



INSTYTUT OCHRONY ŚRODOWISKA – PAŃSTWOWY INSTYTUT BADAWCZY
INSTITUTE OF ENVIRONMENTAL PROTECTION – NATIONAL RESEARCH INSTITUTE

Towards a European qualification for Solid Waste Facilities' Managers - SWFM-QF

National report on the Polish VET system and training programme regarding Solid Waste Facilities' Professionals



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Outline

This report describes and assesses the existing in Poland vocational education and training system in the professions in waste management industry.

The information in the report is based on the results of the survey on qualifications, knowledge, skills, competences and available training for solid waste facilities' managers and technicians, conducted among waste management facilities, authorities and vocational training organisations.

The survey was conducted via the distribution of 620 questionnaires to solid waste companies (246), vocational training organisations and experts providing training for waste management facilities' managers and specialists (268), and associations and authorities (106).

Three different questionnaires were used in the survey for the following respondent groups:

- solid waste management facilities
- organisations providing training for waste management facilities' managers and specialists
- associations and authorities

Solid waste facilities concerned:

- waste collection companies
- waste sorting facilities
- waste recycling facilities
- incineration facilities
- landfills

Training organisations concerned:

- technical universities offering undergraduate and graduate programs in the field of waste management
- training organisations and universities offering postgraduate studies in the field of waste management
- training organisations delivering short courses in the field of waste management
- VET experts

Associations and organisations concerned:

- relevant ministries
- waste management associations and chambers
- educational foundations
- educational institutes
- environmental protection inspectorates
- regional examining commissions
- employment agencies

On the basis of the acquired information the learning procedures through which the identified qualifications are acquired were described. Both formal and non-formal trainings were taken into account. In the report the information concerning structure and content of the VET programmes, their cost, the possible source of financing and their learning outcomes and acquired knowledge are described.

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1. Introduction

Brief overview of the report

This report describes and assesses the existing in Poland vocational education and training system in the professions in waste management industry.

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1.1. Information about authors

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The information on the education system and tertiary education in Poland presented in chapters 2, 3 and 4 are based on the following publications:

- *Foundation for the Development of the Education System, Polish EURYDICE Unit, The system of education in Poland, Warsaw 2012*
- *Serban Iosifescu, Information Gathering Exercise. Quality assurance procedures in the processes of certification, curricula setting, accreditation and training of trainers in European VET systems, EQAVET, 2011*
- *ReferNet Poland, Poland. VET in Europe – Country Report 2011*
- *CEDEFOP, Vocational education and training in Poland. Short description, Luxembourg: Publications Office of the European Union, 2011*

2. Overview of waste industry vocational training system

In the case of the waste industry in Poland there is no vocational education and training (VET) system present. The skills essential to work in waste management industry can be acquired at every level of education.

The prerequisites for work as the supervisor of landfill or incineration is receiving the certificate ascertaining the qualification in waste management after passing the exam. The scope of the information checked during exam is described in regulation of Minister of Environment of 20 December 2007 on determining the qualifications in the waste management. The exams are open to everyone who wants to acquire the certificate.

The vocational education and training in Poland is strongly linked to education system.

The education system in Poland comprises pre-school institutions as well as primary, lower secondary, upper secondary and post-secondary schools. Institutions of higher education form a separate higher education system or sector.

The basic legislative act regulating the functioning of the education system, including initial vocational education and continuing education (IVET and CVET), for youths and adults in Poland is the Education System Act of 7th September 1991 (with further amendments).

The higher education system in Poland is based on the following legislation:

- the Act of 27 July 2005 Law on Higher Education (with further amendments)

- the Act of 14 March 2003 on Academic Degrees and Title and on Degrees and Title in Art

The training for unemployed, job-seekers and vocational guidance and counselling is regulated by the Act of 20 April 2004 on promotion of employment and labour market institutions, and by various ordinances of the Ministry of Labour and Social Policy (MPiPS) and the Ministry of National Education (MEN).

The education system in Poland including the higher education (before the change introduced in 2012) is presented in Figure 1.

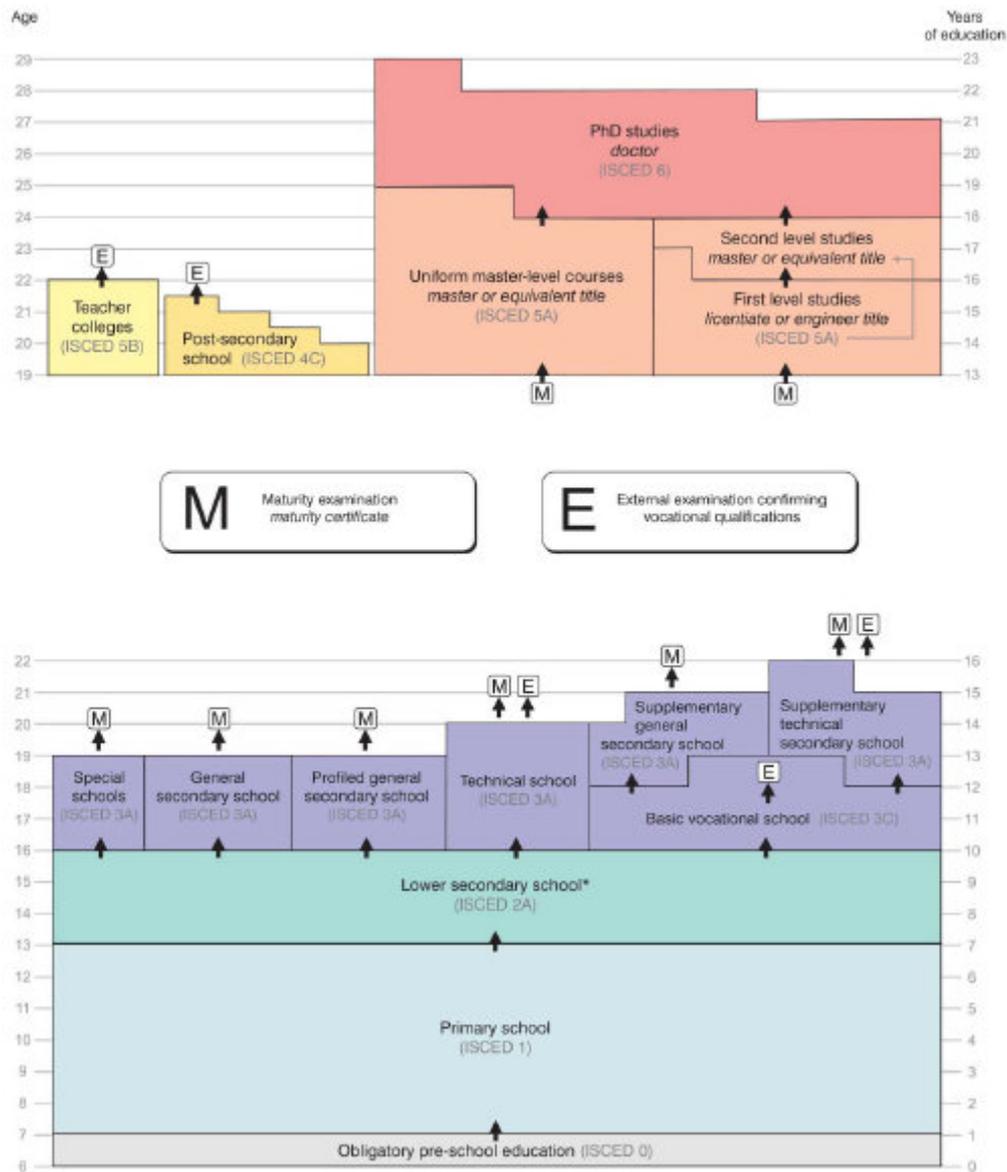


Figure 1. The education system in Poland; Source: ReferNet Poland (2010)

2.1. Training organisations

IVET

After the amendment to the School Education Act of 19 August 2011 and the implementation of the Regulation of the Minister of National Education of 23 December 2011 on the classification of occupations

for vocational education, a number of significant changes were introduced in the system of vocational education and training in Poland. The new measures came into force on 1 September 2012.

In Poland the vocational education in schools can begin at the age of 16 and requires finishing primary school and lower secondary school (compulsory education). The following upper secondary technical and vocational schools offers vocational education:

- four-year technical upper secondary school (technikum) – a school that offers 4 years of full-time technical and vocational upper secondary education for pupils aged 16 to 20; it ends with the matriculation exam necessary for admission to higher education and an external vocational examination leading to vocational qualifications
- three-year basic vocational school (zasadnicza szkoła zawodowa) – a school that offers 3 years of full-time upper secondary vocational education for pupils aged 16 to 19; upon passing the external vocational examination or (according to the modernised system) a set of examinations each enabling gaining separate qualifications, leavers have access to a trade or occupation or can continue their education in settings for adults

Vocational schools provide vocational education in particular occupations on the basis of defined qualifications. The new classification of occupations in vocational education includes 200 occupations which encompass 251 qualifications. For every occupation particular qualifications were defined. It made possible for pupils to obtain separate qualifications required in specific occupations.

The initial vocational education including elements of waste management at upper secondary level is provided in four-year technical secondary school (technikum) of environmental protection or environmental engineering profiles. The occupations which can be acquired after finishing four-year technical secondary schools are:

- environmental protection technician
- environmental engineering and land reclamation technician

The basic vocational schools do not enable pupils to acquire the occupation on the level of technician.

The same occupations can be acquired during qualifying vocational courses, which prepare pupils for passing an exam confirming a qualification in an occupation.

Tertiary education

Tertiary education currently includes the following types of programmes (Figure 2):

- college programmes classified as tertiary education for international comparisons, but not recognised as such in the national legislation
- degree programmes provided by both public and non-public university type and non-university higher education institutions (HEIs), including:
 - o first-cycle (bachelor's degree) programmes
 - o second-cycle (master's degree) programmes

- long-cycle (master's degree) programmes
- third-cycle or doctoral programmes

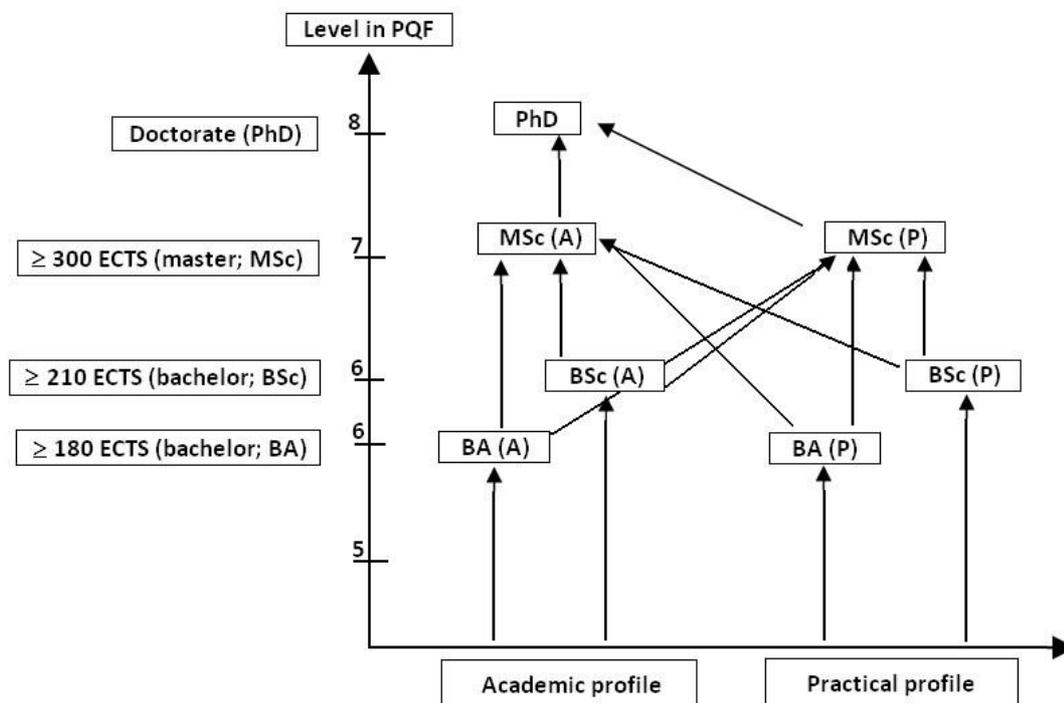


Figure 2. Tertiary education in Poland (Source: Maciej Kubryń, *Krajowe Ramy Kwalifikacji krok po kroku. Poradnik, SSPW*)

The Law on Higher Education of 27 July 2005 introduced two types of higher education institutions: university-type HEIs and non-university-type HEIs. Degree programmes, which are provided by both university-type and non-university-type HEIs, include first-cycle programmes, second-cycle programmes and/or long-cycle programmes. First-cycle programmes aim to provide knowledge and skills in a specific area of study, preparing students for work in a specific profession. Graduates of first-cycle programmes have access to second-cycle programmes. Second-cycle and long-cycle programmes aim to provide specialist knowledge in a specific area of study, preparing students for creative work in a specific profession. The completion of both second-cycle and long-cycle programmes provides access to third-cycle (doctoral) programmes.

In contrast to university-type HEIs in which at least one academic unit is authorised to provide degree programmes, including first-cycle and/or second-cycle or long-cycle programmes and doctoral programmes non-university HEIs are not authorised to award the doctoral degree or provide doctoral programmes.

General requirements for admission to degree programmes, which are provided by higher education institutions, are the same for both university-type and non-university-type HEIs. Access to first-cycle programmes and long-cycle programmes is open to holders of an upper secondary school leaving certificate (matriculation certificate). After the introduction of a matriculation exam at the end of upper secondary school in 2005, admission to first-cycle and long-cycle degree programmes is based on the results of this examination. Thus, HEIs may not organise entrance examinations in the subjects taken by student applicants at the upper secondary-school leaving examination. However, each HEI may specify which results of the

matriculation exam provide the basis for admission to first-cycle and long-cycle programmes. Additional entrance exams may be organised by HEIs, upon the consent of the minister responsible for higher education, but only:

- when it is necessary to assess the applicant's artistic skills, physical aptitude or specific knowledge and skills required to follow a particular programme not assessed during the matriculation exam
- when the applicant holds an upper secondary school leaving certificate obtained abroad

Access to second-cycle programmes is open to holders of a bachelor's degree, a master's degree or an equivalent degree. While respecting these general admission requirements, each HEI may define its own additional admission conditions and procedures, including the number of places available to students. Admission conditions and procedures may be similar across an HEI or may vary according to the field of study. Different conditions and procedures may be applied by different HEIs for the same fields of study. Admission conditions and procedures must be published by each HEI not later than by 31 May of the year preceding the academic year to which they refer.

The duration of degree programmes in both university-type and non-university-type HEIs is as follows:

- first-cycle (bachelor's degree) programmes which last 6 semesters at a minimum and lead to a Bachelor's degree (licencjat) or 7 semesters at a minimum and lead to a degree of Bachelor of Engineering (inżynier), depending on the field of study
- second-cycle (master's degree) programmes which last 4 semesters and lead to a master of sciences degree (magister) or 3 semesters and lead to a degree of master of sciences in engineering (magister inżynier), depending on the field of study
- long-cycle (master's degree) programmes which last 9 to 12 semesters and lead to a degree of master of sciences (magister) or master of science in engineering (magister inżyniers)

The above mentioned programmes are provided as stationary (full-time) studies and non-stationary (afternoon or weekend) studies.

The Law on Higher Education of 2005 takes full account of the recommendations of the Bologna Process.

Recently the reform in higher education took place. The Law on Higher Education amended on 18 March 2011 (together with other acts related to higher education) has come into force on 1 October 2011. One of the main reasons for the introduction of changes to the legislation was the harmonisation of the Polish system of higher education with the solutions implemented in the European Higher Education Area, particularly in terms of the implementation of the National Qualifications Framework (NQF).

Major changes related to harmonisation of the Polish system of higher education with the requirements of the National Qualifications Framework for Higher Education Area are as follows:

- redefinition of terms related to the introduction of the National Qualifications Framework. Students graduate with particular qualifications rather than professional titles, which allows for the implementation of the NQF

- redefinition of terms related to the fields of study – newly drafted definitions of a macro-field of study, an interdisciplinary degree programme, a field of study and a programme of study formulated in terms of learning outcomes have been introduced. The central list of detailed fields of study has been abandoned. This allows students to undertake programmes in more than one field of study and to benefit from a more flexible educational offer

The vocational education with elements of waste management at tertiary education level provided in public and non-public university type and non-university HEIs before the reform included following courses:

- environmental engineering - first-cycle (bachelor's degree) programmes
- environmental engineering - second-cycle (master's degree) programmes
- environmental protection - first-cycle (bachelor's degree) programmes
- environmental protection - first-cycle (bachelor's degree in engineering) programmes
- environmental protection - second-cycle (master's degree) programmes

The education is provided as stationary (full-time) studies and non-stationary (afternoon or weekend) studies.

The occupations in waste management which can be acquired after finishing higher education include:

- engineer of environmental engineering – city cleaning and waste management
- environmental protection specialist

CVET

In Poland adult education is provided in two settings: school and non-school (Table 1) and in the form of non-degree postgraduate programmes offered by higher education institutions and research institutions.

Table 1. Main institutions and forms of adult education

School settings	Non-school settings
Public and non-public schools for adults including: primary schools, lower secondary schools, general upper secondary schools, vocational upper secondary schools, basic vocational schools and non-tertiary post-secondary schools	Non-public institutions for continuing education and practical training administered by associations and individuals
Public and non-public higher education institutions (HEIs): first- and second-cycle programmes, third-cycle (doctoral) programmes, non-degree postgraduate programmes, open university courses, third-age university courses, incl. those based on distance learning, conferences, workshops and seminars	People's universities
Public continuing education centres (CECs), practical training centres (PTCs) and further and in-service training centres: courses, vocational courses, seminars, practical placements, on-the job practical training, theoretical in-service training of young employees	Employers: courses, on-the job training, job shadowing, rotation, replacement, learning clubs, supervised individual learning, fairs, conferences, coaching, mentoring, cooperation with equipment and software suppliers

	Employers' organisations and trade unions
	Training institutions, including those registered in the Register of Training Institutions
	Public employment services: support tools, including training, practical placements, vocational training for adults
	Research institutions, research foundations and the Polish Academy of Science units: no degree postgraduate programmes and doctoral programmes, courses, conferences, seminars, workshops
	Institutions specialised in specific areas of study

Source: EURYDICE, 2012.

Continuing education can take place either in schools for adults or out of school schemes targeted to people who, after compulsory education want to gain or supplement their knowledge and skills, to gain access to qualifications. The term 'continuing education' is used not only for vocational education and training but also for complementing by adults general education at a higher level than the one reached during compulsory education. Continuing education can be formal when it takes place in the schools and institutions supervised by the Ministry of National Education or non-formal when being offered by other providers. Non-formal education is purposely organised educational activity that takes place outside the formal school system, undertaken individually or as organised group action, enabling a group of participants achievement of assumed educational goals. Adult education can be also provided, under certain conditions, on the basis of the legislation on economic activity.

The basic aims of formal continuing education are defined in the following documents:

- the School Education Act of 7 September 1991
- the Act on the Promotion of Employment and Labour Market Institutions of 20 April 2004
- the Act of 27 July 2005 Law on Higher Education

Non-formal education cannot be treated as a system. Its different aspects are regulated by separate legislation:

- The amended version of the Education System Act (of June 2003);
- The Act on Promotion of Employment and Institutions of the Labour Market of 20 April 2004;
- The Act on economic activity freedom of 2 July 2004;
- The Labour Code of 26 June 1974 with subsequent amendments
- Regulation of the Minister of National Education and Sport, and the Ministry of Labour and Social Policy of 12 October 1993 on rules and conditions concerning the upgrading of vocational qualifications and general education of adults
- Regulation of the Minister of National Education and Sport on accreditation of centres providing continuing education in out-of-school forms of 20 December 2003.

Formal continuing vocational education can be carried out on daily basis as extramural or distance learning in various types of schools for adults and other institutions (public and private), using the curriculum statutorily defined for a given level of education and leading to qualifications and certificates defined by the Ministry of Education in relevant legal regulations. Formal continuing education in public establishments is free of charge.

Continuing education takes place in schools for adults, continuing education centres (CKU), practical training centres (CKP), vocational upgrading and further education centres (ZDZ) and higher education/research institutions offering post-diploma studies, courses and distance learning. Continuing education is also provided by chambers of crafts.

Adult education is provided in schools for adults of all types, in conformity with the provisions of the Education System Act of 1991. The schools for adults are meant for people who in the time and conditions prescribed for the education of children and youth did not attain a targeted level of education. Such people have a possibility to complete general education, gain or acquire new vocational qualifications. Adults can choose to attend classroom courses, distance learning or prepare themselves to the final exams.

When a person undertakes education in a school for adults providing vocational education, it is possible to recognize results of vocational courses run by public and non-public institutions and centres accredited by the school superintendent or by legal or natural persons carrying out educational activities according to the Freedom of Business Activity Act of 2 July, 2004 for which they received accreditation.

The school leaving certificate, apart from medical schools, can be obtained also by passing an exam in front of a National Examination Commission, appointed by a school superintendent without attending the school regularly.

The statutory duty of continuing education centres (CKU), practical training centres (CKP), vocational upgrading and further education centres (ZDZ) is to organise and provide continuing education on a regular daily basis, in the extramural form and as distance learning. There are 136 continuing education centres, 137 practical training centres and 24 further training centres operating all over the country. Institutions and centres of continuing education which provide continuing education in out-of-school forms can obtain accreditation which confirms that they meet specific requirements and assure quality to the education provided. Accreditation can be given to the entire education provided or to its part only.

Higher education institutions provide graduate programmes in public and non-public university type and non-university HEIs and before reform included following courses:

- environmental engineering - first-cycle (bachelor's degree) programmes
- environmental engineering - second-cycle (master's degree) programmes
- environmental protection - first-cycle (bachelor's degree) programmes
- environmental protection - first-cycle (bachelor's degree in engineering) programmes
- environmental protection - second-cycle (master's degree) programmes

The education is provided as non-stationary (afternoon or weekend) studies.

The occupations in waste management which can be acquired after finishing higher non-stationary education include:

- engineer of environmental engineering – city cleaning and waste management
- environmental protection specialist

Non-formal continuing education and training can be organised by:

- public education institutions (continuing education centres, practical training centres, vocational upgrading and further education centres) providing training in short forms and various vocational and qualifications courses upgrading and further education centres of branch associations
- higher education institutions, units of the Polish Academy of Science, research institutes — providing training, seminars, workshops, etc.
- private training companies
- enterprises (employers)
- associations, foundations and other corporate bodies and individuals

Continuing education centres (CKU), practical training centres (CKP) and further training centres (ZDZ) organise and provide non-formal vocational education on a regular daily basis, in the extramural form and as distance learning. They are public education institutions.

After the changes of education system new out-of-school forms of vocational training were introduced: vocational courses for adults that make possible taking exams confirming qualifications. These vocational courses can be taken by people holding at least a lower secondary leaving school certificate or a leaving certificate from the previously existing 8-year primary school.

The courses enable students to acquire the same occupation as four-year technical secondary school. After passing the exam confirming qualifications in an occupation (with the elements of waste management) the leavers receive the certificate and can acquire one of the following occupations:

- environmental protection technician
- environmental engineering and land reclamation technician

Higher education institutions (public and private), units of the Polish Academy of Science and research institutes provide, apart from formal education, also short forms of continuing education such as training, conferences, seminars and workshops.

Private training companies are a large group of training providers offering their paid services to enterprises and individuals. The specific data on the number of private training companies in Poland is not available.

Enterprises provide their employees with various forms of training, depending on their needs and financial possibilities.

The data on NGOs providing non-formal education are not collected on regular basis. However the survey done in 2010 by the non-governmental organisation Klon-Jawor shows that 12% of all NGOs indicate

education as one of their main activity areas. As regards the forms of activity, 31% pointed on educational activities and formation of children and adolescents, whereas 26% organizations mentioned on continuing education, adults education, supplementary trainings and courses.

In the case of courses commissioned by employers for their staff the level of education completed, psychological and physical dispositions, work experience and some additional skills are, among others, taken into account as main admission requirements. While directing staff to training the rule of equal opportunity should be respected – this applies to the employee's gender, age, disability, political views and religion.

Non-formal education can also take forms of training, workshops, conferences, seminars, correspondence courses or e-learning courses. The admission requirements are defined by the education providers. They usually depend on the aims of training.

Non-degree postgraduate programmes

Public and non-public higher education institutions, units of the Polish Academy of Science and research institutes provide the tertiary-level graduates with post-diploma studies aimed at upgrading their qualification, updating their knowledge, completing the education necessary to perform their jobs (e.g. pedagogical studies, managerial studies, medical studies etc.) or to acquire qualifications in a profession related to their own as well as doctoral studies.

Higher education institutions offer non-degree postgraduate programmes which are considered another form of adult education in school settings. Non-degree postgraduate programmes are open only to applicants who have completed a first-cycle programme (leading to a bachelor's degree) or a second-cycle programme (leading to a master's degree). If it is required by the curriculum, the institution offering a non-degree postgraduate programme can define additional admission requirements.

There are many institution that provide continuing vocational training in the waste management:

- public and non-public vocational upper secondary schools for adults providing the same education as four-year technical upper secondary school on IVET level and also qualifying vocational courses, which prepare for passing an exam confirming a qualification in specific occupation
- public and non-public HEIs: first- and second-cycle programmes, non-degree postgraduate programmes providing the same education as tertiary education described above
- training institutions, including those registered in the Register of Training Institutions, providing short training (8 – 24 hours) in specific field of waste management and environmental protection (e.g. waste management law, environmental management systems, Environmental Impact Assessment law and principles, life cycle assessment methodology, IPPC methodology, transport of dangerous materials)
- institutions specialised in specific areas of study (such as research institutes, authorities, etc.) providing short training (8 – 24 hours) in their field of study

The waste management aspects are also covered at conferences, workshops and seminars organised by different institutions (training organisations, HEIs, authorities, associations, chambers, etc.).

2.2. Accreditation bodies

IVET

The responsibility for the administration of public basic vocational schools, technical schools and post-secondary schools has been delegated to districts. Pedagogical supervision is the responsibility of education superintendents (regional level). The superintendents are also responsible for the implementation of tasks defined in the School Education Act and in the regulations relevant to the given region. The registration of non-public schools and educational institutions is carried out by local governments.

Local governments make the decision regarding the accreditation. Local governments usually cooperate with the education superintendents in the decision process.

Tertiary education

The Polish Accreditation Committee (Polska Komisja Akredytacyjna – PKA) is the only statutory body responsible for evaluating the quality of higher education. Its opinions and resolutions have a legally binding effect. Since 2009, it has been a full member of ENQA (the European Association for Quality Assurance in Higher Education) and was officially admitted to the European Quality Assurance Register for Higher Education (EQAR) established to enhance the transparency and trust in quality assurance.

The primary objective of the Committee is to support Polish public and non-public HEIs in the development of educational standards. The State Accreditation Committee conducts obligatory assessments of the quality of education and gives opinions on applications for the authorisation to provide degree programmes, submitted by higher education institutions.

CVET

Both public and non-public institutions can apply, on a voluntary basis, for accreditation which will refer to the whole or to part of the education provided, at regional level. The accreditation is awarded by the education superintendent.

The educational institutions offering training for the unemployed and job seekers can get finance from public resources if registered in the Register of Training Institutions established at regional level (by the Regional Labour Office).

In Poland non-formal education is not administered centrally by one body, therefore it is rather difficult to indicate its general objectives or priorities. Mostly it responds to current trends, general continuing vocational training policy and labour market needs.

In Poland there is no system of validation and recognition of qualifications acquired in nonformal education. There are separate solutions functioning in different branches. External examinations confirming vocational qualifications are foreseen only for the graduates of particular vocational schools.

The new reform of vocational education, connected to the works on the National Qualification System, includes transformation of the existing system of examinations confirming vocational qualifications - a pupil will be able to confirm separately every qualification selected, from vocation, during whole education process not only during exams. For every confirmed qualification the pupil would get certificate and as soon as the pupil confirms all selected qualifications he/she will get diploma with supplement.

There will be computerized system of examination tasks database and exams will be carried out during all year instead of examination session. Suggested changes in confirming selected qualifications will help to eliminate an examination system for professional titles carried out by the national examination boards and the vocational system examination will be unified regardless of learning forms – school or non-school.

Certificate of qualification in waste management

There is no accreditation body for the education or training provided for persons who want to gain the certificate of qualification in waste management.

2.3. Awarding bodies

IVET

Vocational upper secondary school leavers receive a school leaving certificate. At the end of technical upper secondary school pupils may sit the matriculation exam, an external national examination. In all types of vocational upper secondary schools pupils may take an examination confirming vocational qualifications, called the vocational examination which is an examination assessing the level of knowledge and skills in the given qualification defined in the examination standards. The examination is not obligatory.

The vocational examination is held in two forms: written and practical. The examination is organised by the relevant Regional Examination Commission (there are 8 regional examination commissions) and aims at the assessment of pupils' knowledge and practical skills related to a given occupation. The scope of the examination is defined in the vocational qualifications examination standards.

A graduate of a vocational upper secondary school i.e. technical upper secondary school or basic vocational school who passes the vocational examinations for all qualifications in an occupation, receives a diploma confirming vocational qualifications. The diploma includes the name of the occupation for which the qualifications have been confirmed and the results of the vocational examination (both written and practical parts). Diplomas confirming vocational qualifications are issued by regional examination commissions.

The diploma confirming vocational qualifications can be accompanied, at the graduate's request, by a supplement describing the graduate's qualifications or by a description of the occupation based on the core curriculum. At the holder's request, the vocational qualification diploma can be issued together with an Europass document: a supplement based on a description of the holder's qualifications or description of the occupation as given in the core curriculum for training for particular occupations. The supplement can be issued in Polish or English. The new concept of vocational education introduced in September 2012 allows for obtaining certificates confirming each of the qualifications included in a definition of the given occupation, or certificates confirming single qualifications.

Exams confirming qualifications will be held not only upon completion of education at school but also at different stages of education or after completion of each qualification. A pupil will receive a certificate on passing an exam for a single qualification, and after passing exams for all the qualifications required for a given occupation (and having required level of general education), he/she will receive a diploma for the full occupation.

Tertiary education

Courses provided during degree programmes end with an oral or written examination or a pass based on the work of a student during a course, including papers/essays or projects. A pass is always given together with a mark (except for information classes and practical training/placements). Passes are obtained on the basis of the assessment carried out by the academic teacher responsible for a given course. An examination is also carried out by the academic teacher responsible for a given course. The performance of students during practical training (a practical placement) is assessed by the academic teacher responsible for practical training in a given HEI and the supervisor in the institution where the placement takes place. Students' learning achievements are recorded in their student record books.

Detailed arrangements concerning student assessment, including the grading scale applied, the frequency of assessment and the requirements for obtaining passes and taking examinations, are laid down in the study regulations of individual institutions.

Detailed rules for taking examinations, progression to the next semester and year, repeating a year and admission to the final diploma examination are laid down in the study regulations adopted by individual HEIs. However, all students are allowed to take a resit examination, including the final examination, and an examination following a failed resit examination, conducted by an examination review board after an appeal made by a student to such a board.

In order to be admitted to the final examination, students are required to complete all courses and practical placements provided for in the curriculum, and to submit their final thesis which must then receive a positive assessment. If the study programme does not provide for the preparation of a thesis and sitting a final examination, students are only required to complete the courses and practical placements foreseen in the curriculum.

In accordance with the Regulation of the Minister of Science and Higher Education of 14 September 2011, students are required to obtain a minimum number of ECTS credits, specified in the basis of the study regulations, in order to progress to the next semester or academic year and to complete a degree programme.

All three types of degree programmes offered in university-type and non-university type HEIs, including first-cycle, second-cycle and long-cycle programmes, end with the diploma examination. The examination is conducted by an examination board composed of academic teachers of the academic unit of a HEI (e.g. faculty or department) which provides a given programme. Students who have passed the final examination are awarded a higher education diploma (dyplom ukończenia studiów wyższych) which confirms the completion of a given type of degree programme and the award of a relevant degree in a given field of study.

If the study programme does not provide the final examination, students are only required to have completed all courses and practical placements in order to obtain a diploma confirming the award of a relevant degree (the overall mark equals to the average mark for all the courses). Diplomas and degrees are awarded by university-type and non-university-type HEIs. As of 2012, diplomas are prepared and issued in accordance with the amended Law on Higher Education and are officially recognised documents. Every graduate, upon his/her request, receives a Diploma Supplement in the EU/CoE/UNESCO Diploma Supplement format issued by the HEI in English and free of charge.

A Bachelor's degree entitles its holder to practice a given profession and provides access to second-cycle programmes. A Master's degree entitles its holder to practice a given profession and provides access to doctoral programmes.

CVET

Like in schools for young people, two assessment systems, internal and external, are in place in schools for adults. The internal assessment system is based on a grading scale of 1 to 6 (1 – insufficient and 6 – excellent). Learners in schools for adults are promoted to a higher level after each semester. An adult learner finishes (primary, lower or upper secondary) school if he/she has received marks higher than insufficient for all compulsory subjects at the end of the final semester. Assessment and promotion in the extramural type of school is based on end-of-semester exams in compulsory classes/courses which are included in the school timetable. Learners in basic vocational and upper secondary vocational schools are also obliged to take vocational exams. Arrangements for end-of-semester exams in extramural schools are laid down in the school statutes.

Public schools for adults award a certificate or an official diploma. Learners in general and vocational upper secondary schools may obtain a matriculation certificate and continue education at a higher education institution. School leaving certificates from the upper secondary school as well as basic vocational school can also be obtained on the basis of extramural examinations. At all levels of education, extramural exams are taken only in the written form. Extramural exams are included in the external examination system. The Regional Examination Commissions are responsible for setting and conducting these examinations.

The vocational education reform allowed adults to take extramural exams in vocational fields, and consequently, to obtain a certificate or a diploma confirming vocational qualifications with no need to follow any school-based programme.

Those who have passed an examination upon completion of a course or practical placement are awarded a certificate confirming vocational qualifications. Those who have passed an examination upon completion of a vocational course are awarded a certificate of completion of such a course and, if applicable, a certificate confirming vocational qualifications. Results achieved at the end of a vocational course are recognised by vocational schools for adults.

Vocational courses lead to examinations which assess the level of knowledge and skills to be acquired as part of individual classes/subjects in the curriculum/training programme for a given course. The assessment is based on the scale of 1 to 6 (1 – insufficient, 6 – excellent). A qualifying exam for the vocational title is one of the methods validating vocational qualifications regulated by the school education legislation. The regulations lay down detailed requirements (e.g. work experience) for individuals planning to take such exams. The exam includes two parts, theoretical and practical. Both parts are assessed according to the criteria prepared by an examination board and approved by the head of the regional education authorities while the standard scale is used for marking.

The rules for vocational training for adults are, to a large extent, regulated in an agreement concluded between the district-level authorities, the employer and the training institution. The agreement specifies the type of examination, the institution in charge of it, and an acceptable non-attendance rate (class hours which a learner can be absent from as a proportion of all class hours envisaged in the training programme)

which allows the learner to complete the course. The vocational training programme also defines the methods for assessing learning outcomes.

An individual who has completed training in a non-school setting receives a certificate.

Non-degree postgraduate programmes

Higher education institutions, as well as research and research and development institutions, providing non-degree postgraduate programmes choose methods for assessing students and define the conditions to be fulfilled for students to complete the programme and receive a diploma. Research institutions providing non-degree postgraduate programmes often assess students on the basis of their coursework.

Upon completion of non-degree postgraduate programmes and in-service training courses offered by HEIs, as well as research institutions and research-and-development institutions, graduates receive, respectively, a diploma confirming the completion of a non-degree postgraduate programme or a certificate issued in accordance with a specimen provided by the minister responsible for higher education in the relevant regulation.

In non-school settings, educational and training providers define methods for assessing learning outcomes in their curricula or training programmes. Courses and practical placements can (but do not have to) end with an examination which assesses the level of selected vocational skills for occupations included in the classification of occupations for vocational education and training or the classification of occupations and specialisations for the labour market.

Certificate of qualification in waste management

Certificate of qualification in waste management is awarded by the Marshal of the Voivodship. The certificate can be awarded after passing the exam before Examination Commission.

Examination commission consists of five members – specialists (with higher education in one of following disciplines: biology, chemistry, law, environmental engineering, geology, chemical engineering or chemical technology) and working in on of the following sectors: public administration, higher educational institution, research and development institute or units operating in the field of waste incineration or landfilling.

The head and the secretary of the commission are chosen by the Marshal of the Voivodship out of its members.

There are two possible exams: the first is for certificate in waste incineration and the second for certificate in waste landilling. The exam has a form of written test and consists of 40 questions. The test is prepared and assessed by the commission. The exam is hold once a three months, if at least one application is submitted.

The exam is passed, if the total positive answers rate is not less than 75%.

After passing the exam the candidates get the national certificate. The certificate states, that the candidate has the required qualification in Poland to run the incineration or landfill.

There is a new draft version of this legislation. The most important changes are the addition of new issues related to the facilities for neutralising of mining waste.

2.4. Polish Qualifications Framework (PQF)

The Polish Qualifications Framework (PQF) defines eight levels of qualifications, to which specific descriptors have been ascribed, i.e. general descriptions specifying the relevant range of knowledge, competences and skills: knowledge refers to a body of facts, principles, theories and practices related to a field of work or study (knowledge can be theoretical or factual); skills are divided into cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments). Skills refer to the ability to apply knowledge and use know-how to complete tasks and solve problems, whilst personal and social competences mean the proven ability to use knowledge, skills and, social or methodological competences demonstrated in work, in study situations and personal development, while competences define responsibility and autonomy.

The Polish descriptors have been divided into four groups:

- universal descriptors, relevant to the learning outcomes acquired at specific levels and relative to all types of education
- descriptors relevant to vocational education at levels 1-8: these are standard minimum learning outcomes required for qualifications in specific occupations
- descriptors relevant to general education at levels 1-4 - from primary school to general secondary education exam (matura)
- descriptors relevant to higher education at levels 5-8 (level 8, up to doctorate)

The model of the Polish Qualifications Framework will distinguish “full” and “partial” qualifications, associated with specific levels.

Acquisition of a full qualification at a given level will open up a possibility to seek a full qualification at a higher level. In some situations, several partial qualifications may be needed to acquire one full qualification. Each full qualification will involve specific minimum requirements in terms of knowledge, skills and competences; it will also have its specific “volume”, i.e. the acquired qualification can be developed further (instead of pursuing a higher-level qualification). The “volume” of individual qualifications will be determined using ECVET points. In order to ensure the implementation and a smooth operation of the National Qualifications System, in addition to the Polish Qualifications Framework, the procedures to assure the quality of qualifications will be developed, validation of competences acquired in formal, non-formal and informal contexts will be ensured, a system for the transfer and accumulation of learning outcomes outside higher education will be created, the accreditation of training providers will be prepared.

3. Description of quality assurance system for vocational waste management training in the country

IVET

Education policy is formulated and implemented centrally by the Ministry of National Education.

At the national level, despite the Minister for National Education, the Board of National Education (consultative body) gives opinions on the proposed direction of changes in education and provides

suggestions on reforms in education and Institutions of social dialogue gives opinions on issues concerning vocational education.

At the regional level the regional authorities represented by school superintendent (kurator) supervise implementation of national policy, provide pedagogical supervision for educational establishments in the region and institutions of social dialogue give opinions on VET in the region, consult questions of educational organisation and financing.

At district level institutions of social dialogue: district employment boards (consultative bodies) gives opinions on VET in the district, the district authorities (powiaty) represented by their heads (starosta) are in charge of managing upper secondary education (including vocational education).

Tertiary education

The main Polish institutions in charge of quality assurance in higher education are: the State Accreditation Committee, the General Council of Higher Education and the Conference of Rectors of the Academic Schools in Poland.

The Polish Accreditation Committee (Polska Komisja Akredytacyjna – PKA) performs a crucial role in higher education quality assurance. The primary responsibilities of the PKA include: assessing the quality of education in fields of study, including compliance with the requirements for the provision of degree programmes; reviewing applications for the establishment of higher education institutions; and reviewing applications of higher education institutions for the authorisation to provide degree programmes in a given field and at a given level of study. The PKA's opinions and evaluations are submitted to the minister responsible for higher education. Degree programmes to be assessed in individual institutions are identified by the PKA on an annual basis. In justified cases, the minister responsible for higher education may also request the PKA to assess the quality of education in a specific institution.

CVET

There is a great variety of public and private institutions and the level of quality assurance varies significantly. In some institutions there is almost no quality assurance, while established quality assurance systems are used in others.

In the formal system controlled by the Minister of Education which includes schools for adults, continuing education institutions, practical training centres and further training centres, the pedagogical supervision is performed by school headmasters and school superintendents and regulated by law. The model of supervision is based on the concept of “measuring the school work quality” which, in turn, is based on quality standards and indexes which are developed for the whole country by the Minister of National Education. The school or educational institution's work quality is measured internally by the school principal every year. External measurements are carried out by the school superintendents at least once in 5 years. The school superintendent can withdraw from measuring the school or institution's work quality if the school or institution has documents confirming implementation of the quality management and quality assurance systems.

The quality of education in the schools for adults which educate in a specific vocation should be assured also within the framework of the external assessment system, similarly to the school system for youngsters. External vocational examinations aim at confirming vocational qualifications acquired during the course of

school education. They are based on examination requirement standards established by the Central Examination Commission and conducted by Territorial Examination Commissions.

Continuing education institutions, both public and non-public, which provide continuing education in out-of-school forms can apply and obtain accreditation which confirms that they meet specific requirements and assure quality to the education provided. Accreditation can refer to the whole or a part of the education provided. Accreditation can be given to the entire education provided or to its part only. Accreditation is awarded by the school superintendent competent for the seat of the institution. However, the accreditation, introduced in 2003 is voluntary, therefore the out-of-school establishments providing education in compliance with the principles of free business activity are able to escape any control over the standard of services rendered by them.

Certificate of qualification in waste management

Every Examination commission consists of five members – specialists (with higher education in one of following disciplines: biology, chemistry, law, environmental engineering, geology, chemical engineering or chemical technology) working in one of the following sectors: public administration, higher educational institution, research and development institute or units operating in the field of waste incineration or landfilling.

The head and the secretary of the commission are chosen by the Marshal of the Voivodship out of its members.

After each exam the Examination Commission is obliged to issue the report with names of the persons attempting the exam, content of the exam and percentage of proper answers.

4. Requirements for training programmes and institutions

IVET

The content of vocational education and training provided by upper-secondary and post-secondary schools and vocational qualification courses is set in the regulation of Ministry of Education of 7 February 2012 on the core curriculum for vocational education.

The core curriculum consists of three parts:

- part I sets out the general aims and objectives of vocational education and provides a list of qualifications along with their connections to the competition and learning outcomes
- part II sets out: learning outcomes common for all professions, learning outcomes common for occupations in the profession or group of professions and learning outcomes relevant to qualifications distinguished in the professions
- part III describe the training in specific professions including: the names and symbols of occupation (according to the classification of vocational education), vocational education goals, the names of distinguished qualifications in occupations, conditions for the implementation of vocational education, the minimum number of hours of vocational training and opportunities for additional qualifications in occupations in the area of training provided in the classification of vocational education

The proportions of general and vocational education (including theoretical and practical vocational subjects) are specified in general teaching plans relevant for the given type of school and prepared by the Ministry of Education.

In technical secondary schools, vocational subjects consist 36% of all hours of learning in the entire cycle of education. Practical vocational training is organised in schools and at the workplace. It aims to provide the vocational skills necessary for a particular occupation and may take place in school workshops and laboratories, school farms, continuing education centres or practical training centres.

In basic vocational schools, practical training corresponds to 50% of all hours envisaged for vocational subjects. In technical secondary schools this proportion varies from 20 to 25%.

There are work placements in all types of VET, lasting four weeks and occurring once or twice in the education cycle. They are meant to deepen students' vocational knowledge and skills and to teach them how to apply such knowledge and skills in real work conditions.

Tertiary education

All higher education institutions offering bachelor's degree and bachelor of engineering studies are obliged to include teaching standards for particular strands and level of education in their curricula. The standards indicate subjects of general education, basic subjects and vocational subjects.

Subjects of general education are mandatory for all courses and should comprise 15-20% of all teaching hours. General education subjects include foreign languages, physical education and some electives. The essential element of these programmes is 15 weeks of practical training. In the case of engineer programmes, FEANI (Federation Europeenne d'Associations Nationales d'Ingenieurs) accreditation criteria are recommended. According to them, nontechnical subjects should take up about 10% of all teaching hours, basic subjects – 35% and technical subjects – 55% of instructional time.

CVET

Units providing qualifying vocational courses should have the resources needed to conduct the courses:

- teaching staff with the qualifications described in the regulations
- suitable rooms equipped with teaching aids and equipment to allow proper delivery of education
- safe and healthy working conditions

They also should have the system of supervision necessary to improve the quality of the education.

Certificate of qualification in waste management

No requirements.

5. Topics required to be covered by training programmes and training structure elements under regulation

The structure of the training programmes with the topics required to be covered (timing for different topics and timing for theory and practise) are presented:

- for IVET and formal CVET leading to occupation of environmental protection technician and environmental engineering and land reclamation technician in Table 2
- for tertiary education on the courses: environmental engineering - first- and second-cycle programmes, environmental protection - first-and second-cycle programmes in Table 3
- for requirements regarding the compulsory exam for managers of landfills and incineration installations in Table 4

Table 2. Training structure of education for technicians

Topic	Environmental protection technician					Environmental engineering and land reclamation technician				
	learning outcomes	duration of learning (semesters)	min. number of hours of vocational training	balance between general and vocational subjects	balance between school- and work-based training	learning outcomes	duration of learning (semesters)	min. number of hours of vocational training	balance between general and vocational subjects	balance between school- and work-based training
National legal requirements concerning waste management	+	8	1350	64/36%	From 20/80% to 75/25%	+	8	1350	64/36%	From 20/80% to 75/25%
EU legal requirements concerning waste management	+					+				
Waste management policy principles	+									
Environmental Impact Assessment principles	+									
Integrated Pollution Prevention and Control (IPPC) principles, including procedure for IPPC permits										
Principles of waste classification	+					+				
Properties that lead to waste classification as hazardous waste	+					+				
Technical requirements for equipment and technologies of waste management activity in concern	+					+				
State-of-the-art technologies in the area concerned										
National requirements for waste management procedures (licensing, waste accounting, reporting, etc.)										
Principles of emergency preparedness and planning of preventive corrective actions	+					+				
Monitoring requirements	+									
Sustainable development concept/ sustainable consumption and production principles	+					+				
Waste/ pollution prevention principles	+					+				
Product life cycle principles										
Principles of environmental management systems/ environmental risk assessment										
Principles of environmental management accounting										
Corporate social responsibility principles										
Principles of business/ corporate organisation and management	+					+				
Other - principles of work organisation of small teams	+					+				

Table 3. Training structure of education for engineers and specialists

Topic	Environmental engineering - first-cycle (Bachelor's degree)					Environmental engineering - second-cycle (Master's degree)				
	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training
National legal requirements concerning waste management	+	min. 7	94	68/32% min. 50% of hours should be seminars, exercises, projects, laboratory and field work	min. 4 weeks of practical training	+	min. 3	19	68/32% min. 50% of hours should be seminars, exercises, projects and laboratory work	-
EU legal requirements concerning waste management	+					+				
Waste management policy principles	+									
Environmental Impact Assessment principles						+				
Integrated Pollution Prevention and Control (IPPC) principles, including procedure for IPPC permits						+				
Principles of waste classification	+									
Properties that lead to waste classification as hazardous waste	+									
Technical requirements for equipment and technologies of waste management activity in concern	+									
State-of-the-art technologies in the area concerned										
National requirements for waste management procedures (licensing, waste accounting, reporting, etc.)										
Principles of emergency preparedness and planning of preventive corrective actions	+									
Monitoring requirements										
Sustainable development concept/ sustainable consumption and production principles	+									
Waste/ pollution prevention principles	+									
Product life cycle principles										
Principles of environmental management systems/ environmental risk assessment						+				
Principles of environmental management accounting										
Corporate social responsibility principles										
Principles of business/ corporate organisation and management						+				
Other - principles of work organisation of small teams	+									

Topic	Environmental protection - first-cycle (Bachelor's degree)					Environmental protection - first-cycle (Bachelor's degree in engineering)				
	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training
National legal requirements concerning waste management	+	min. 6	94	37/63%	min. 3 weeks of practical training	+	min. 7	99	39/61%	min. 6 weeks of practical training
EU legal requirements concerning waste management	+					+				
Waste management policy principles	+									
Environmental Impact Assessment principles						+				
Integrated Pollution Prevention and Control (IPPC) principles, including procedure for IPPC permits						+				
Principles of waste classification	+									
Properties that lead to waste classification as hazardous waste	+									
Technical requirements for equipment and technologies of waste management activity in concern	+									
State-of-the-art technologies in the area concerned										
National requirements for waste management procedures (licensing, waste accounting, reporting, etc.)										
Principles of emergency preparedness and planning of preventive corrective actions	+									
Monitoring requirements										
Sustainable development concept/ sustainable consumption and production principles	+					+				
Waste/ pollution prevention principles	+									
Product life cycle principles										
Principles of environmental management systems/ environmental risk assessment						+				
Principles of environmental management accounting										
Corporate social responsibility principles										
Principles of business/ corporate organisation and management						+				
Other - principles of work organisation of small teams	+					+				

Topic	Environmental protection - second-cycle (Master's degree)					Environmental protection - second-cycle (Masters' degree in engineering)				
	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training	learning outcomes	average duration of learning	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training
National legal requirements concerning waste management	+	min. 4	17	18/82% min. 60% of hours should be exercises, projects, laboratory or field work	-	+	min. 3	17	18/82%	-
EU legal requirements concerning waste management	+					+				
Waste management policy principles	+					+				
Environmental Impact Assessment principles										
Integrated Pollution Prevention and Control (IPPC) principles, including procedure for IPPC permits										
Principles of waste classification	+					+				
Properties that lead to waste classification as hazardous waste	+					+				
Technical requirements for equipment and technologies of waste management activity in concern	+					+				
State-of-the-art technologies in the area concerned										
National requirements for waste management procedures (licensing, waste accounting, reporting, etc.)										
Principles of emergency preparedness and planning of preventive corrective actions	+					+				
Monitoring requirements										
Sustainable development concept/ sustainable consumption and production principles	+					+				
Waste/ pollution prevention principles	+					+				
Product life cycle principles										
Principles of environmental management systems/ environmental risk assessment										
Principles of environmental management accounting										
Corporate social responsibility principles										
Principles of business/ corporate organisation and management										
Other - principles of work organisation of small teams	+					+				

Table 4. Training structure for managers of waste landfills and thermal treatment installations

Topic	Manager of landfill					Manager of incineration facility				
	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training	learning outcomes	average duration of learning (semesters)	min. number of ECTS points	balance between general and vocational subjects	balance between school- and work-based training
National legal requirements concerning waste management	+					+				
EU legal requirements concerning waste management	+					+				
Waste management policy principles	+									
Environmental Impact Assessment principles						+				
Integrated Pollution Prevention and Control (IPPC) principles, including procedure for IPPC permits	+					+				
Principles of waste classification	+					+				
Properties that lead to waste classification as hazardous waste	+					+				
Technical requirements for equipment and technologies of waste management activity in concern	+					+				
State-of-the-art technologies in the area concerned	+					+				
National requirements for waste management procedures (licensing, waste accounting, reporting, etc.)										
Principles of emergency preparedness and planning of preventive corrective actions										
Monitoring requirements	+					+				
Sustainable development concept/ sustainable consumption and production principles										
Waste/ pollution prevention principles										
Product life cycle principles										
Principles of environmental management systems/ environmental risk assessment										
Principles of environmental management accounting										
Corporate social responsibility principles										
Principles of business/ corporate organisation and management						+				
Other - principles of work organisation of small teams	+					+				

6. Availability of education programmes for waste management facilities managers and technicians in the country (survey)

In Table 5 availability of training programmes for solid waste management facilities' managers and technicians is presented based on the results of the survey.

The survey question concerned following programmes:

- registered/formal programmes for waste management sector that end up with a document of qualification for participants
- other (informal) programmes that cover topics of interest for solid waste management facility managers and technicians
- online training programmes

Table 5. Availability of training programmes for managers and technicians

Programme	Manager			Technicians		
	sufficient	not sufficient	no answer	sufficient	not sufficient	no answer
Registered/formal programmes	18	11	1	15	13	2
Other (informal) programmes	18	12	0	15	15	0
Online training programmes	10	17	3	11	16	3

In general the perceived availability of formal and non-formal training programmes for managers is higher than for the technicians.

The availability of online training programmes both for technicians and managers is perceived as not sufficient. In the survey among the obstacles related to vocational training for waste management facilities' professional inconvenient location of training courses, lack of time and problems with availability were mentioned. It seems that providing the online courses for waste management facilities' professionals would be an opportunity for some of them to undertake the training.

7. Overview of registered training programmes (survey)

In Poland there is no specific registered programme for waste management professionals. The specific compulsory qualifications (passing of the exam) are required by law only for landfills and incineration facilities' managers. There are only few non-public institutions that provide training for this exam but the training is not registered.

The managers of other facilities are not required to obtain any specific qualifications. In requirement process from waste management professional the technical education or in environmental protection are usually required. This kind of education can be obtained during registered IVET programmes (EQF level 4) and tertiary education's graduate programmes, such as bachelors and engineer degrees (EQF level 6) and masters degrees (EQF level 7).

The respondents of the survey provide following registered programmes for waste management facilities' professionals:

- stationary graduate programmes (first- and second-cycle) in the following fields: environmental engineering, environmental engineering - water supply, waste water and solid waste utilisation, waste management
- non-stationary graduate programmes (first- and second-cycle) in the following fields: waste management, environmental and waste management, environmental engineering, environmental management and recycling
- non-degree postgraduate programmes in the following fields: information technology and management in environmental protection, waste management, management of modern waste systems

8. Cost and possible sources of financing for participation in training programmes (survey)

Average cost of training programmes for waste management facilities' managers and technicians and possible sources of financing are presented in Table 6.

Table 6. Average cost of training programmes for waste management facilities' managers

Programme	Average cost for whole cycle [EURO]	Range [EURO]	Possible sources of financing
Stationary first- and second- cycle graduate programmes at public HEIs	free	free	-
Non-stationary first-cycle graduate programmes at public HEIs and stationary and non-stationary at private HEIs	910	770 – 1050	Workers Employers
Non-stationary second- cycle graduate programmes at public HEIs and stationary and non-stationary programmes at private HEIs	970	890 – 1050	Workers Employers
Non-degree postgraduate programmes	890	490 – 1170	Workers Employers ESF
Continuing education in out-of-school forms (trainings, workshops)	130	17 – 350	Workers Employers ESF

The average costs of studies are compatible for public and private HEIs. The costs of non-degree postgraduate programmes are similar to those of graduate programmes despite their shorter duration.

Funding sources depend on the level of training. During formal programmes such as IVET programmes and graduate programmes there is general subsidy from the government and the education is free. During non-stationary graduate programmes and non-degree postgraduate programmes the funding is mainly the personal financing. The subsidies and financing by employers

is scarce. The non-formal training is more often subsidized from EFS or National Fund for Environmental Protection and Water Management.

On the basis of the survey responses the yearly costs of non-degree postgraduate programmes and graduate programmes can comprise from ca. 5 to 10% of average yearly income of technician and less for managers.

The cost of the compulsory exam for landfills and incineration facilities' managers is set as 34% of the average monthly salary in the sector from the last quarter preceding the exam.

9. Coverage of the following topics in the training programmes available in the country (survey)

Availability of relevant topics in the existing VET programmes for waste management facilities' managers and technicians as assessed by waste management facilities and authorities is presented in the following charts (Figure 3, Figure 4).

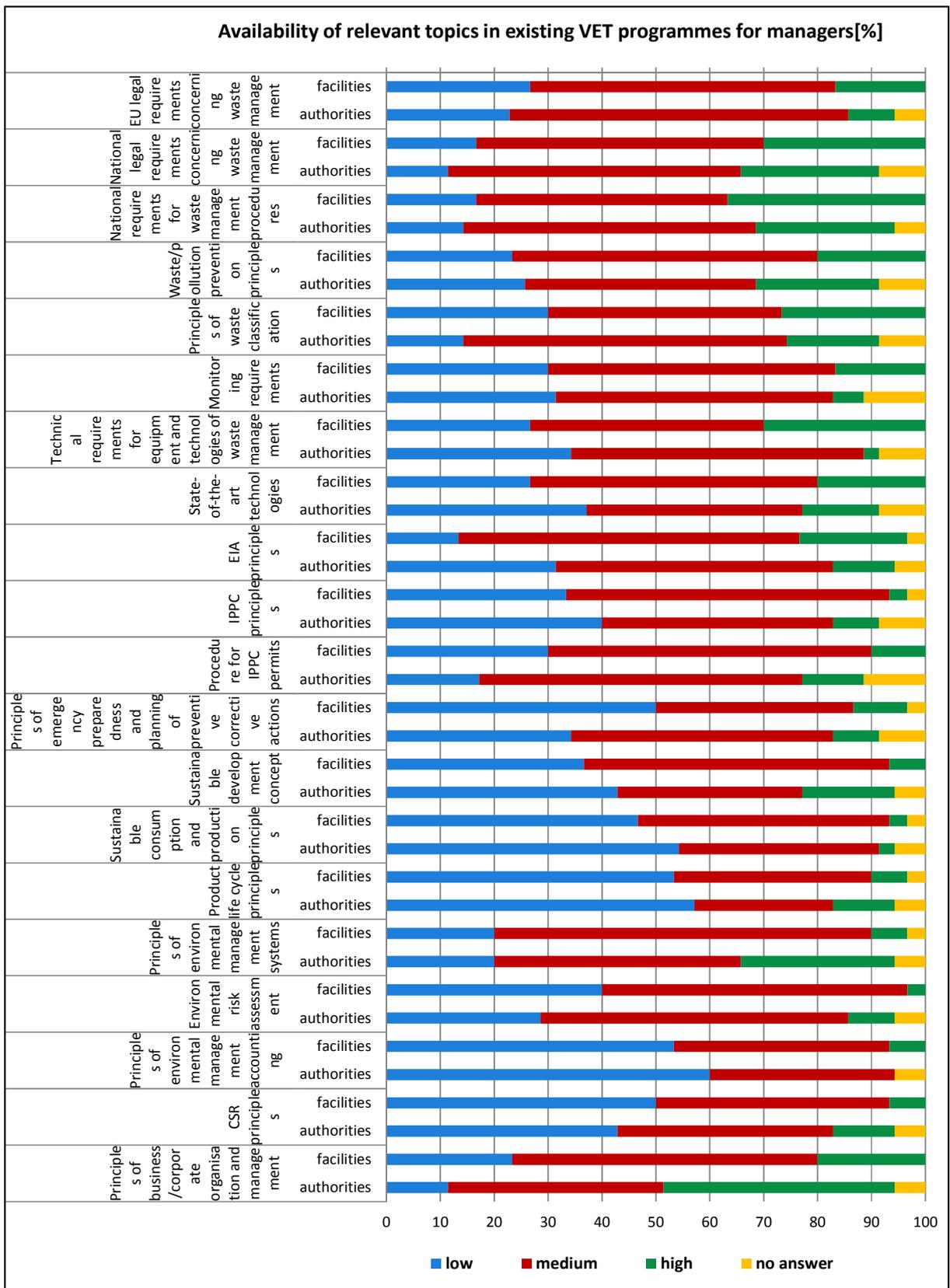


Figure 3. Availability of relevant topics in the existing VET programmes for waste management facilities' managers

From the comparison of the importance of relevant topics for waste management facilities' managers with the availability of those topics in existing programmes it follows that availability of following topics is too low:

- EU legal requirements concerning waste management
- principles of waste classification
- technical requirements for equipment and technologies of waste management
- state-of-the-art technologies
- procedure for IPPC permits
- principles of emergency preparedness and planning of preventive corrective actions
- sustainable development concept
- sustainable consumption and production principles
- product life cycle principles
- environmental risk assessment
- principles of environmental management accounting
- CSR principles

In the case of waste management facilities' managers the correlation between low availability of following topics in the VET programmes and low level of current qualifications of managers in these topics can be observed for:

- principles of waste classification
- technical requirements for equipment and technologies of waste management
- state-of-the-art technologies
- procedure for IPPC permits
- principles of emergency preparedness and planning of preventive corrective actions
- sustainable development concept
- sustainable consumption and production principles
- environmental risk assessment
- principles of environmental management accounting
- CSR principles

The disparity between the availability of VET programmes (high or medium) and current qualifications of managers (low) can be observed for the following topics:

- IPPC principles
- principles of environmental management systems
- principles of business/corporate organization and management

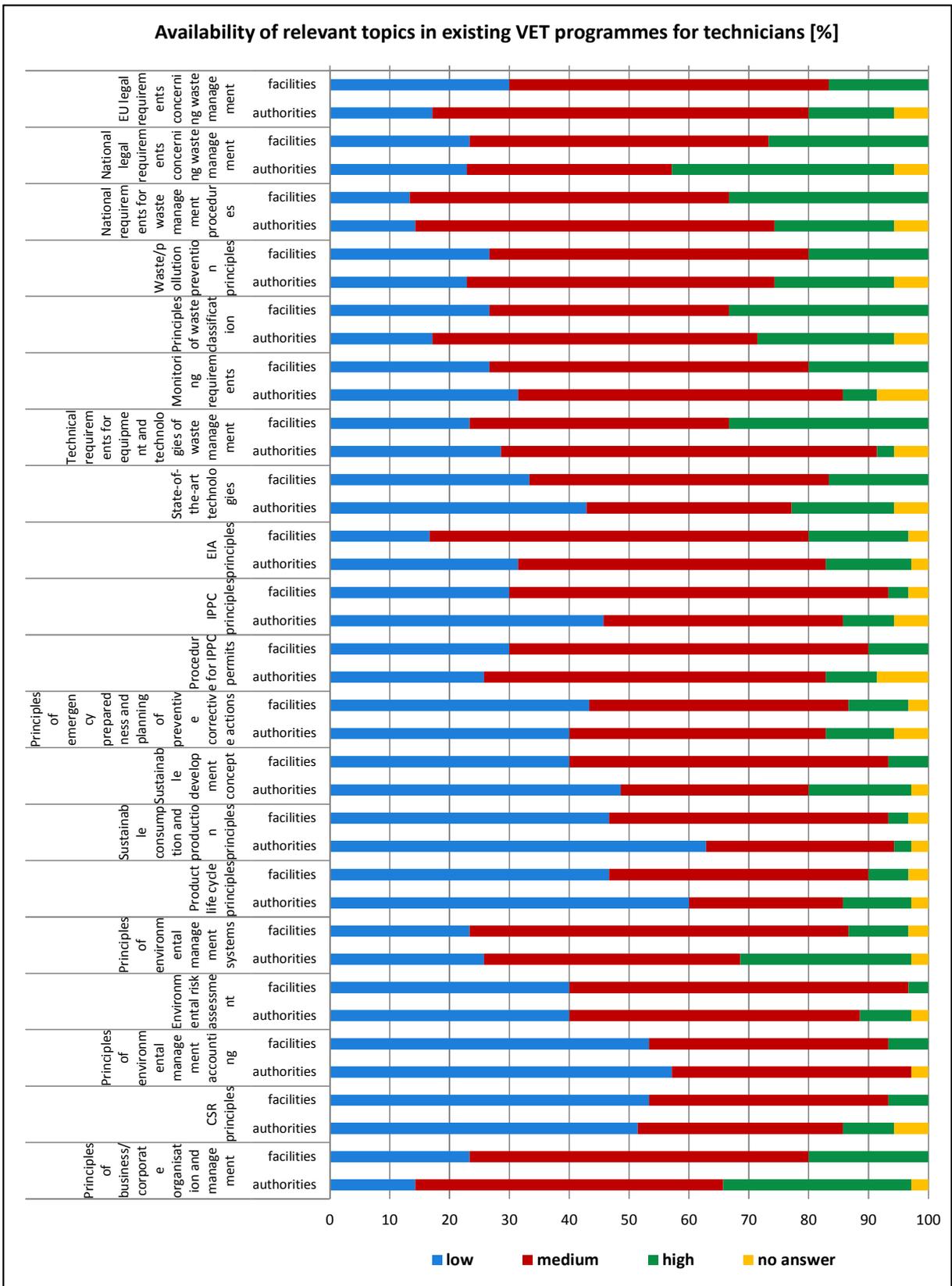


Figure 4. Availability of relevant topics in the existing VET programmes for waste management facilities' technicians

From the comparison of the importance of relevant topics for waste management facilities' technicians with the availability of those topics in existing programmes it follows that availability of following topics is much too low:

- procedure for IPPC permits
- principles of emergency preparedness and planning of preventive corrective actions
- principles of environmental management systems
- CSR principles

The availability of following topics is too low:

- principles of waste classification
- technical requirements for equipment and technologies of waste management
- state-of-the-art technologies
- sustainable consumption and production principles
- environmental risk assessment
- principles of environmental management accounting

The availability of following topics is little too low:

- EU legal requirements concerning waste management
- national legal requirements concerning waste management
- monitoring requirements
- principles of business/corporate organisation and management

The correlation between low VET availability for waste management facilities' technicians and their low level of current qualifications is present for the following topics:

- technical requirements for equipment and technologies of waste management
- state-of-the-art technologies
- EIA principles
- procedure for IPPC permits
- principles of emergency preparedness and planning of preventive corrective actions
- sustainable consumption and production principles
- product life cycle principles

- principles of environmental management systems
- environmental risk assessment
- principles of environmental management accounting
- CSR principles
- principles of business/corporate organization and management

The low availability for technicians of above mentioned topics in VET programmes could be one of the causes of low current qualifications of technicians in those areas.

Coverage of the relevant topics in the VET programmes for waste management facilities' managers and technicians according to training organisations is presented in the following charts (Figure 5, Figure 6).

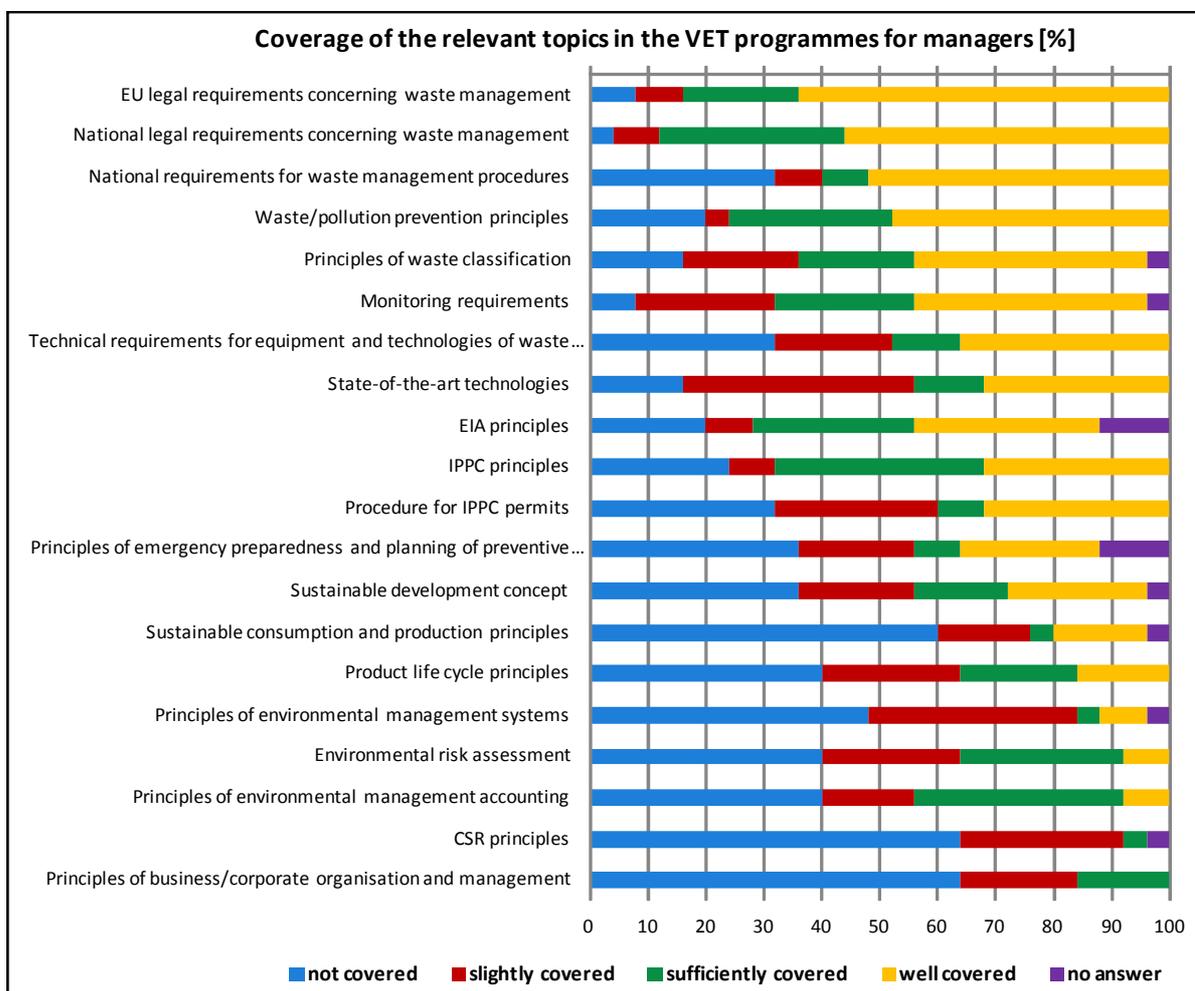


Figure 5. Coverage of the relevant topics in the VET programmes for waste management facilities' managers

Comparing the coverage of the relevant topics in VET programmes for managers as perceived by training organisations with the current qualifications of managers the disparity (good coverage vs low qualifications) can be observed for:

- EU legal requirements concerning waste management

- national legal requirements concerning waste management
- monitoring requirements

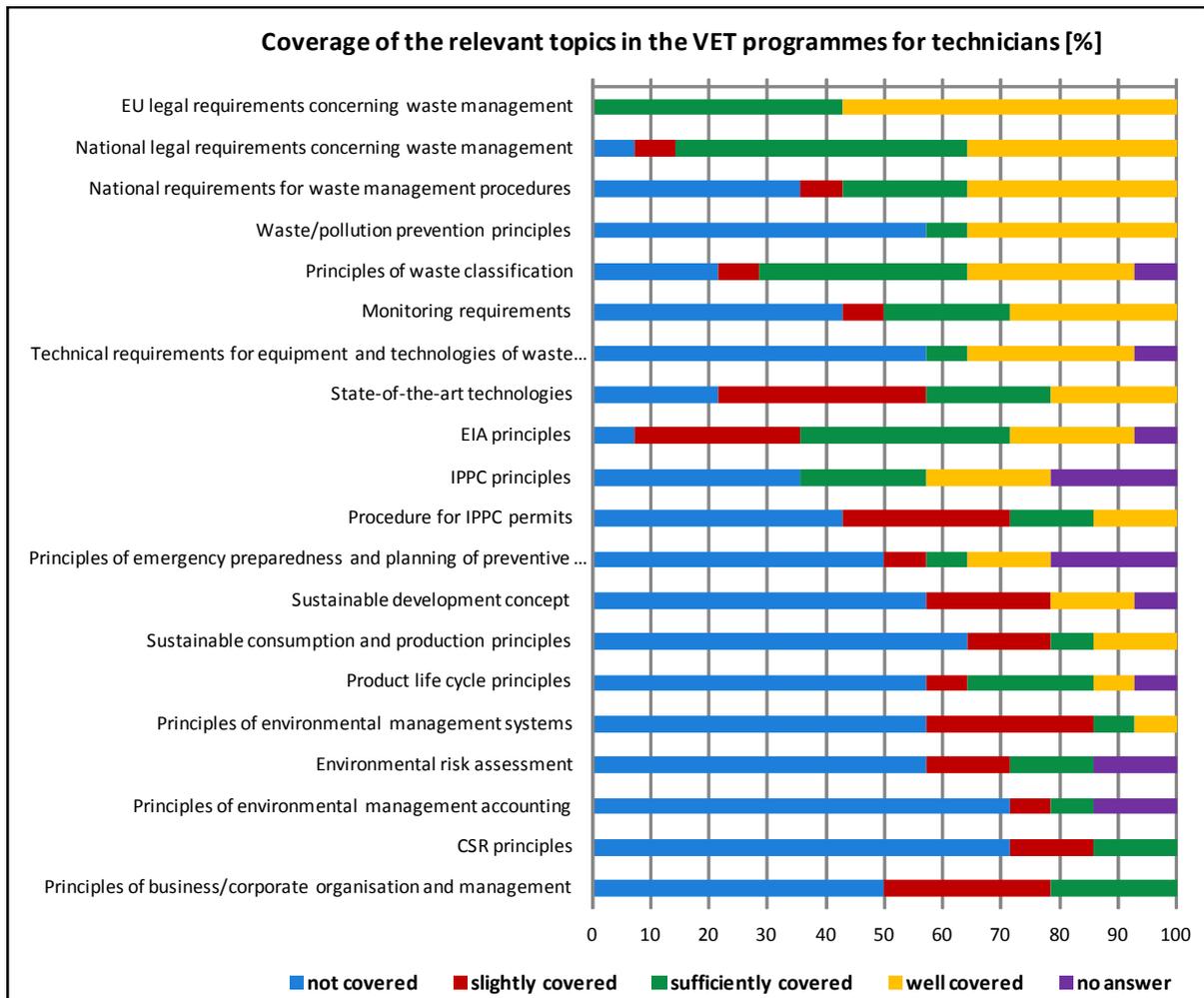


Figure 6. Coverage of the relevant topics in the VET programmes for waste management facilities' technicians

Comparing the coverage of the relevant topics in VET programmes for technicians as perceived by training organisations with the current qualifications of technicians the disparity (good coverage vs low qualifications) can be observed for:

- principles of emergency preparedness and planning of preventive corrective actions
- sustainable consumption and production principles
- principles of environmental management systems
- environmental risk assessment
- principles of environmental management accounting

10. Evaluation of quality of the training programmes for waste management managers and technicians available in the country (survey)

Evaluation of quality of existing VET programmes for waste management facilities' managers and technicians available in the country are presented in the following charts (Figure 7, Figure 8).

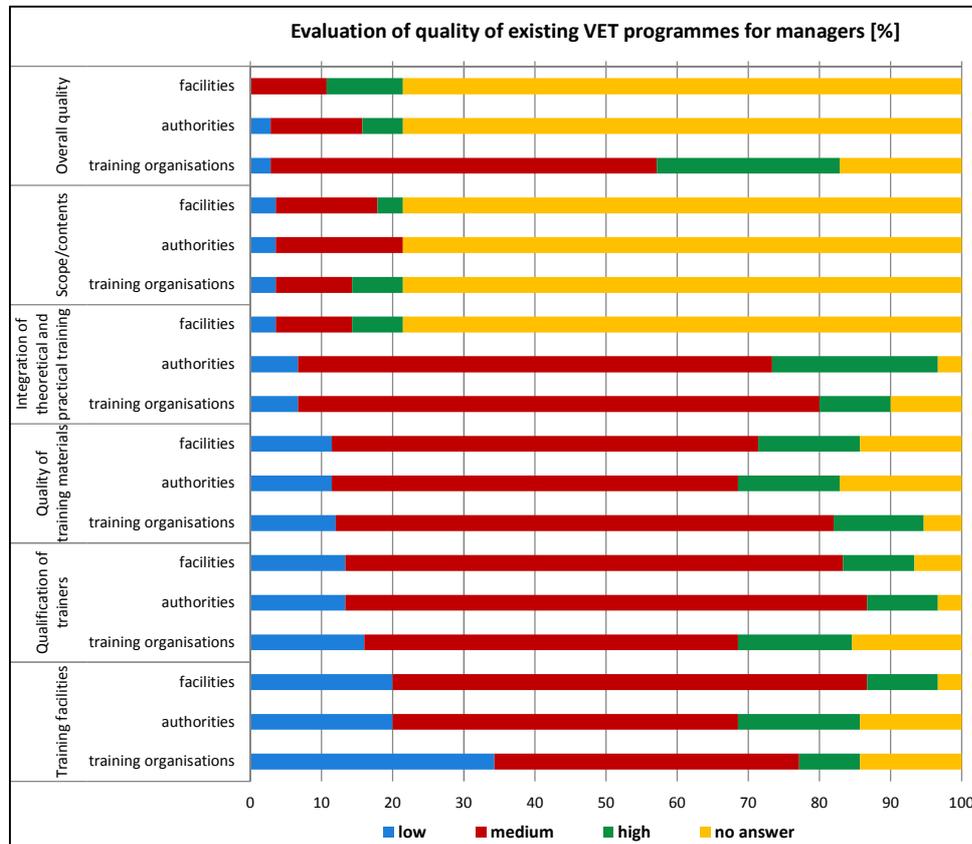


Figure 7. Evaluation of quality of existing VET programmes for waste management facilities' managers

Overall quality of the available VET programmes for managers is assessed as medium or high by the majority of respondents who responded to the survey. Most of the respondents did not evaluate the scope and content of the training.

The integration of theoretical and practical training, the quality of training materials, trainers and training facilities were mostly assessed as medium.

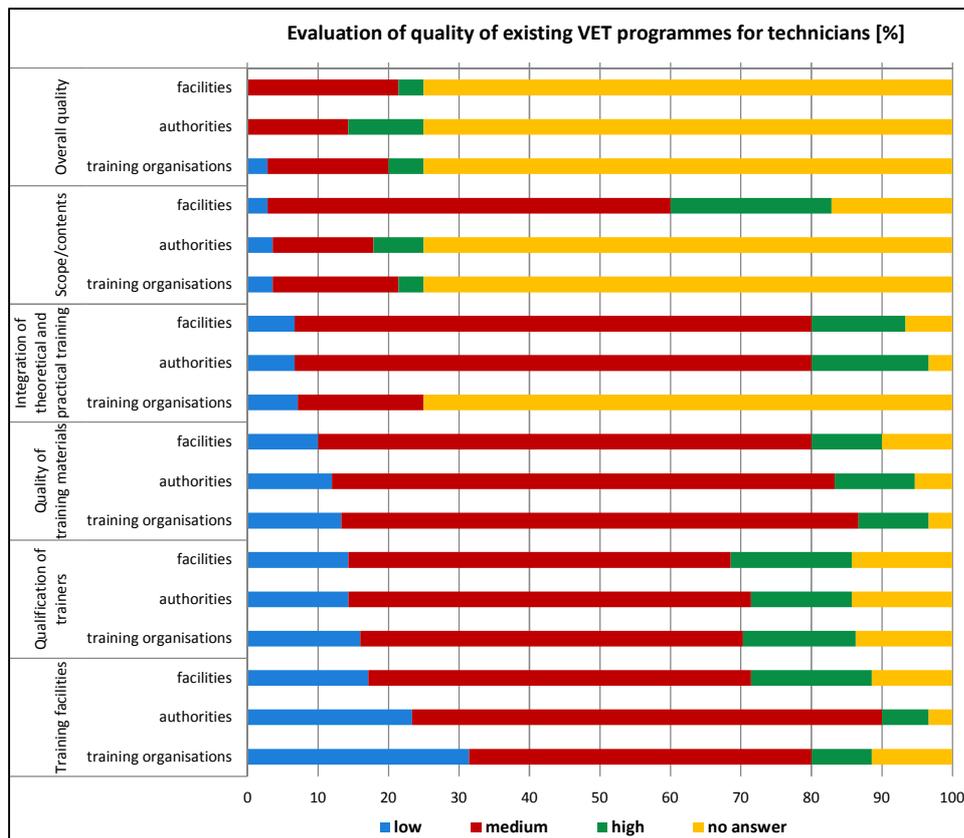


Figure 8. Evaluation of quality of existing VET programmes for waste management facilities' technicians

The existing VET courses for technicians are assessed similarly as the courses for managers.

The overall quality was assessed as medium to high, but the response rate for this question was low.

Most of respondents consider quality of training facilities in general as 'medium' or 'high' (above 70%, 70% and 55% of facilities, authorities and training organizations, respectively).

App. 80% of the respondents considers the contents as satisfying (quality 'medium' or 'high').

In general, respondents from facilities evaluate the quality of existing VET programmes for managers and technicians as satisfying ('medium' or 'high'). Regarding all evaluation aspects, less than 20% of responses were 'low'. The majority of favourable responses (above 70% of 'medium' or 'high' opinions) concerned training facilities in general, qualification of trainers and the quality of training materials.

11. Overview of learning outcomes and acquired knowledge in particular areas (survey)

The possibility of acquiring the practical skills in relevant topics during existing VET programmes for waste management facilities' managers and technicians as perceived by waste management facilities and authorities is presented in Figure 9 and Figure 10.

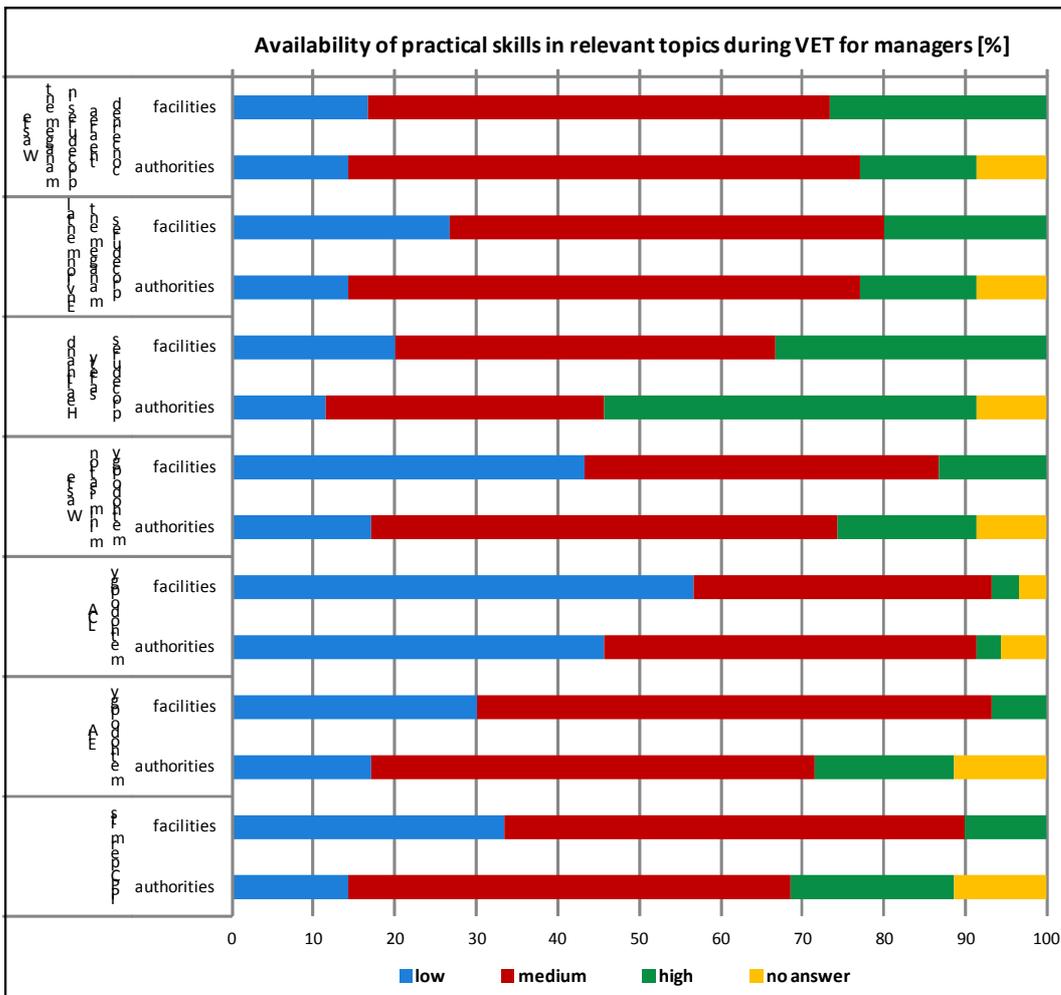


Figure 9. Availability of practical skills in relevant topics during VET for managers

Overall possibility of acquiring the practical skills in relevant topics during existing VET programmes for managers is assessed as 'medium' by the majority of respondents who responded to the survey.

Waste management facilities have generally lower opinion about the availability of acquiring the practical skills than the authorities. Mostly the answers 'low' given by waste management facilities and authorities differs by 10 to 25%.

The possibility of acquiring the practical skills in: LCA methodology and waste minimisation methodology (waste management facilities) has the lowest rating.

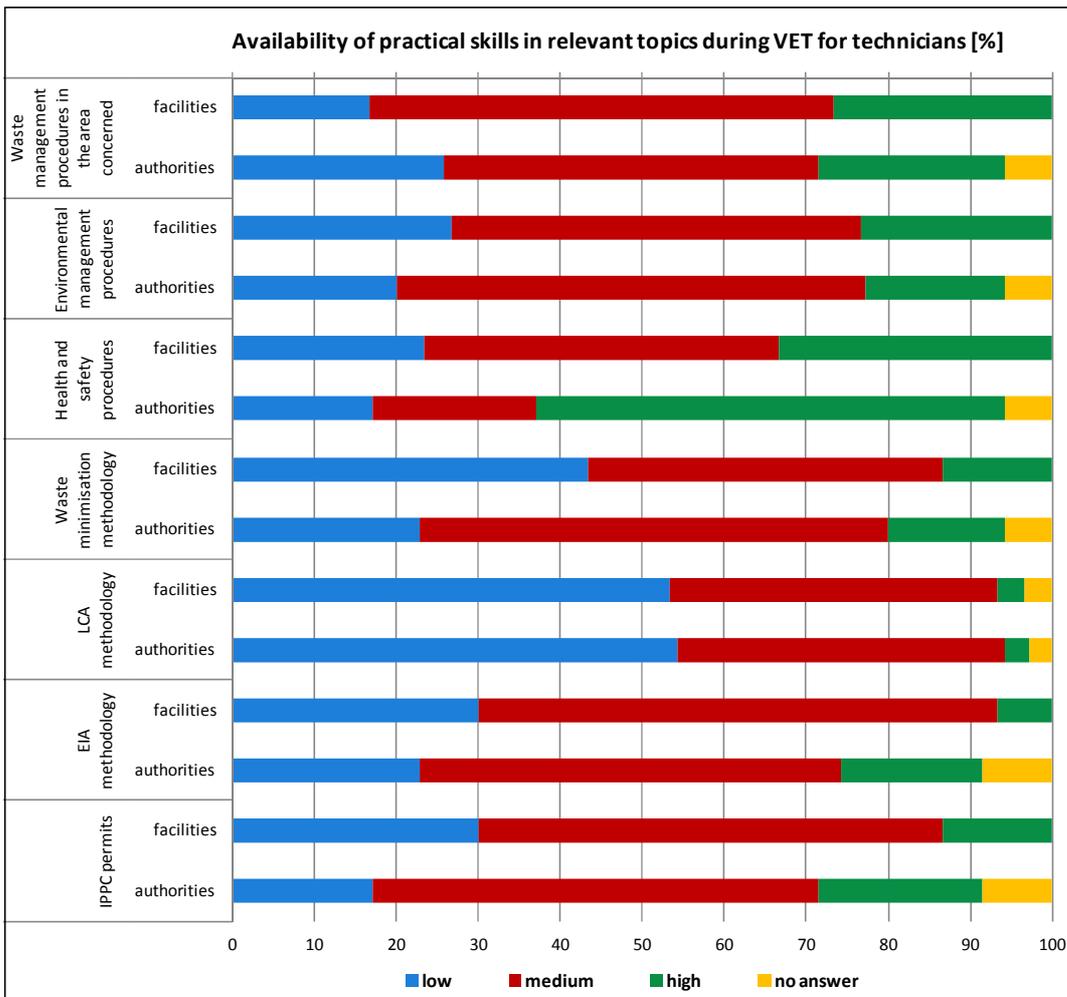


Figure 10. Availability of practical skills in relevant topics during VET for technicians

Overall possibility of acquiring the practical skills in relevant topics during existing VET programmes for technicians is assessed as ‘medium’ by the majority of respondents who responded to the survey.

Waste management facilities have generally similar opinion about the availability of acquiring the practical skills than the authorities (except the health and safety issues, and waste minimisation methodology).

The possibility of acquiring the practical skills in: LCA methodology and waste minimisation methodology (waste management facilities) has the lowest rating.

12. Interest/ willingness waste management facilities’ professionals to attend VET (survey)

The level of interest of waste management facilities’ professionals to attend VET is presented in Table 7 and Table 8.

Table 7. The interest of waste management facilities' managers to attend VET

	Interest/willingness of SWF managers to attend VET	
	according to authorities	according to training organisations
	No.	No.
High	4	1
Middle	17	4
Low	8	2
No answer	6	21
Total	35	28

Table 8. The interest of waste management facilities' technicians to attend VET

	Interest/willingness of SWF technicians to attend VET	
	according to authorities	according to training organisations
	No.	No.
High	9	2
Middle	12	3
Low	9	2
No answer	5	21
Total	35	28

According to authorities' view, interest of SWF managers and technicians to attend VET programmes is moderate (60% responses for 'middle' or 'high'). In comparison, representatives of training organizations consider this willingness as low (18% responses for 'middle' or 'high').

Taking into account the comments provided by the respondents, the causes could be divided into personal, organizational and concerning content of the training.

Among personal causes the problems/obstacles mentioned are as follow:

- lack of time
- costs
- lack of funding for training
- low awareness of the need for self-improvement in waste management sector
- lack of motivation for self-improvement
- doubts concerning practical usefulness of training courses

Organizational obstacles:

- low availability of training courses

- logistical obstacles
- inconvenient location of training courses
- insufficient number of training courses and workshops
- lack of education / educational opportunities
- efficiency and quality of training programmes and training institutions

Concerning content:

- lack of harmonized training program
- program of the course is often dependent on the trainer
- lack of useful vocational training
- lack of professionalism
- limited number of experts
- lack of experienced experts
- training programmes often organized by institutions not experienced in waste management
- too much theory, too little practice
- theoretical knowledge only
- incomplete knowledge after training because of experts with theoretical and insufficient knowledge
- lack of practical approach
- lack of training programmes during which theory and practice are equally emphasized
- too little practical examples on procedures

There were also proposition that vocational education and training should be obligatory and funded from the budget.

13. Conclusions and recommendations

In Poland there is no specific registered programme (career path) intended for waste management professionals. The specific compulsory qualifications (passing of the exam) are required by law only for persons supervising landfills and incineration facilities. There are only few non-public institutions that provide training for this exam. The managers of other facilities are not required to obtain any specific qualifications.

The knowledge and skills required for working in waste management facilities can be obtained during registered IVET programmes (EQF level 4) and tertiary education's graduate programmes, such as bachelors and engineer degrees (EQF level 6) and masters degrees (EQF level 7).

In general the perceived availability of formal and non-formal training programmes for managers is higher than for the technicians. The availability of online training programmes is not sufficient.

The average costs of studies is compatible for public and private HEIs. The cost of non-degree postgraduate programmes is similar to that of graduate programmes despite shorter duration. The costs of non-formal training vary substantially. The yearly costs of non-degree postgraduate programmes and graduate programmes comprise from ca. 5 to 10% of average yearly income of technician and less for managers. The cost of the exam for landfills and incineration facilities' managers is set as 34% of the average monthly salary in the sector.

Funding sources for vocational training depend on the level of training. During formal programmes such as IVET programmes and graduate programmes there is general subsidy from the government and the education is free. During non-stationary graduate programmes and non-degree postgraduate programmes the funding is mainly the personal financing. The subsidies and financing by employers is scarce. The non-formal training is more often subsidized from EFS or other sources.

In many topics there is the disparity between availability of VET programmes and importance of those topics for managers and technicians. In general the practical skills of waste management facilities' professionals in most of the topics are somewhat lower than the perceived importance.

The problems and obstacles relating to the vocational education and training could be classified as personal, organizational and concerning content of training.