

The core competencies for the tasks of inspection and permitting are set out below both on an individual and team basis.

Six groups of competences were identified: five for core competences, one for personal attributes.

The core competencies listed below were derived from an exercise in which members of the working group scored proposed competencies from 1 to 3. The scores were averaged and those above an agreed figure identified as core.

It should be noted that the wide differences between permitting systems in Member States may have given rise to some spurious results with regard to the core competences identified for permit writers.

Given these differences in permitting and inspection systems, the working group agree that the core competences identified below are the minimum required in many cases and that other and additional competences may be considered core in a particular Member State depending on the permitting and inspection system in place.

1. Administrative framework and legal skills

Core competences	Inspection		Permitting	
	Individual	Team	Individual	Team
National environmental legislation	**x**		**x**	
Administrative law and Civil law	**x**		**x**	
Administrative systems	**x**	**x**		**x**
Administrative enforcement (a)	**x**	**x**		**x**
Organisations' roles and responsibilities (b)	**x**		**x**	
Immission standards		**x**	**x**	**x**
Emission standards	**x**		**x**	**x**
Physical and spatial planning			**x**	**x**
Criminal law (related to environment) (c)		**x**		**x**

a) Administrative enforcement is the enforcement that is handled inside the inspecting body. This normally starts with a warning letter or exhortation but can also include: sanctions (up to the sealing of equipment or the whole installation), change in the licence, (partially) suspend or withdraw the licence, administrative penalty. Every inspector must have a very good knowledge of this administrative enforcement: possible mistakes can have great consequences.

b) For example; consultancies, authorities, industry managers, employees unions, politicians, NGO's, the public.

c) The criminal enforcement is handled by the Public Prosecutor and can consist of: impose certain provisional measures, not to prosecute (under certain conditions), propose an out-of-court settlement, prosecute. The criminal enforcement may start with a statement from the inspector. In some Member State, the inspectors need a very good judicial background or strong support in the team to draw up these official reports.

2. Methodology of inspection

Core competences	Inspection		Permitting	
	Individual	Team	Individual	Team
Site inspection/methodology, kind of inspections (a)	**x**	**x**		
Compliance monitoring (b)	**x**		**x**	
Management systems (quality, environment, EMAS, safety)	**x**			
Plans for inspection (general and individual priority settings) (c)	**x**			
Safety risk assessment (d)		**x**		**x**
Sampling management	**x**			

a) See Recommendation 2001/331/EC chapter II-3.

b) An inspector needs the competence to make the technical observations and to execute technical operations like sampling and on-site measuring.

c) See Recommendation 2001/331/EC chapter IV

d) Inspectors may cooperate with safety authorities when appropriate

3. Methodology of the permitting process

Core competences	Inspection		Permitting	
	Individual	Team	Individual	Team
Environmental impact assessment (EIA), health issues, impact of immissions (a)	**x**	**x**	**x**	
Determine emission limit values and permit conditions	**x**		**x**	
Permitting systems	**x**		**x**	
Write clear and enforceable permit			**x**	

a) The inspector gives statements while the permit writer analyses documents. Cooperation between permit writer and inspector may be useful.

4. Technical skills

Basic knowledge of different technical sectors is required for all inspectors and permit writers as a personal competence according to the tasks and responsibilities of the inspecting body. In addition a specialist may be needed in the team or outside the inspecting body in order to achieve a high level of expertise in several key areas. The experts required will depend on the role of the organisation and the scope of enforcement or permitting that is undertaken.

Following the same methodology, scores for technical skills were found to be the same for inspection or permitting.

4.1. General	**4.2. Air**
Scientific background	**Odour assessment**
Chemical	**Air dispersion modelling**
Environment (a)	
Pollutants	
Impact on human health	
Environmental quality standards	
4.3. Water	**4.4. Waste**
Aquatic toxicology	**Waste classification/management**
Groundwater risk assessment/modelling	**Hazardous waste**
Water recycling in the installation	**Waste minimisation**
	Transportation
	Recycling
4.5. Noise	**4.6. Soil**
	Contaminated land
4.7. Process	**4.8. Environmental Monitoring**
Clean technology	**Operator self monitoring**
Process & chemical engineering	**Immission monitoring (from the different env. sectors)**
Best Available Techniques (BAT)	**Emissions monitoring (air, water, waste, soil, noise, vibration)**
Energy/Resource management	
Abatement techniques	
Chemical handling	

a) Including ecology, hydrogeology, biology, and immunology.

5. Communication, management and inspection tools

Core competences	Inspection		Permitting	
	Individual	Team	Individual	Team
5.1. General				
Technical report writing	**x**		**x**	
Dealing with companies and negotiation techniques (a)	**x**		**x**	
Dealing with the public and media		**x**		**x**
5.2. Management skills				
Time management	**x**		**x**	
Health and safety for environmental inspector	**x**			
Project management	**x**			
5.3. IT/Software skills				
In-house databases	**x**		**x**	

a) The communication between the inspector and the company can be very different from the communication between the permit writer and this company: while the permit writer can communicate on the 'soft' side (negotiation), the inspector also needs the 'hard' side to enforce the legislation and to deal with conflicts.

6. Personal attributes

The core personal attributes are listed at the end of the chapter V "Entry qualifications".

5. ENTRY QUALIFICATIONS

Minimum entry qualifications.

Some variation may be observed according to the specific role of the inspector or permit writer and the sector or level at which they work In addition there are differences between Member States educational systems for example the number of years spent in high school[1] versus a third level[2] institution in order to attain a degree or diploma. For these reasons, the specific entry requirements for an inspector or permit writer should not be replaced by a general system at community level.

However, the basic education is generally undergraduate studies with an examination resulting in a degree/diploma/certificate or relevant/comparable experience in science, technology, environment, law etc. It is generally agreed that a minimum of 2 or 3 years diploma after high school or relevant experience or a third level qualification is required.

There are many tasks and many different levels of qualifications part of the inspection or permit process, which are often teamwork. Each Member State has its own system for sharing these tasks. So, according to the needs of the organisation, some specific skills and competences may be required, for example:

- Technical skills on chemical, environment, pollutants, air, water, waste, soil, process
- Knowledge of national environmental legislation and organisations' roles and responsibilities Management, time management
- Technical report writing, IT/software skills
- Communication, dealing with companies, negotiation techniques and dealing with the public

The first stage in the selection process of inspectors/permit writers is generally an assessment or their education/skills. This selection is undertaken with regard to the minimum entry criteria set out in the selection procedures. A Member State will have its own standards for its different kind of inspectors. Personal attributes, which are not specific for an inspector but important can be assessed by interviewing the candidate and sometime developed by training such as role-play. Both education/skills and personal attributes can also be assessed in an assessment centre.

[1] High school is the American word for the final secondary school examination, qualifying for university entrance. In every EC country, high school ends usually when students are about 18 or 19 years old.

[2] A third level qualification is one obtained from an institution that is attended after completion of secondary/high school. Qualifications obtained include degrees, diplomas, certificates and other nationally recognised qualifications.

Core personal attributes:

- Integrity
- Objectivity
- Constructive thinking (a)
- Commons sense - knowing when you don't know
- Ability to work under pressure
- Self confidence
- Perseverance
- Team player (b)

a) Essential for negotiating with companies/public, act target oriented

b) Very important: an inspector has to work independently and with full integrity but at the same time he/she has to be a team player to ensure uniformity between all the inspectors.

6. TRAINING

The following contents must be understood as guidelines for the Member States (and not as a general system in the Member States).

Training should then be seen from 2 measuring points:

- Each new entrant has to possess core competences before practising autonomously.
    - If necessary their knowledge must be completed and assessed
- When you are inspector :
    - Specialisation and refreshment need further-training

According to the recommendation art. II. 3., Member States should develop training programmes in order to meet the demand for qualified environmental inspectors.

6.1 CORE COMPETENCES TOWARD TRAINING PROCESS

A competence can be mastered at different levels:

1. Awareness
2. Knowledge
3. Full understanding

The training process is divided in three steps:

- entry qualifications,
- initial training,
- further training for generalists and further training for specialists.

For some competences, training is needed at a certain level through initial training (before beginning the job) and it is also needed to go deeper for specialization through further training.

In a team of inspectors some specialization may be required or at least beneficial for the work. Fields for specialization may be related to specific industrial sectors, type of emissions (air, water, noise, waste…) and their abatement or measurement techniques, chemistry, polluted land, judicial questions etc. The need for specialists is normally also taken into account in the recruiting process. However, the level of skills and competencies for entry qualification and initial training could eventually be the same for the generalist and the specialist and differentiate in the further training stage. In some cases competence or expertise may also be hired from outside the organization.

The following schema is the result of an exercise where the participants of the Working Group were invited to give a score from 1 to 3 against each skill or competency. The average gave a general trend. The schema is colour coded to highlight which skills and competences were considered generally more important under the respective headings.

- Light/yellow means **awareness (A)**: the inspector or permit writer demonstrates a sufficient understanding of the competency but requires guidance.
- Medium /blue means **knowledge (K)**: the inspector or permit writer demonstrates a sound level of understanding of the competency to adequately perform related tasks, almost without guidance.
- Dark/red means **full understanding (F)**: the inspector or permit writer demonstrates high level of understanding of the particular competency to perform fully and independently related tasks. Can perform adviser or trainer roles.

This list of following skills and competences may not cover all type of inspection, as it is mainly IPPC oriented.

SKILLS AND COMPETENCES TOWARD TRAINING PROCESS	Level to be reached			
Scoring: Full Understanding = red/dark (F) ; Knowledge = blue/medium (K) ; Awareness= yellow/light (A)	**Inspection**		**Permitting**	
Core competences/ non core competences	**Initial***	**Further generalist ****	**Initial***	**Further generalist ****
1. Administrative framework and legal skills				
National environmental legislation	K	K	K	K
Administrative law and Civil law	A	K	A	K
administrative systems	K	K	K	K
Administrative enforcement	K	F	K	K
Organisations' roles and responsibilities	K	F	K	F
Immission standards	K	K	K	F
Emission standards	K	F	K	F
Physical and spatial planning	A	A	K	K
Criminal law (related to environment)	A	K	A	A
The judicial system	A	A	A	A
Expert witness	A	K	A	A
Economic benefits (confiscation)	A	A	A	A
Taxes system	A	A	A	A
2. Methodology of inspection				
Site inspection/methodology, kind of inspections	K	F	A	A
Compliance monitoring	K	F	A	A
management systems (quality, environment, EMAS, safety)	A	K	A	K
plans for inspection (general and individual priority settings)	K	F	A	A
Safety risk assessment	A	K	A	K
Sampling management	K	K	A	A

SKILLS AND COMPETENCES TOWARD TRAINING PROCESS	Level to be reached			
Scoring: Full Understanding = red/dark (F) ; **Knowledge = blue/medium (K) ; Awareness= yellow/light (A)**	**Inspection**		**Permitting**	
Core competences/ non core competences	**Initial***	**Further generalist ****	**Initial***	**Further generalist ****
3. Methodology of the permitting process				
Environmental impact assessment (EIA), health issues, impact of immissions	**A**	**K**	**K**	**K**
Determine emission limit values and permit conditions	**A**	**K**	**K**	**F**
Permitting systems	**A**	**K**	**K**	**F**
How to write clear and enforceable permit	**A**	**A**	**K**	**F**
4. Technical skills				
4.1. **General**				
Scientific background	**A**	**K**	**A**	**A**
Chemical	**K**	**K**	**K**	**K**
Environment	**K**	**K**	**K**	**K**
Pollutants	**K**	**F**	**K**	**K**
Environmental quality standards	**K**	**F**	**K**	**F**
Impact on human health	**K**	**F**	**K**	**K**
4.2. **Air**				
Odour assessment	**A**	**K**	**K**	**K**
Air dispersion modelling	**A**	**K**	**A**	**K**
4.3. **Water**				
Aquatic toxicology	**A**	**K**	**A**	**K**
Groundwater risk assessment/modelling	**A**	**K**	**A**	**K**
Water recycling in the installation	**A**	**K**	**K**	**K**
4.4. **Waste**				
Waste classification/management	**K**	**F**	**K**	**K**
Hazardous waste	**K**	**F**	**K**	**K**
Waste minimisation	**K**	**F**	**K**	**K**
Transportation	**A**	**K**	**A**	**K**
Recycling	**A**	**K**	**A**	**K**
4.5. **Noise**				
Noise	**K**	**K**	**K**	**K**

SKILLS AND COMPETENCES TOWARD TRAINING PROCESS	Level to be reached			
Scoring: Full Understanding = red/dark (F) ; Knowledge = blue/medium (K) ; Awareness= yellow/light (A)	**Inspection**		**Permitting**	
Core competences/ non core competences	**Initial***	**Further generalist ****	**Initial***	**Further generalist ****
4.6. **Soil**				
Contaminated land	K	F	K	K
4.7. **Process**				
Clean technology	K	K	K	K
Process & chemical engineering	K	F	K	K
Best Available Techniques (BAT)	A	K	K	K
Energy resource management	A	K	A	K
Abatement techniques	K	F	K	K
Chemical handling	K	K	A	A
4.8. **Environmental Monitoring**				
Operator self monitoring	K	F	A	K
Emission monitoring (air, water, waste, soil, noise, vibration)	K	F	K	K
Immission monitoring (from the different env. Sectors)	A	K	A	K
Emission impact monitoring (from the different env. Sectors)	A	K	A	K
Noise monitoring	A	K	A	K
5. Communication, management and inspection tools				
5.1. **General**				
Technical report writing	K	F	K	F
Dealing with companies and negotiation techniques	K	F	K	K
Dealing with the public and media	K	F	K	K
interview skills	A	K	A	K
presentation skills	A	K	A	K
5.2. **Management skills**				
Time management	K	F	K	K
Health and safety for environmental inspector	K	F	A	K
Project management	A	K	A	K
management/supervisory skills	A	K	A	K
performance management	A	K	A	K
Quality management systems	A	K	A	K

SKILLS AND COMPETENCES TOWARD TRAINING PROCESS	Level to be reached			
Scoring: Full Understanding = red/dark (F) ; **Knowledge = blue/medium (K) ; Awareness= yellow/light (A)**	**Inspection**		**Permitting**	
Core competences/ non core competences	**Initial***	**Further generalist ****	**Initial***	**Further generalist ****
5.3. **IT/Software skills**				
in-house databases	**K**	**K**	**K**	**K**
word processing	**K**	**K**	**K**	**K**
spreadsheet	**K**	**K**	**K**	**K**
PowerPoint	**A**	**A**	**A**	**K**
e-mail and internet	**K**	**K**	**K**	**K**

* Competence level before autonomous work

** Further training and refreshment

6.2 TRAINING TO BE PROVIDED TO THE NEW INSPECTOR

According to the list of core competences, additional training should be provided to the new inspector to fill the gaps, taking account of the specific tasks the inspector will have to perform. There is a wide range of tasks and level of qualifications. This training can be provided by:

- formal courses
- self study and distant learning,
- coaching at work,
- practical experiences.

The training could follow the list detailed in chapter 6.1 with this general frame:

1. Administrative framework and legal skills
2. Methodology of inspection
3. Methodology of the permitting process
4. Technical skills
5. Communication, management and inspection tools

6.3 TRAINING TO BE PROVIDED TO THE INSPECTOR AS SPECIALISATION OR REFRESHMENT

The training doesn't stop when you become an inspector. Each generalist inspector needs training to refresh existing information. Some inspectors become specialists in one or more fields.

The staff of the inspecting body and the project leaders need specific training in project and people management.

See Annex 4.1: Examples of good practices concerning training and qualifications: Specialisation - working groups on different environmental themes

7. MANAGEMENT AND ASSESSMENT OF TRAINING, SKILLS AND COMPETENCIES

It is the responsibility of the inspecting body to ensure that the core competencies required by the organisation are obtained by recruiting suitably qualified people or by providing appropriate training and maintained by continual professional development for staff.

In order to ensure that the competencies required by the organisation to undertake its functions are obtained, an analysis of the competencies/skills required should be undertaken. A skills matrix, which identifies the competencies/skills required versus the competencies/skills available, can be useful.

Competencies/skills not present within the organisation can then be identified and either developed by training or other methods of continual professional development or obtained by recruiting suitably qualified/experienced staff.

Having identified the competencies/skills required by the organisation, a **training plan** should be developed for the organisation as a whole and where required for individual inspectors, to ensure that the skills required undertaking the job in hand are provided and maintained.

An essential part of the organisations management of training will include the preparation and maintenance of training records. These will be used to demonstrate, where required, that an inspector is appropriately qualified and has received appropriate training. The training records are also used in the preparation of the organisations training plan.

Assessment

In the context of this report assessment means a structured comparison of the required qualifications and skills/competencies necessary to undertake the functions of the organisation.

With regard to an individual, assessment means a structured comparison of an individual skills/competencies with regard to those, which have been defined, for the role the inspector undertakes.

Assessments are recommended during the following stages of an inspector's career:

* in the selection procedure (see also chapter V): to assess the desired skills and qualifications;
* after the beginners training: to assess if the training was successful and if the requirements to "practicing autonomously" are met;
    - periodically throughout the entire career: to assess the up-to-dateness of knowledge and further training requirements in the light of the actual job-profile.

There are different tools, which can be applied to undertake assessments, for example: Assessment centre in selection procedures or structured talks in assessing the anticipated training requirements of an inspector. The latter are often part of the annual development interviews (annual evaluation, development dialogue...).

See Annex 4.2 Examples of good practices concerning training and qualifications: Tools for assessment of training.

BEST PRACTICES CONCERNING TRAINING AND QUALIFICATION FOR ENVIRONMENTAL INSPECTORS

ANNEX 1: Background overview of Member State existing systems

January, 2003

ANNEX 2: Main sectors of Community legislation, which contain requirements for permitting and inspections

December 2002

Recommendation 2001/331/EC of the European Parliament and of the Council providing for minimum criteria for environmental inspections in the Member States was adopted on 4 April 2001. It applies to"…environmental inspections of all industrial installations and other enterprises and facilities, whose air emissions and/or water discharges and/or waste disposal or recovery activities are subject to authorisation, permit or licensing requirements under Community law…(II.1(a))."

The list below is established by the Commission and sets out examples of the main sectors of Community legislation, which contain permitting and inspections requirements and which fall within the Recommendation's scope. This list is not intended to be exhaustive, not least in the light of the fact that Community law is being added to or amended all the time. (References to legal acts include all amendments thereto).

	Directive	**Description**
Legislation relating to integrated pollution prevention and control		
1	96/61/EC	Integrated pollution prevention and control
2	96/82/EC[1)]	Control of major-accident hazards involving dangerous substances
3	99/13/EC	Limitation of emissions of volatile organic compounds due to use of organic solvents in certain activities and installations
Legislation relating to water quality		
4	76/464/EEC	Pollution caused by certain dangerous substances discharged into the aquatic environment
5	80/68/EEC	Protection of groundwater against pollution caused by certain dangerous substances
6	91/271/EEC	Urban waste water treatment
Legislation relating to waste		
7	75/442/EC	Waste
8	91/689/EEC	Hazardous waste

9	99/31/EC	Landfill of waste
Legislation relating to air pollution		
10	88/609/EEC[3)]	Limitation of emissions of certain pollutants into the air from large combustion plants
11	89/369/EEC[2)]	Prevention of air pollution from new waste incineration plants
12	89/429/EEC[2)]	Prevention of air pollution from existing incineration plants
13	94/67/EC[2)]	Incineration of hazardous waste
14	2000/76/EC[2)]	Incineration of waste
15	2001/80/EC[3)]	Limitation of certain pollutants into the air from large combustion plants

[1)] Only establishments covered by Article 9 (so-called upper tier establishments)

[2)] Directive 2000/76/EC will apply to new plants as from 28 December 2002 and to existing plants as from 28 December 2005.

The following will be repealed as of 28 December 2005:

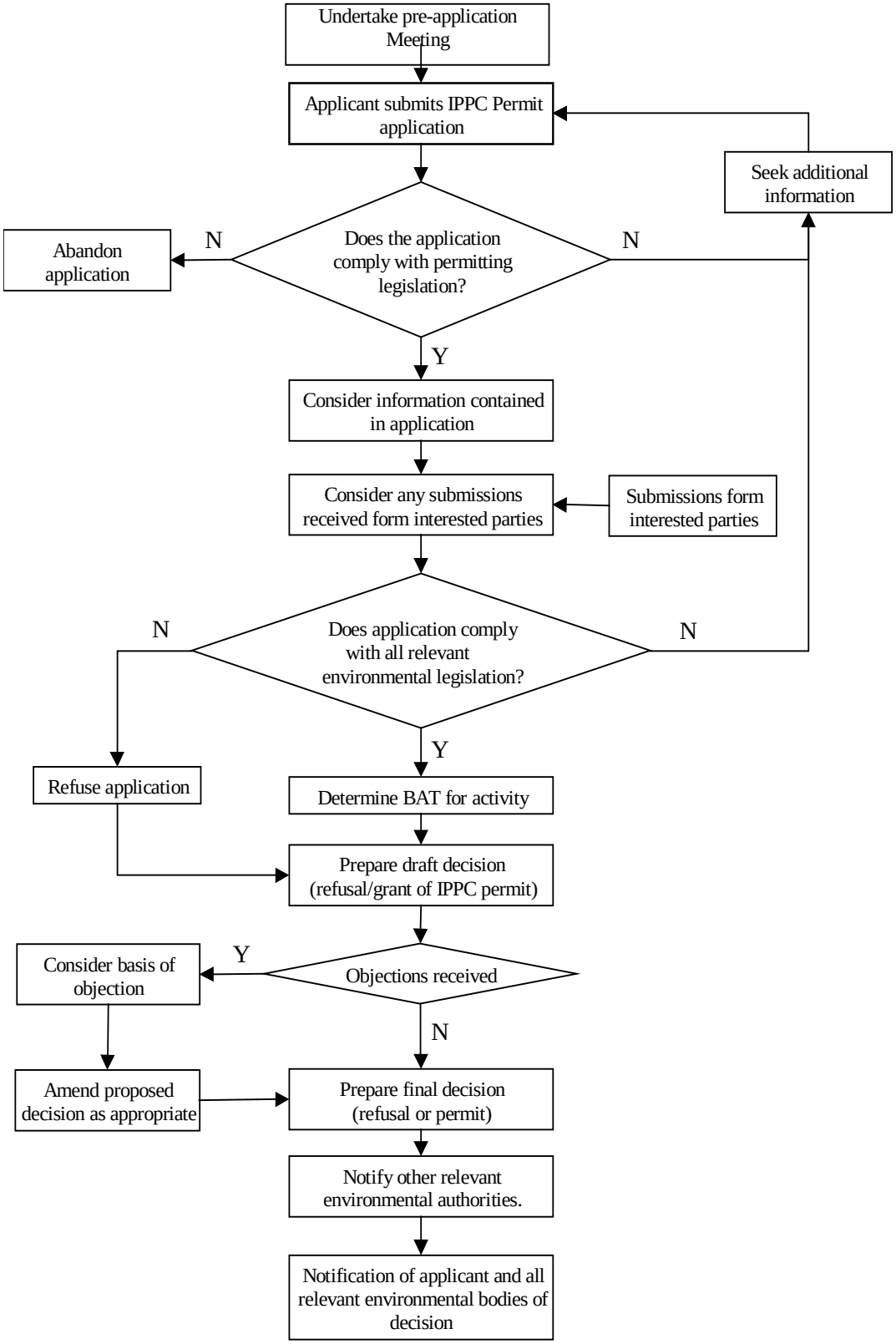
- Directive 89/369/EEC;
- Directive 89/429/EEC;
- Directive 94/67/EC;
- Article 8(1) and the Annex to Directive 75/439/EEC.

[3)] Directive 88/609/EEC was be replaced from 27 November 2002 by Directive 2001/80/EC

Please find some information at the following Internet site:

www.europa.eu.int/eur-lex/fr/oj/index-list.html

ANNEX 3: Example of tasks for permitting as a sequence of activities



ANNEX 4: Examples of good practices concerning training and qualifications

4.1 Specialisation: working groups on different environmental themes

The Environment Inspection Section has a conventional vertical structure with a central Chief Inspectorate and local services in every province. In addition to the vertical structure, a horizontal structure has also been set up in the form of working groups for each environmental compartment: Waste, Soil and groundwater, Noise, Air, Safety, Water and Genetically modified organisms.

The objectives of the working groups are as follows:

- *to coordinate the know-how available in the section on a particular environmental subject, to extend this know-how and then to disseminate it within the Section;*
- *to give greater depth to the planned and coordinated inspections and to raise them to a higher level;*
- *to ensure a uniform approach to and interpretation of the environmental regulations;*
- *to follow up new developments and regulations and to frame proposals for an appropriate approach;*
- *to advise the competent Minister on the enforceability and feasibility of the regulations and to provide her with the necessary feedback for the preparation and evaluation of policy.*

Each working group is composed of five members (one representative from each local service) and a representative from the Chief Inspectorate who acts as the working group moderator (project leader). The composition of the working groups takes into account as much as possible the experience and specialist areas of those involved.

In the local services, the members of a working group continue to participate in routine inspection work, although to a more limited extent. They also play a supportive role with regard to their colleagues as specialists in the specific environmental compartment of their working group.

The working groups play a key role in the planned and coordinated inspections. Furthermore, efforts are undertaken to coordinate the enforcement activities in the different environmental hygiene sectors, the ultimate aim being to achieve a high standard of integrated inspection in all aspects. To this end, the service sometimes calls on the skills of external experts. Alternatively, completely new initiatives are implemented or new inspection instruments are used. In this way, the knowledge and experience built up in the working groups systematically permeates the rest of the section.

Flanders, Belgium

4.2 Tools for assessment of training

Before flying solo:

- Ask inspectors to write an essay/assignment on an inspection related topic (topic suggested by experienced inspector who would also be responsible for the evaluation).

- Test-inspection; the inspector is asked to, inspect an installation (he has not visited before) and is accompanied by an experienced inspector.

- Structured interview

Later in the career:

- Annual conversation with superior (reflecting performance, analyse strong and weak points, agree on work and qualification targets)

- At least one inspection accompanied by superior

- Ask inspectors to give presentations on attended seminars

- Ask inspectors to prepare summaries and guidelines for new legislation (what is in it for inspections and how to deal with it)

- Use of questionnaires to evaluate team-working and team performance (these questionnaires are published in several books on team-working)

Hanover, Germany

4.3 Good practices from IMPEL Review Initiative (IRI)

- *Inspectors' duty to cascade information from external seminars to colleagues.*
  1st review Mannheim, Baden-Württemberg, Germany
- *Selection and use of Key Performance Indicators for performance assessment.*
  2nd Review: Wexford, Ireland
- *Use of independent experts to audit the quality of permits and inspections.*
  3rd Review: Brussels, Belgium
- *The updated legislation is available on the Internet, and the working procedures on the Intranet, including the Recommendation 2001/331/EC for minimum criteria for environmental inspections.*
  4th Review: Douai, FRANCE

4.4 Other good practices

Recruitment tool. In recruiting new permitters/inspectors ask the applicants to write an essay / a letter to the Ministry on a topic related to the task.

Cross-professional seminars. A variety of cross-professional seminars have been found beneficial for all parts. Such seminars may bring together inspectors with e.g. occupational health inspectors, Quality System auditors/verifiers, consultancies, policemen, prosecutors, enterprise managers and research people. Also the obligation for the regional authorities to arrange seminars for the municipal authorities has been fruitful and forced the organizers to penetrate chosen themes in deep.

Finland

ANNEX 5: Minimum Criteria

Introduction

According to the experiences and the outcome of the project on Best Practices concerning Training and Qualification for Environmental Inspectors there are many systems to carry out environmental inspection in the Member States. The inspection tasks are often divided between several inspection authorities. Within each inspecting body that has the responsibility to perform the actual inspection activities, teams may be organised in accordance to the inspection in question and to the competencies of the different persons available for inspection.

When recruiting an inspector, inspecting authorities in the different Member States have their own standards for different kinds of inspectors. The selection is undertaken with regard to criteria set out concerning basic education, earlier working experiences as inspectors and/or in industry etc and personal attributes.

The basic education required is generally undergraduate studies with an examination resulting in a degree/diploma/certificate or relevant/comparable experience in science, technology, environment, law etc. In some countries special undergraduate environmental study programmes at university level are available and in some cases programmes resulting in an environmental inspector diploma.

After being appointed/employed as an inspector the need concerning additional training, including appropriate practical inspection training, must be identified by the inspectorate and to be provided to the inspector in question. Furthermore the on-going professional development and for continued training to develop any specialisation deemed necessary, must also be identified by the inspectorate.

Proposal for minimum criteria for qualification of inspectors:

1. Each inspecting body responsible for environmental inspection according to the Recommendation 2001/331/EC should list the appropriate competences required for those inspection teams that are required to fulfil inspection activities under the Recommendation.

2. Entry Level Requirements:

A recruitment procedure including assessment of personal attributes should be defined by the competent authority.

The level required is usually secondary education, completed at the age of about 18 or 19, and 2-3 years of undergraduate studies with an examination resulting in a degree/diploma/certificate or relevant/comparable experience in science, technology, environment, law etc.

3. Training:

The inspecting body should, for each inspector of the team, identify the individual training needs concerning inspection qualifications and provide the training so identified. The

resulting training programme should be followed-up and reviewed at defined frequencies. In drafting the training programme the organisation should have regard to:

- Entry-level inspector needs to be trained as appropriate in the technical and environmental legislation/legal background to inspection, and also trained in practical inspection work, before being allowed to practice alone.
- Ongoing professional development (including training): further training should be provided to each inspector to develop the skills and/or to obtain specialisation required meeting the needs of the organisation.

4. Assessment:

Assessments are recommended in the following stages of an inspector's career:

- In the selection procedure: to assess the desired skills and qualifications,
- After the initial training : to assess if the training was successful and if the requirements for "practising autonomously" are met and
- Periodically throughout the entire career: to assess the extent to which knowledge is up-to-date and further training requirements in the light of the actual job-profile, administrative framework and legal skills.

MANAGEMENT OF THE PROJECT

This project arose from Recommendation 2001/331/EC published in JOC on April 4, 2001 providing for minimum criteria for environmental inspectors (Article IX 2), which itself was based on IMPEL reports on minimum Criteria for Inspection.

This Recommendation calls on the Commission in co-operation with IMPEL, to 'draw up minimum criteria concerning the qualifications of environmental inspectors'. Beyond to minimum criteria, France was asked during the plenary meeting in Falun in June 2001, to lead the IMPEL project « Good practices concerning training and qualification for inspectors in E.U.».

13 Member States and the IMPEL secretariat actively participated in this project:

Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, The Netherlands, Portugal, Spain, Sweden, and United-Kingdom.

The Commission contributed to this project by reimbursing the cost of journeys to some of the meetings.

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OTHER PARTIES INVOLVED

Candidate countries and EEA Countries are participating in the Cluster I group and had the opportunity to follow the project within this arrangement.

Debates about the draft report could be also organised by the Commission to involve "other interested parties" (MEMBER STATES, Candidate Countries, EEA, Ngo's, industry representatives), according to point IX.2 of the recommendation.