International Labour Organization

ILO Guide for Skills Development in Employment-Intensive Investment Programmes

ILO Guide for Skills Development in Employment-Intensive Investment Programmes

Employment Policy Department

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Foreword

Over the years, tens of thousands of people have worked on projects of the ILO's Employment Intensive Investment Programmes (EIIP). Individuals are mostly employed for a short to medium timeframe and benefit from the wages they earn, the advantages of having a job and the infrastructure and the services that are improved through their commitments and work.

Generally, these projects target vulnerable groups in society, mostly in rural areas, including the working poor, women, youth, refugees, internally displaced persons (IDPs) and people with disabilities. Improving and building new skills of workers offer opportunities for EIIP projects to increase their impacts. EIIP projects are about workers and their families, their jobs, their incomes, their living and working conditions and their future. Building the capacities of mostly vulnerable populations is an opportunity EIIP projects should not miss. Skills development also constitutes an important element of exit strategy out of assistance programmes as it enhances people's career and life prospects and self-confidence. Therefore, capacity building and skills development should be an important and integral part of all EIIP projects.

The EIIP seeks to increase the employment impact of public investments, mostly in infrastructure and green works. Increasingly, they also play a role to provide social or care services. The ILO has been a pioneer in this field and has designed, supported, demonstrated and implemented such projects and programmes all over the world. These type of programmes have become mainstream in many countries and combine public investment and employment objectives. Programmes are often supported by international development banks, the UN and bilateral donors.

Although most EIIPs include some sort of capacity building component targeted at government officials, local institutions, supervisors, contractors and foremen; the extent of training offered to actual workers has been limited to developing the necessary construction related skills. In most circumstances, workers are guided on-the-job which is beneficial to them in the work that they are immediately carrying out but they seldom benefit from dedicated skills development activities. A few programmes have specifically focused on the capacity building of workers; but in general, it could be said that more general skills development and certification that responds to the demand in the local labour market could be further strengthened. This has limited the portability of these skills developed during temporary positions into formal jobs. A missed opportunity!

Skills development for workers and linking training to current labour market demands needs to become an integral component of EIIP projects. This will greatly increase the impact of the employment opportunity gained through the project on workers' future employment prospects. Such skills development and certification can be related directly to the construction works and the different tasks people carry out through on-the-job or during dedicated training sessions. However, skills development can be non-construction related, focusing on the other skills required in green works and/or social services projects.

What is more, national skills development systems can benefit from partnerships with EIIP programmes, implementing agencies and contractors by broadening their skills offering, introducing new or more relevant basic and medium-level vocational skills and using the workplace as a training space. Their expertise is critical to ensure that supervisors and craftspeople who act as workplace trainers possess adequate pedagogical skills, that relevant complementary training is provided, and that workers obtain a certificate at the end of the work engagement to enable them to find a job more easily, access further training, or set-up their own business.

This Guide has been prepared under the Partnership for improving prospects for forcibly displaced persons and host communities (PROSPECTS)[1]. It was jointly developed by the ILO's Employment Intensive Investment Programme in the Development and Investment Branch and the Skills and Employability Branch and contains guidance and recommendations for EIIP and skills development practitioners, including project designers and managers, to better integrate skills development for workers in EIIP programmes and projects, and reap benefits from the national skills development system. It reviews country examples of skills development in EIIPs and provides practical guidance for the design, planning, implementation, assessment and evaluation of skills development through EIIPs.

It is our hope that this Guide will help future EIIP projects and programmes to recognize, understand and utilize the skills development potential they have and thus contribute to better lives for the workers and their families.

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1 PROSPECTS is an inter-regional partnership programme that aims to improve the access of host communities and forcibly displaced people to employment and livelihood opportunities. Funded by the Government of the Netherlands, the programme brings together the International Finance Corporation (IFC), the International Labour Organization (ILO), the UN Refugee Agency (UNHCR), the UN Children's Fund (UNICEF) and the World Bank.

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▶ Abbreviations

BoQ Bill of Quantities

EIIP Employment-Intensive Investment Programme (of ILO)

ILO International Labour Organization

LRB Local resource-based

NGO Non-governmental organization

NOS National occupational standard

NQF National qualification framework

OSH Occupational safety and health

PMU Programme Support Unit

RPL Recognition of prior learning

SMC Small- and medium-sized contractor

TNA Training needs assessment

TVET Technical and vocational education and training

▶ Acknowledgements

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▶ Glossary of important terms

Accreditation	A quality assurance process that formally recognizes a training programme as having met certain predetermined standards.
Apprenticeship/Dual system	A system by which a learner (the apprentice) acquires skills for a trade or craft at an enterprise, learning and working side-by-side experienced craftspersons and artisans, usually complemented by classroom-based instruction. Apprentices, master craft workers, employers and the training provider conclude a training agreement that is regulated by formal laws and acts. Costs of training are shared between apprentice, master craftspersons (workers, employers, and the government).
Assessment and certification	All procedures used for obtaining information to issue a judgment related to the learner's competencies. Assessments can be conducted internally by the administration of the training programme and/or by a third party (external assessment).
Bill of quantities (BoQ)	An itemized list of work activities with estimated volumes of work to be performed. Contracting firms are invited to submit unit prices for each of the work items. The unit prices form the basis for the cost of each work activity as well as the total contract value. The BoQ also forms the basis for measurement and payment of completed work.
Business management	All management activities which have to be carried out by the contractors to run their businesses: business administration, insurance, accounts, financial matters, personnel matters, taxes, etc.
Capacity building, institution building	Means by which skills, experience, technical and management capacity are developed within an organization (contractors, consultants or government agencies) – often through the provision of technical support, short- or long-term training and specialist inputs. The process usually involves the improvement of human, material and financial resources.
Community-based work	Work undertaken by clearly identified groups of people (usually with the help of a facilitating agency) for the benefit of the group as a whole. The assets created are usually owned, managed, used and maintained by the beneficiaries themselves.
Competency	A competency is an individual's ability to perform a task, job or occupation to a benchmarked level. Competencies are used to define learning outcomes and set goals for training assessments. The emphasis is on the outcome of training – i.e., the person's performance of a task, rather than the input (the training).
Competency-based training (CBT)	A structured system of curricula development, training, and assessment based on specific learning outcomes. CBT assists learners to acquire the competencies (clusters of knowledge, skills, and attitudes) that enable them to perform tasks independently according to certain performance criteria and conditions of authentic workplaces. CBT allows learners to progress as they demonstrate mastery of learning outcomes, regardless of time, place, or pace of learning.
Conditions of contract	Requirements included in a contract agreement, setting out general obligations, rights and liabilities of the parties to the contract.
Contract documents	All documents forming part of the contract. In a civil works contract, these include general terms and conditions, specifications, drawings, volumes of work and agreed prices for the services rendered.
Contract management	All management activities which are carried out by the contracting parties with respect to the handling of contracts: tendering, tender evaluation, award of contract, contract implementation, supervision, measurement and payment, claims, variation orders, arbitration, completion, etc. **For the contractor**, this involves the management of the whole construction process to achieve the required result within the terms and conditions of the contract. **For the client or contracting agency** – where desired through delegated authority to consultants – this means the supervisory management of the construction works in accordance with the roles and responsibilities set out in the contract.
Contractor	A person or firm undertaking a contract, e.g., to supply goods and materials or perform construction or maintenance works.

Core skills	The skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the labour market at different periods of the life cycle. They are loosely grouped into three broad categories: 1) cognitive skills for analysing and using information; 2) personal skills for developing personal agency and managing oneself; and 3) interpersonal skills for communicating and interacting effectively with others.
Curriculum	A training curriculum refers generally to the expected knowledge and skills acquired during a learning programme. It may include learning standards and objectives, courses and lessons, assignments and projects given to the trainees, the course material and how the training is evaluated.
Decent work	Decent work is defined by the ILO, and endorsed by the international community, as productive work for women and men in conditions of freedom, equity, security and human dignity. Decent work involves opportunities for work that: i) are productive and provide a fair income paid on time; ii) provide security in the workplace and social protection for workers and their families; iii) offer prospects for personal development and encourage social integration; iv) give people the freedom to express concerns, to organize and to participate in decision-making that affects their lives; v) protect against exploitation of the under-aged; and vi) guarantee equal opportunities and treatment for all.
Decent Work Agenda	Productive employment and decent work are key elements to achieving a fair globalization and poverty reduction. The ILO has developed an agenda for the community of work focused on job creation, rights at work, social protection and social dialogue, with gender equality as a cross-cutting objective. These are also integral elements of the new 2030 Agenda for Sustainable Development.
Employment-Intensive Investment Programme (EIIP)	EIIPs link infrastructure development and green works with employment creation, with particular reliance on local labour and resources. These programmes create much needed employment and income, reduce costs, save foreign currency, and support local industry while increasing the capacity of local institutions.
Equipment-based	In the context of EIIPs, a work method which is mainly, or in its entirety, carried out using large construction machines with limited use of manual labour.
Force account	In force account operations the government uses its own resources (personnel, materials and equipment) employing labour directly to undertake infrastructure works. This is also referred to as works carried out by direct administration. Although some of the works may be subcontracted to private firms, it is still regarded as a force account operation as long as the client agency is directly in charge of works execution and progress.
Formal training	Instruction given in education and training institutions or specially designed training areas, including in enterprises in formal apprenticeship systems. Training is structured and has precise learning objectives.
Informal learning	Learning resulting from activities undertaken daily at work, in the family or in leisure activities.
Intermediate equipment	Equipment designed for low initial and operating costs, durability and ease of maintenance and repair in the conditions typical of a limited-resource environment, rather than for high theoretical efficiency. It is preferable if the equipment can be manufactured locally.
Job	A set of tasks and duties carried out, or meant to be carried out, by one person for a particular employer, including self-employment.
International labour standards	ILO standards take the form of Conventions and Recommendations. Conventions are treaties, which can be ratified by a country; when ratified, they become legally binding upon that country, which must follow their content and are subject to monitoring and review by the ILO. Recommendations supplement Conventions and are not subject to ratification; they provide detailed and varied additional information that can assist a country in giving effect to a Convention.
Labour-based	A structured approach and set of work methods in which the use of manual labour (preferably local) is optimized, where technically feasible, in a cost-effective and timely manner to produce quality works. Appropriate equipment is used to supplement work for reasons of cost or quality, for example, for haulage, rock crushing or soil compaction.

Labour-intensive	A work approach where labour is maximized (though not necessarily efficient) in order to create as great an employment impact as possible. It is often preferred where income generation and job creation are the principal, short-term objectives – for instance, disaster relief or cash-for-work projects.
Labour market	The system of relationships between the supply of people available for employment and the jobs available.
Learning material	Also known as instructional material, consisting of all the materials and physical means a trainer might use in teaching and learning situations to help achieve the anticipated learning objectives.
Learning outcomes	A statement of a learning achievement expressed in terms of what the trainee is expected to know, understand and be able to do on completion of learning.
Lifelong learning and training	A process that encompasses all learning and training activities undertaken throughout life for the development of competencies and qualifications.
Local resource-based methods	A work approach where the use of local resources (described below) is favoured and optimized in the construction and maintenance of infrastructure assets. Local capacities and local materials are used to the greatest possible extent, but without adversely affecting the costs and quality of the specified works. Appropriate equipment is used for support activities.
Local resources	Local resources include local labour, materials, local knowledge, skills and culture, local enterprises (usually small- and medium-scale), local institutions (including local government, training institutions, NGOs and community-based organizations, locally produced tools and equipment and local social capital (traditional structures, solidarity and trust).
Maintenance	To conserve, as nearly as possible, the original condition of infrastructure assets. Maintenance should be carried out in a manner most likely to minimize the total cost to society for the preservation of the assets and their utilization.
National qualifications framework (NQF)	National qualifications frameworks classify qualifications by level based on learning outcomes. This classification reflects the content and profile of qualifications – that is, what the holder of a certificate or diploma is expected to know, understand, and be able to do. The learning outcomes approach also ensures that education and training sub-systems are open to one another. Thus, it allows people to move more easily between education and training institutions and sectors.[2]
Non-formal learning	Learning taking place in activities not exclusively designated as learning activities, but which contain an important learning element.
Non-formal training	Organized and systematic training in an informal setting that can be adapted to individual needs. Non-formal training emphasizes activities directly associated with work and often appeals to workers who have limited resources and few opportunities to undergo formal training.
Occupation	What a person (habitually) is engaged in to earn a living: a job, a business, a profession, an activity.
Performance specifications	Work specifications emphasizing the required performance or quality requirements instead of describing the materials or work methods to be applied.
Prior learning	Knowledge or skills acquired in earlier study and work or through experience.
Public works	Infrastructure works (such as roads, water supply, schools, hospitals) undertaken by central or local government agencies to create, operate, manage and maintain infrastructure assets for the benefit of the population in general.
Qualification	A formal expression of the vocational and professional abilities of a worker that are recognized at international, national or sectoral levels.

2 Definition provided by the *European Centre for the Development of Vocational Training*.

Recognition of prior learning (RPL)	People acquire knowledge and skills by formal, non-formal and informal learning. RPL is a process of identifying, documenting, assessing and certifying such learning outcomes against standards used in formal education and training. Thus, RPL provides individuals with an opportunity to acquire a qualification or credits towards a qualification or exemptions (from all or part of the curriculum, or even exemption from an academic prerequisite for entering a formal study programme) without going through a formal education or training programme.
Site	Location where work takes place.
Site conditions	Physical environment and working conditions prevailing at the location where the work takes place.
Site management	Normally refers to the supervisory and administrative staff employed by the contractor and stationed at the worksite. May also include the organization and work methods applied by this staff in terms of dealing with management issues related to the works performed by the main contractor, suppliers and subcontractors.
Skill	Ability to carry out a manual or mental activity, acquired through learning and practice. The term "skills" is used as a broad term covering the knowledge, competence and experience needed to perform a specific task or job.
Small-scale contractor	A contractor who can source and manage infrastructure works of limited size. This term usually comprises emerging and small-size local businesses that may benefit from development support as a means of improving capacity in the construction sector.
Specifications	A comprehensive description of how work should be carried out. In a wider sense, specifications may refer to all the technical documents contained in a contract agreement, i.e., work specifications, drawings, maps, photographs, site investigations, etc.
Subcontract	A contract or purchase order, other than the main contract, required for the supply of certain works, materials, consultancy services or equipment hire. This contract is not entered into with the client or owner of the works. Instead, the contract is issued and supervised by the main or general contractor, who is held responsible for the quality, payments and timely provision of the subcontractors' services.
Subcontractor	A person or firm being engaged by a main contractor to carry out work or deliver services, labour or materials as part of a larger contract.
Supplier	Individual or company manufacturing, trading or shipping goods, services and materials required in a works project.
Training levy	A defined percentage of the total programme or contract sum paid by the funding institutions or contractors to a training institution.
Training needs analysis	An assessment of the training requirements of different target groups in terms of numbers, educational and professional background, present job competence and the desired competence at the end of the training.
Training objective	Describes anticipated competencies at the end of a learning process in terms of knowledge, skills and behaviour.
Unit price	A price offered for a work activity based on a defined unit of measurement, i.e., per cubic metre, linear metre, etc. The total cost is then calculated on the basis of completed quantities of work.
Working conditions	Workers' experience of the quality of their jobs, including wages, hours and duration of work, incentive schemes, secondary benefits, workplace safety, training, etc. Minimum standards are prescribed in each country and are also defined in ILO Conventions. In many workplaces these conditions are in need of improvement in order to reach the intentions of the Decent Work Agenda. Workers are often deprived of effective protection because of poor enforcement. Jobs in the construction industry often involve hard work and expose workers to high risks.
Workplan	Schedule describing the sequence of work activities, by whom, and with appropriate timing, start and completion dates.
Workplace trainer	A skilled worker or site supervisor (with pedagogical training) who conducts vocational training and/or on-the-job training. Can be a site employee or employed by a contractor.
Works	Reference to the services defined in a contract to be delivered by the contractor.

Orientation for the user

▶ What is the aim of this Guide?

This Guide informs EIIP managers and practitioners on how to include technical and vocational skills development and certification for male and female workers in their infrastructure projects.

Around the world millions of people lack essential infrastructure, like roads and bridges, water supply, schools, clinics and hospitals, as well as access to basic services (water, health, education and markets). Providing infrastructure and maintaining it can improve living standards and have a direct impact in the quality of people's lives. Productive community infrastructures can also contribute to reducing poverty and have the potential for offering better economic and social benefits.

Employment-Intensive Investment Programmes (EIIP) link infrastructure development and green works with employment creation relying on local labour and resources. Therefore, they create much needed employment and income, reduce costs, save foreign currency, and support local industry while increasing the capacity of local institutions. Skills acquisition is fundamental for women and men to develop their capacities, be employable, build livelihoods, advance personally and in their careers, contribute to society and the future of work, for enterprises to be productive, and for societies to thrive.

Developing skills through EIIPs, either on-the-job or after a period of employment, is a great way of ensuring that needed competencies are developed. Work-based learning, if properly implemented, is a highly effective way of learning and closing skills gaps in the construction sector. In particular this is true in contexts where technical and vocational education and training (TVET) systems are weak, too much focused on centre-based training, and considered expensive.

Vocational skills development allows beneficiaries to acquire market-relevant skills that may enable them to obtain further employment or to start their own businesses after the programme is completed. Often, however, quality training for beneficiaries as well as contractors and supervisors is challenging, and as a result not systematically mainstreamed into the implementation of EIIPs. This is likely due to the high costs associated with vocational training and the need to tailor intervention modalities in different contexts. Yet, **it also presents an opportunity especially in contexts of forced displacement or (post) conflict where new markets may be only just (re-) emerging.**

Furthermore, a 2006 evaluation of the ILO's EIIPs found that both employers and trade unions could make a much more significant contribution to EIIPs, specifically through their support to the identification of the skills, incentives or institutions that are required to provide large number of jobs for the rural unemployed (ILO 2006).

▶ Who is this Guide for?

Sustainable and effective integration of vocational skills development within EIIPs requires a committed partnership of all main actors. Therefore, this Guide is a resource for:

- government officials from line ministries;
- representatives from private construction sector associations;
- contractors with their managerial and technical staff;
- employers' and workers' organizations;
- education and training institutions; and
- development practitioners.

This Guide is based on global experiences, but in particular from Africa, the Middle East and Asia, and is aimed at readers from all regions.

▶ How is this Guide structured?

This Guide consists of four main parts that follow the logic sequence of introducing an integrated EIIP vocational skills development programme:

1. Understanding the context:

The user is informed about key parameters for introducing vocational skills development programmes, including: i) considerations on labour and training markets; ii) opportunities for vocational skills development in the context of EIIPs; and iii) framework conditions including policies, partnerships and funding.

- Knowledge of the key parameters is crucial for decision-makers and senior programme managers of EIIPs and provides important background information for project implementers.

2. Planning skills development in EIIPs:

Vocational skills development programmes can be integrated into EIIPs by utilizing existing training delivery capacities, recognizing existing skills, inclusion of safeguards and identifying possible options for integrated vocational training.

- It is important for decision-makers and senior programme managers of EIIPs to understand the scope and conditions of integrated skills training. It also provides crucial management information for project implementers.

3. Implementing skills development in EIIPs:

Skills training can be integrated into EIIP projects through a comprehensive preparation and planning process and adapted organizational and implementation arrangements.

- Project implementers must be competent in the planning, organization and implementation of skills training in their respective projects, while decision-makers and senior programme managers must be aware of the implementation scope and requirements.

4. Ensuring post-training support:

Ideally, skills training introduced through EIIPs should be recognized, lead to increased job security, open career opportunities, and should be institutionalized and mainstreamed to ensure sustainable impacts.

- All users of this Guide must be aware of the requirements and possible solutions for sustainable skills development. Particularly decision-makers and senior programme managers need to be aware of the required consequences during the planning and follow-up process.

In addition:

Case studies and examples from specific project experiences illustrate good practices from different countries where EIIPs have been implemented. **The glossary** contains definitions of terms that are important for a full understanding of the content of the Guide. **Reference documents** and **links to websites** are listed to provide the reader with further details on specific topics.

▶ What are EIIPs with skills development?

Infrastructure, environment-related and agricultural works can be carried out using a wide variety of work methods, tools and equipment. As a technical solution to creating and maintaining assets, as well as generating decent jobs and income, **EIIP's strategy is to promote employment-intensive approaches and local resource-based (LRB) technologies in delivering public investments, in particular for local infrastructure.** EIIP interventions cover various sectors and subsectors, including rural roads, irrigation, water and soil conservation, community forestry, cultural heritage and social services.

While maintaining cost competitiveness and engineering quality standards, LRB technologies use appropriate engineering solutions and construction methods that do not require highly specialized skills or equipment but favour technical solutions that, as far as possible, rely on locally available resources and skills, and optimize employment opportunities. However, LRB approaches do not exclude the use of equipment. Depending on the nature of the work, equipment may be required to ensure that the necessary quality standards are achieved.

The use of LRB work methods ensures the participation of a wide range of partners including line ministries, professional associations, development agencies, private construction sector and workers' associations. Communities in particular are involved in the entire work process in order to ensure that women, men and young people benefit as much as possible.

Developing skills, either on-the-job or following a period of employment, is an important and integrated element in ensuring the sustainability and impact of EIIPs. It enables beneficiaries to acquire market-relevant skills that may allow them to find further employment or start their own business after the end of the programme. In addition, it also helps to improve the delivery capacity of the local construction industry.

▶ Why are skills beneficial to EIIPs?

It is important to acknowledge the temporary nature of construction works. This needs to be reflected in the terms of employment similar to other temporary jobs in construction and other sectors. Nevertheless, **there is scope for skills, career and livelihood development as an integral part of employment-intensive work to improve overall development outcomes locally** if the appropriate regulatory measures are introduced. At the same time, it is important to acknowledge that **effective maintenance of local infrastructure** is a continuous process, **requiring locally trained people** and has the potential to provide long-term employment opportunities for men and women.

▶ Who are the workers benefitting from EIIP skills development programmes?

The **typical worker** – employed for construction or maintenance works using locally available resources – is someone who **has little or no income** and **lives close to the worksite.** These may be unemployed young people, local subsistence farmers, women and other jobseekers. In some places, such jobs are also offered to refugees who reside nearby. In most cases, these workers do not have special construction skills and often have quite different educational backgrounds.

How the workers are mobilized, recruited, organized, remunerated and protected are important engagement issues. Persons employed in infrastructure works applying LRB methods need to be treated the same way as workers in any sector, with labour regulations applying to all workers. They should have:

- opportunities for work that are productive and provide a fair income;
- security, health and safety in the workplace and social protection for families;
- good prospects for personal development and social integration;
- freedom to express their concerns, organize and participate in the decisions that affect their lives; and
- equality of opportunity and treatment for all women and men.

These provisions are essential to the ILO's Decent Work Agenda. Thus, the work carried out by LRB methods should be productive like any other in the construction industry and should be regulated and remunerated in a proper manner. Workers should be offered a living wage that provides sufficient income to sustain a household's basic needs such as food, housing, education and health. It should also provide a surplus to cover unexpected expenses in times of crisis and allow for savings that can eventually be used to improve workers' livelihoods.

Construction work can be dangerous and therefore appropriate measures must be taken to protect workers. Due to the large workforce involved when applying LRB methods, the risk of accidents and spread of infectious disease may increase if appropriate measures are not taken.

1

Introducing an integrated EIIP skills development programme

▶ 1.1 Labour requirements

1.1.1 Applying local resource-based approaches for local infrastructure works

Over the past 40 years, the ILO has been working with its constituents in promoting a more locally resource-based approach to rural and urban infrastructure development. The approach focuses on the effective use of local resources – such as local enterprises, low-skilled and semi-skilled labour, artisans, materials, tools and appropriate equipment, as well as organizational and financial capacities.

▶ **Local resource-based approach**

Comprises of work methods and technologies where the use of local resources is favoured and optimized in the delivery and maintenance of infrastructure assets. Local capacities and local materials are used to the greatest possible extent, but without adversely affecting the costs and quality of the specified works. Appropriate (light) equipment is used for support activities.

Employing LRB approaches in infrastructure investments can create new productive and decent jobs and strengthen capacity in the domestic construction industry. Furthermore, it advances socio-economic development and contributes to national cohesion and solidarity through income-generating jobs, **skills development** and improved public services.

LRB approaches are particularly well suited for the construction, rehabilitation and maintenance of infrastructure, such as local roads, buildings, water supply, sanitation, irrigation schemes, flood protection and other green works. Comparative studies from several countries clearly show that using LRB approaches provide infrastructure of equal quality and at competitive costs as compared to conventional equipment-based work methods (ILO 2003). Timely delivery has also proven to be possible through good management practices. In addition, it creates significantly more employment than conventional equipment-intensive work methods.

The volume of local infrastructure works, both in rural and urban areas, is steadily increasing. This is a considerable market potential for small- and medium-sized contractors (SMCs) and locally operating consultants. The nature of works is relatively simple, mainly requiring mainstream designs and therefore relying on less technical expertise. Locally based SMCs and consultants can manage such works provided that contracts are packaged in a manner that match the technical and financial capacity of the local construction industry and that adequate capacity development and support programmes are provided.

1.1.2 Labour requirements for local infrastructure works

The construction industry is one of the largest employment sectors worldwide but is also well known for the instability of employment. Large companies can afford to retain a sizeable labour force but are still subject to economic growth and recession. SMCs often do not have the financial stability to be able to retain staff between one job and the next. In times of economic growth these contractors can expect to have a steady flow of work. However, in times of economic slowdown, competition for the reduced volume of works means that they cannot afford to retain staff, and particularly semi-skilled and low-skilled staff. For those employed by SMCs their situation can be tenuous. This is due to the fragile nature of the companies that employ them. Work is often seasonal and dependent on a range of factors, many of which are outside the control of the industry. As such local contractors often do not have a continuous flow of work and are thus forced to hire and fire staff depending on the workload.

The LRB approach is generally more attractive to SMCs than for large firms. Large size contractors have a fleet of machinery that they want to utilize for bigger contracts and they have the financial resources that are required for managing them. Smaller contractors are usually issued with smaller contracts, which they can manage, avoid the use of expensive heavy equipment and are not restricted by unattainable contractual security and insurance requirements.

The main production resource for LRB works is the locally available labour force, which is generally employed for a relatively short period of time. On the one hand, this is an opportunity for unemployed, underemployed, and disadvantaged people to find a job that provides them with cash, skills, work experience, and possibly access to further employment. On the other hand, it is also a challenge because of the brevity of such an engagement and thus few opportunities to acquire much needed knowledge and skills that would offer them further employment prospects or start an own business.

For carrying out local infrastructure work using the LRB approach a number of qualified employees are needed in addition to low-skilled labour, as shown in Table 1.

▶Table 1. Typical staff requirements for local contractors

Typical staff requirements for local contractors	
Type of personnel	**Required skills and qualifications**
Managing engineer/site in charge/site agent Only for larger sites with several parallel operations, one site in-charge	Overall technical and managerial competencies plus sound contract management knowledge for combined equipment and labour operations of larger construction sites
Site supervisor(s) For smaller sites one supervisor, for larger sites with different operations up to three supervisors required	Site management, setting out, work organization and supervision competencies for LRB construction and maintenance works, including practical skills to instruct and supervise workers
Surveyor In construction works, especially in civil engineering projects, it is necessary to precisely define and control the lines and levels during the entire work process.	Certified site surveyor with knowledge and practical skills to interpret plans, handle the appropriate survey equipment and to set-out (measure) all common construction features on LRB sites
Workgroup leaders For each individual work-group, one group leader with up to 20 labourers	Knowledge and practical skills to instruct and supervise a group of workers on LRB construction or maintenance works
Equipment operators/drivers Depending on types and numbers of equipment in use, e.g., compactors, trucks, tractors with attachments, etc.	Knowledge and practical skill competencies to operate intermediate equipment and/or drive heavy vehicles as generally used on LRB worksites
Plant and vehicle mechanics Mechanics may be required if services and repairs are not or cannot be outsourced (number and specialization depends on types and size of equipment and vehicles)	Certified plant and vehicle mechanics competent in servicing and repairing the equipment and vehicles at hand
Construction artisans Masons, carpenters, plumbers, joiners, electricians, fitters, welders and specialized trades (number and specialization depending on nature of works)	Certified artisans with practical experience
Semi-skilled labourers Chisellers, gabion weavers, dry-stone masons, simple timber works, store keepers, etc. (number and specialization depending on nature of works)	Trade area certificate or similar, e.g., on-the-job skill training
Low-skilled labourers Usually, casual labourers employed for general labour-only activities for which no particular manual skills are required, like excavation, grass and bush cutting, soil and material moving, cleaning, preparing construction materials, etc.	No particular prior skills required

Local contractors often find it difficult to recruit qualified personnel from the open market. One of the main reasons for this is that they cannot offer permanent and secure employment and therefore often have to resort to poorly trained personnel. There is indeed a serious discrepancy between the supply and demand for skilled labour in the construction industry. Vigorous development of skills by the industry is therefore absolutely essential.

1.1.3 Engaging women in infrastructure works

Women's involvement in infrastructure works has traditionally been occasional due, to some extent, to broader inequalities that limit women's participation in the labour market. Infrastructure works can offer an avenue for women not only to access direct employment opportunities but also to improve their technical and managerial skills; as workers, increasing their employability; as contactors when accessing local contractors' markets; and as professionals in the construction industry working as supervisors and engineers (ILO 2019a).

The infrastructure works sector itself has traditionally been a heavily male-dominated sector in which women's presence has been marginal due to a number of reasons, including:

- women's responsibility for care and other unpaid domestic work limiting their mobility, time and options for paid and productive work;
- inequalities in education or access to financial resources;
- lack of exposure to training and experience in construction work;
- stiff competition from men in public works projects, particularly in areas of job scarcity and poor agricultural incomes;
- stereotypical perceptions of construction as "men's work", doubts about women's ability to participate in a sector where jobs typically require physical force, and negative views about women working in an almost all-male environment;

- tendency for women to be hired as low-skilled labour only;
- under-representation of women in skilled positions;
- concerns about safety;
- challenges in reconciling family and work;
- when work hours are long or inflexible and distances to and from the worksite are significant;
- where the work offered cannot be adjusted to be compatible with pregnancy;
- where breastfeeding or childcare facilities are absent;
- decent work deficits, such as unequal pay and harassment; and
- regulatory barriers: impossibility of women to obtain work permits in the construction sector in some countries

Many of these barriers also apply to access to skills development for women (ILO 2020a). Research on female participation in EIIP (Dejardin 1996; Khan 2002, ILO 2015a) showed the importance of infrastructure development for women to access paid jobs in non-agriculture activities in rural areas. It recommends guidelines to overcome barriers that prevent women's participation through:

- women's participation in community-based infrastructure programmes (key aspect: *participation);*
- women's access to jobs in public works (key aspect: *quantity and quality of jobs*); and
- women's access to services and transport; (key aspect: *benefits gained*)

The ILO's *Guidelines for Gender-responsive Employment-Intensive Investment Programmes* (ILO 2015b)[3] provide in-depth practical advice on gender mainstreaming and illustrate good practices when incorporating a gender dimension into the different stages of the project cycle. It proposes the following gender mainstreaming obligations for contractors: i) mobilization of labour; ii) gender awareness creation of the communities; iii) recruitment of labour; iv) organization of works; v) conducive work environment; and vi) gender sensitive monitoring and reporting (abiding by the respective partner country's laws, statutory regulations, policies, rules and byelaws on gender equality). Figure 1 summarizes approaches for gender-responsive infrastructure works projects.

3 The good practices are drawn from the analysis of 43 employment-intensive public works programmes and projects implemented in 27 countries in Africa, Asia, the Caribbean and Latin America between 1995 and 2013. Gender country briefs also exist on Jordan, Lebanon , Nepal , Tanzania and Tunisia.

▶ 1.2 Skills requirements

Opportunities for skills development are primarily through **public works programmes** with the main objective of infrastructure development and green works. Through such programmes the impact of employment can be promoted.

Opportunities for skills development do also exist through **public employment programmes**, where employment opportunities can be created through infrastructure, environmental and social works.

▶ **Figure 1. Approaches for gender-responsive infrastructure works projects**

I. GENDER RESPONSIVE INFRASTRUCTURE	II. GENDER RESPONSIVE WORKS	
Developing infrastructure that responds to women's needs	**Facilitating Women's entry into PWPs**	**Creating gender-friendly workplaces**
Examples of measures: ▶ Informing and consulting both women and men about their needs and preferences ▶ Carrying out gender analysis of the context + impact of infrastructure investments on women and men's paid and unpaid work & on gender relations ▶ Investing in infrastructure that advances gender equality and women's empowerment	Example of measures: ▶ Marketing opportunities to women and men ▶ Removing restrictions from worker/contractor selection criteria or other regulations ▶ Introduction of quotas or targets	Example of Measures: ▶ Provisions to facilitate combination of work and family ▶ Protection against violence and harassment ▶ Separate bathrooms and rest areas
Gender Mainstreaming in Public Works Programme/Project Cycle		
Gender analysis, gender budgeting, gender-sensitive M&E...		

1.2.1 Skills requirements in public works programmes

Most local infrastructure projects do not require sophisticated technical designs and working solutions and are thus best suited to local contractors using the LRB approach. A number of areas of work are applicable to LRB methods as shown in ***Table 2***.

▶Table 2. Areas of infrastructure and green works

Areas of infrastructure and green works	
Type of infrastructure	**Type of works**
Roads	Construction and maintenance of rural and urban earth, gravel and bitumen roads
Trails and trail bridges	Construction and maintenance of trails and bridges (for pedestrian and two-wheeled vehicles)
Water and soil conservation, agricultural land improvement	Construction and maintenance of rigid structures like check dams, terracing, wind fencing, percolation pits, etc. Bioengineering, tree planting Fallowing, clearing and soil improvement, etc.
Flood protection	Construction and maintenance of barriers, dams, diversion canals, etc.
Water harvesting and irrigation	Construction and maintenance of dams, wells, cisterns, surface collection, etc. and irrigation schemes
Water supply and sanitation	Construction and maintenance of water treatment and distribution systems, including improved water source facilities, standpipes, water kiosks, spring supplies and others Construction and maintenance of sewage systems including latrines of all types and simple wastewater treatment plants like septic tanks
Public facilities	Construction and maintenance of schools, clinics, markets, communal meeting halls and others
Municipality services	Cleaning and maintaining markets, streets, public places and parks, waste disposal and others
Housing	Housing construction
Forestry	Construction of plant rearing facilities, rearing and planting trees, maintaining tree plantations, harvesting
Cultural heritage	Preservation and maintenance of cultural heritage sites and objects

The above-mentioned areas of work can be carried out using the LRB method by a large number of skilled and low-skilled male and female workers.

Semi-skilled and skilled workers are needed for an array of activities in three main classes of work, namely A) Construction, B) Maintenance and Services, and C) Supply. These activities require a certain amount of knowledge and manual skills. Very often women and men with the necessary qualifications cannot be found on the local labour market and thus have to be trained during the implementation of the project. ***Table 3*** lists skills and occupations that are required to carry out the aforementioned areas of work.

Low-skilled workers are utilized for many different types of activities, such as excavation of soil, cleaning, transporting materials over short distances, preparing materials and others that do not require special skills and can easily be learned on the job.

▶ Case study 1 Tanzania, Jordan and Mozambique: Increasing benefits for women through EIIPs

Tanzania

The **public works component of the "Productive Social Safety Net" programme** allows households to earn extra income during the lean agricultural season by participation in public works to cash transfers. Examples of measures to promote gender equality are:

- priority given to works which reduce women's care burden;
- quota of 40 per cent for women's participation;
- flexible working hours;
- light work during pregnancy and breastfeeding; and
- childcare arrangements in some locations.

The Public Procurement Act provides for 5 per cent of the volume of all labour-based works below a certain threshold to be set aside for women-owned firms (contractors); Community contracting, individual women as well as women community-based organizations can be involved in the programme.

Results: 70 per cent of project beneficiaries are women; infrastructure decisions based on women's needs (e.g., location of water harvesting containers); reduced marital conflict and increased bargaining power for women.

Jordan

The **"Employment through Labour-intensive Infrastructure in Jordan"** project aims to create short- to medium-term employment opportunities for host communities and Syrian refugees through infrastructure works. Examples of measures to promote gender equality are:

- task-based payment systems to ensure women are paid equally for the same work as men;
- flexible work days to allow to combine work with unpaid care responsibilities;
- provision of transport to respond to safety concerns;
- Social Safeguard Officers trained on gender responsive safeguarding practices including how to address harassment in the workplace; and
- worksites equipped with separate toilets and rest areas for women and men.

Results: women make up on average 16 per cent of the EIIP workforce, more women in higher earnings brackets (48 per cent of women, 42 per cent of men earn more than JOD 700), more women than men satisfied with work quality.

Mozambique

The **"Decent Work for Sustainable and Inclusive Economic Transformation in Mozambique"** project, also known as "Moztrabalha" includes employment-intensive investment in sustainable rural market relevant infrastructure.

One of the activities was a pilot project demonstrating soil stabilization using gabions to construct a 33-metre-long retention wall in Mahotas District (Maputo). To encourage women to participate, the trainee selection criteria set out priorities for vulnerable women, including unemployed youth (18-35), with disabilities, living in proximity to the work-site. The works were carried out by 15 unemployed women from the local communities.

The women and one trainer from a vocational training institution were trained in the gabion construction technique. The training consisted of a one-week theoretical course, which was conducted jointly by a local vocational training centre together with the ILO. The practical training was done on-site and lasted one month.

After completion of the project and training the participants were issued with a certificate of competence and are now being supported to start their own business and will therefore also undergo training in entrepreneurship.

▶Table 3. Skill sets and occupations for infrastructure and green works

Classification of relevant skills and occupations for infrastructure and green works	
Class	**Skill sets – short description**
A. CONSTRUCTION	**A1 Stone masonry** (dry and wet): One of the most needed skills for the construction of structural walls (retaining walls, building walls), including filling of gabion boxes.
	A2 Stone/block paving: Required for paving rural and urban roads, parking spaces, walkways and public places using either dressed stones or pre-cast cement blocks.
	A3 Do-nou technology: The technology allows reinforcing structural components, e.g., road embankments and dams using soil-filled gunny bags that need to be properly prepared, placed and compacted.
	A4 Gabion installation and filling: Gabion boxes have to be placed and arranged in accordance with the design of the engineer, filled with in the correct way, and closed and tight as per the given standard.
	A5 Emulsion bitumen works: Working with bitumen emulsion for road base and surface layers requires special skills for preparing the mixtures and processing the material.
	A6 Erosion control – bioengineering: Bioengineering techniques can control soil erosion on steep and fragile slopes. The same technology can also be used to reinstate quarries and soil-borrow pits. Selection of and planting the right plants, installation of natural barriers and other preventive measures require a broad spectrum of knowledge and skills.
	A7 Plant production/rearing and planting: Knowledge and skills are required for working in afforestation programmes. This includes preparing the nursery facility, rearing the seedlings, planting them and carrying out all the activities that are necessary to maintain the plantation.
	A8 Operation of light construction machines: Light and intermediate equipment is required for certain activities that cannot be done by labour, like compacting soil/gravel/bituminous mixes, transporting heavy materials, drilling rock/stone, etc. Such equipment needs to be operated and maintained with the required professional skills and attitude.
	A9 Basic building skills: These are skills sufficient for the construction and maintenance of simple buildings and may include masonry including minor concrete works, plastering, simple carpentry and roofing, installing window- and doorframes, basic plumbing, wall painting and possibly some other unsophisticated activities.
	A10 Surveying (setting-out): Establishing and benchmarking of lines and levels for construction projects before the actual start of construction is essential. It is equally important to define the daily tasks and to control measurements and levels throughout the work process.
B. MAINTENANCE AND SERVICES	**B1 Road maintenance:** Maintenance of gravel and paved roads are predestined for labour-based methods. The activities involved require different practical skills that can be easily learned on-the-job. Working independently and reliably are important qualities of maintenance workers.
	B2 General building maintenance: Basically, this requires workers that have an array of skills to carry out smaller repairs, keep buildings clean and tidy, and detect and report damages.
	B3 Municipality services: Simple skills are required for general clearing and cleaning works of public infrastructures, including waste collection and disposal, maintenance of parks and public furniture, etc.
	B4 First aid and occupational safety and health management: Construction sites are known for their relatively high level of accidents and injuries. Effective first aiders must be well acquainted with OSH measures and know how to apply first aid correctly and in good time.
	B5 Site clerk – site administration: Every contract requires well-established administrative processes, for which reliable plans, records and reports are essential. Most of them must be prepared and maintained on site.

Classification of relevant skills and occupations for infrastructure and green works	
Class	**Skill sets – short description**
C. SUPPLY	**C1 Fabrication of construction stones** (dressed stone, building blocks): Natural stone is an especially important building material and is needed for all kinds of structures and buildings. Stones of the right quality must be selected and chiselled/cut to the required dimensions.
	C2 Preparation of construction aggregates (sand, gravel): Good quality sand and gravel are most important materials in construction, especially for cement concrete. Naturally occurring sand and gravel must be collected, cleaned and screened according to the correct standards. Aggregates can be broken out of rock with simple equipment.
	C3 Production of building construction material (soil-bricks, roofing tiles, etc.): This includes the production of suitable and affordable building elements from locally available materials without the need for expensive production centres and machines. Knowledge and skills are required for an array of activities.
	C4 Production of concrete/cement ware (culverts, paving and building blocks): Prefabricated concrete or cement products can be a lucrative business, but must be manufactured to the required quality standards at an affordable price. Knowledge and skills are required for an array of activities.
	C5 Weaving of wire gabion boxes: Gabion Boxes and mattresses are commonly fabricated and sold by international firms but can also be locally produced using galvanized wire of the required strength. Gabion weaving is a skill that can be easily learned.
	C6 Production and maintenance of simple tools: Production of handtools is an option for some simple handtools and measuring aids (e.g., templates, setting-out pegs, strings, etc.). Especially maintenance of handtools, like sharpening and replacing handles can be done locally but requires some basic skills.

The above list of skills and occupations may not be complete but provides an overview of skill sets that are generally required for the respective areas of work. It is obvious that **most skill sets are not only applicable for one area or class of work** as presented in Table 4, **but have several application possibilities**, some more and some less. For example, Stone Masonry (A1) and Basic Building (A9) are highly useful occupations that are needed on nearly every construction site and thus have also the potential for further employment. **Whether any combination of the above skill sets is considered an occupation or not will depend on the country context and national definition and classification of occupations.**

Table 4 allows identifying the skill sets that could be developed during the implementation of an infrastructure project. However, there are a number of additional factors to consider:

- Not all skill sets have the same level of difficulty. Some are easier to learn and require less prior knowledge than others, for which a certain level of education is essential and which require a longer learning period and more training inputs. ***Annex 2*** contains the same table as above, but with the main skills required for the occupation/skill set in question and a simple difficulty rating.
- Some skill sets have the potential to lead to self-employment. To be able to run an own business, however, requires entrepreneurial skills that may have to be added to the learning programme (*for details see **Section 2.3.3***).
- In order to meet the needs of the labour market and to increase the potential for further employment beyond the EIIP project, it may be necessary to add further and complementary learning elements (*for details see **Section 1.3.3***) in addition to the skills acquired during the EIIP engagement, e.g., for domestic use, agriculture, core skills etc.
- Other listed skill sets may have the potential to lead to existing qualifications. For the required qualification it may be necessary to add additional learning or bridging elements, and if a system for the recognition of prior learning exists, people can obtain the partial or full qualification (*for details see **Section 2.4**, and **4.2***).

▶ Table 4, Typical infrastructure works with affiliated skills and occupations

Infrastructure work areas with affiliated occupations *(skills that workers can acquire when working with EIIP projects)*																					
Occupations:	**A. CONSTRUCTION**										**B. MAINTENANCE & SERVICES**					**C. SUPPLY**					
	Stone masonry (dry and wet)	Stone/block paving	Do-nou' technology (soil bag embankment installation)	Gabion installation and filling	Emulsion bitumen works	Erosion control - Bio-engineering works - Quarry rehabilitation	Plant production/rearing and planting	Light construction machine operation	Basic building skills (masonry, carpentry, roofing)	Surveyor (for LRB works)	Road maintenance (gravel and paved)	General building maintenance	Municipality services (cleaning, garbage clearing, etc.)	First aid and occupational health and safety management	Site clerk- site administration	Fabrication of construction stones (dressed stone, building blocks)	Preparation of construction aggregates (sand gravel)	Production of building construction materials (soil-bricks, tiles, etc.)	Production of concrete/cement ware (culverts, paving & building blocks)	Weaving of wire gabion boxes	Production and maintenance of simple tools
EIIP areas of work:	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**	**A9**	**A10**	**B1**	**B2**	**B3**	**B4**	**B5**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
Earth / gravel roads; construction or rehabilitation	✔		✔	✔		✔		✔	✔	✔				✔	✔	✔	✔		✔	✔	✔
Low volume sealed roads; construction or rehabilitation	✔	✔		✔	✔	✔		✔	✔	✔				✔	✔	✔	✔		✔	✔	✔
Trails; construction of trails and bridges	✔	✔		✔		✔		✔	✔	✔				✔	✔	✔	✔		✔	✔	✔
Road maintenance; earth, gravel and sealed	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔			✔		✔	✔		✔	✔	✔
Water and soil conservation	✔		✔	✔		✔			✔	✔				✔			✔		✔	✔	✔
Flood protection; construction and maintenance	✔		✔	✔		✔		✔	✔	✔				✔			✔		✔	✔	✔
Water harvesting and irrigation; construction and maintenance	✔					✔		✔	✔	✔				✔	✔	✔	✔		✔		✔
Water supply; construction and maintenance	✔							✔	✔	✔				✔	✔	✔	✔		✔		✔
Sanitation; construction and maintenance	✔							✔	✔	✔				✔	✔	✔	✔		✔		✔
Public facilities - construction; schools, clinics, markets	✔	✔		✔			✔		✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔
Municipality services - cleaning & mainten.; markets, streets, places, etc.		✔							✔		✔	✔	✔	✔				✔			✔
Housing; construction and maintenance	✔							✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔
Forestry; nursery, planting, maintenance							✔							✔							✔
Agriculture; erosion control, terracing, etc.	✔			✔		✔	✔	✔	✔					✔		✔	✔		✔	✔	✔
Cultural heritage; preservation	✔	✔				✔	✔		✔		✔	✔	✔	✔		✔	✔	✔	✔		✔

1.2.2 Skills for public employment programmes

The main objective of public employment programmes is to maximize employment creation for men and women. This can be achieved not only through infrastructure and green works programmes but also through the delivery of social development and community protection services, such as shown by the following example from the Expanded Public Works Programme (EPWP) of South Africa as shown in Table 5.

▶ Table 5. South Africa – EPWP social sector programmes

South Africa – EPWP Social Sector Programmes	
Early childhood development	Provide education and care to children in the temporary absence of their parents or adult caregivers. Services include provision of child health, nutrition, education, psychosocial and other needs within the context of the family and the community. The beneficiaries are provided with skills to increase their capacity to generate an income hence improving care and learning environment.
Home Community Based Care	Provide basic health services needs by formal or informal caregivers employed in EPWP projects to people in their own homes or home-based care that the community can access closer to their homes.
School nutrition programme	Employs community members as food handlers to provide food to children from needy families and thus address malnutrition.
Community Crime Prevention	Aimed at encouraging community members in EPWP projects to be active in helping to identify community safety priorities for their neighbourhoods.
School Mass Participation	The programme provides work opportunities to sports coaches and encourages members of the public to participate actively in sports with the objectives of promoting good health, self-realization, community development and social cohesion.
Kha Ri Gude	(Tshivenda for 'let us learn') is a Mass Literacy Campaign aimed at inviting adults who missed out on their schooling, and who cannot read nor write to join literacy classes provided across the country.

▶ Guiding questions 1: Identifying skills requirements

1. What are the skills and occupations required to implement the project?
2. Are labourers with the required skills available and can they be recruited?
3. Which of the identified skills sets need to be trained during the implementation of the project?
4. How demanding is each of these skills sets that need to be trained (difficulty rating; refer to ***Annex 2***)?
5. What potential do these skills and occupations have for further employment or entrepreneurial development (matching skills with jobs)?
6. Are there possibilities to include skills other than those required for project implementation in the vocational skills development programme for the project?
7. How can the project ensure to actively target and include disadvantaged group of workers, including women, migrant workers and forcibly displaced people, people with disabilities and ethnic minorities?

▶ Case Study 2 India: Rural Masons

Pradhan Mantri Awas Yojana (PMAY) is an initiative of the Indian Government to provide affordable housing for the urban and rural poor with the target of building 20 million affordable homes between 2016 and 2022.

The Ministry of Rural Development (MoRD) in 2016 identified a shortage of skilled artisans in the rural areas. MoRD decided then to train local masons in the specific work activities required for the provision of proper housing for the rural poor. These local masons would be engaged by the prospective house owners to construct their low-cost houses. The Rural Mason trainees were provided with a six-week course (360 hours), covering the technical subjects and skills required for building a 25 square-meters house. UNDP assisted the MoRD in preparing national occupational standards (NOSs) for this training programme and the ILO developed appropriate training and reference material.

The NOSs developed for the rural mason is a shortened version of the complete standards for fully certified masons and adapted to the specific skills requirements related to this particular housing scheme. Using a "build-while-learning" training approach, master trainers guided the construction of semi-customized rural houses from excavation of foundations to the completion of the roof. Many beneficiaries also opted for a standard, two-pit toilet to complete their homes.

Rural Mason: Brief Job Description (NSDC 2017): The job role performs routine rural construction works such as earth work for foundation, layout marking and construction of foundation, walls, brick/block masonry work, random rubble masonry works, IPS flooring, reinforcement and shuttering works, manual concreting works, fixing of door and window frames and shutters and installation of sanitary fittings and fixtures in toilets.

Male and female masons from rural areas are trained to excavate and lay foundations ....

... to cut, bend and tie concrete reinforcement bars...

... building walls using bricks or stone/cement blocks...

... setting and installing window and door frames...

... erecting shuttering and concreting slabs...

... and carrying out all finishing works including plastering, flooring, painting and installing toilets with basic plumbing.

Results and observations

Initially the qualification pack (QP) for rural mason (NSDC 2017) envisaged a training programme with eight different NOSs derived from the fully certified mason's QP. The identified NSQF level was set at level 4 and the minimum educational qualification was 'preferably 5th standard' and to have trainees with three years site experience in the same occupation. The course time to achieve the expected competencies was set at 360 hours of theoretical and practical training only (about two months). However, on-going training courses showed that most trainees were in fact illiterates or semi-literates and had hardly any prior work experience of similar skills. The QP also envisaged a relatively high level of theoretical knowledge.

Recommendations were made to reduce the NOS, increase the practical training to about 90 per cent and at least double the training time.

The training material was adapted to reflect the trainees' actual level of understanding:

- Five learning unit books as reference material for the trainers covering: i) basic knowledge; ii) setting out construction works; iii) masonry works; iv) concrete works; and v) toilet construction – fittings and fixtures.
- Reference handbook for the learners and future rural masons (ILO/India MoRD 2017) consisting of important factual information, i.e., reference tables on resource requirements, masonry and concrete work standards, common construction measurement references, safety and health on site, plus all worksheets explaining the work methods for all major construction activities.
- 33 charts (A1 size) depicting all worksheets and 27 charts depicting general knowledge issues and "Dos and Don'ts" for use by the trainers when conducting training on site.
- Detailed session plans for the trainers.

▶ Case Study 3
Indonesia: EIIP Cultural heritage; traditional house building skills

A massive reconstruction programme was initiated in the aftermath of the Tsunami in December 2004 and the devastating earthquake in March 2015 on the Island of Nias. Not only was most of the public infrastructure severely damaged, but also very many private houses, both modern buildings and traditional houses (Omo Hada). In fact, these houses are some of the finest examples of vernacular architecture in Asia. They are built without the use of nails and are able to withstand powerful earthquakes far better than modern houses. The consequences of the destructive earthquake exemplified the value of the traditional houses. Nevertheless, many of them were damaged or had not been well maintained for a long time and therefore a restoration programme was initiated.

The local Museum Pusaka implemented the cultural heritage restoration programme through the Nias Heritage Foundation with the support of the Multi Donor Fund for Aceh and Nias and with technical assistance from the ILO. The aim of the museum is to preserve the rich cultural heritage of the island. Some of the museum's staff are experts in building traditional houses and have the ability to impart their knowledge and skills to traditional village carpenters. It was therefore obvious to entrust the museum with the management of the extensive restoration programme. To date, 375 houses have been restored in villages all over the island, and this has enabled homeowners to be trained in the art of traditional carpentry.

Certain architectural characteristics of the Nias traditional houses are unique. The entire construction is in wood; built on pillars, have large two-sided roofs and slanted facades. The other common characteristic is that they are adapted to earthquakes and the climatic conditions, the choice of materials, the meas-uring system and the tools and rituals used to build the houses.

The master carpenter of the Museum Pusaka assesses the repairs to be carried out together with the owner of the house and prepares a cooperation agree-ment. The house owner under-takes to provide the necessary wood and to undergo training in traditional house building and maintenance methods.

The rehabilitation programme was implemented through an evolving and participatory approach:

- The museum together with the village leaders identified and listed potential houses for rehabilitation.
- The ILO technical assistance team together with the Museum Pusaka developed the workplan, organized the required logistics and managed the implementation process.
- The museum's experts, together with engineers and social specialists from the ILO, carried out a detailed evaluation of all identified houses. The house owners and their families were consulted and informed about the assistance and working procedures. They had to commit themselves to agree on certain modalities of cooperation, such as the provision of the wood needed and their willingness to learn the necessary carpentry skills.
- The house owners were familiarized with the selection of suitable trees to prepare the necessary wood and roofing material for the under, middle and upper structures of the houses and the accompanying traditional rituals. For every tree felled, new seedlings had to be planted to ensure enough wood for future generations.
- Once the wood was cut to the required shape and dried it was then used to carry out the necessary repair or reconstruction works. The master carpenter of the Museum Pusaka introduced the house owners to the traditional carpentry skills and the associated rituals.

Traditional carpentry is an ancient craft that dates back hundreds of years. The training teaches homeowners and/or family members traditional carpentry skills, the associated rituals and helps to preserve the ancient culture of the Nias Island.

Suitable trees are selected, cut and sawn to the required dimensions and dried before use. The different structural parts of the houses require specific types of wood. New trees of the same species must be replanted.

This approach has enabled most house owners to acquire the basic skills to maintain their own houses, help build new houses and assist other families in the village to repair their houses. Some were also able to establish their own small firm for repair works of traditional houses and other woodwork, like manufacturing furniture.

Today the Museum Pusaka still offers courses in traditional carpentry with the aim of preserving the ancient knowledge, skills, local wisdom and lifestyle of the Nias people. The development of skills related to heritage conservation takes place in a specialized field of work with customary traditions. For example, the carpentry skills required for the renovation and maintenance of traditional houses in Nias are not comparable to the carpentry skills required today. For effective skills training, a heritage project needs to be managed by experts (e.g., the curator of the Pusaka Museum), competent technical staff and appropriate social workers. Trainers must be familiar with the traditions and the required knowledge and master the skills themselves.

Tagohi Laia (in the middle) from the village Hilinamöza'ua, Onolalu, South Nias, is one of the house owners who trained in traditional carpentry when rehabilitating his own house that was damaged during the earthquake in 2005. Today he is a master of his trade, can not only repair old houses, but also build new houses with the traditional technology and associated rituals and lives from his business.
There are many similar examples from other villages where carpenters trained by the museum have succeeded and are still able to use their skills to generate income.

A restored house can last for many more decades if maintained well. The house owners are also taught on how to carry out repair works and how to change the roofing material (leaves from the sago palm) every three to four years.

▶ 1.3 Identifying options for EIIP integrated skills development

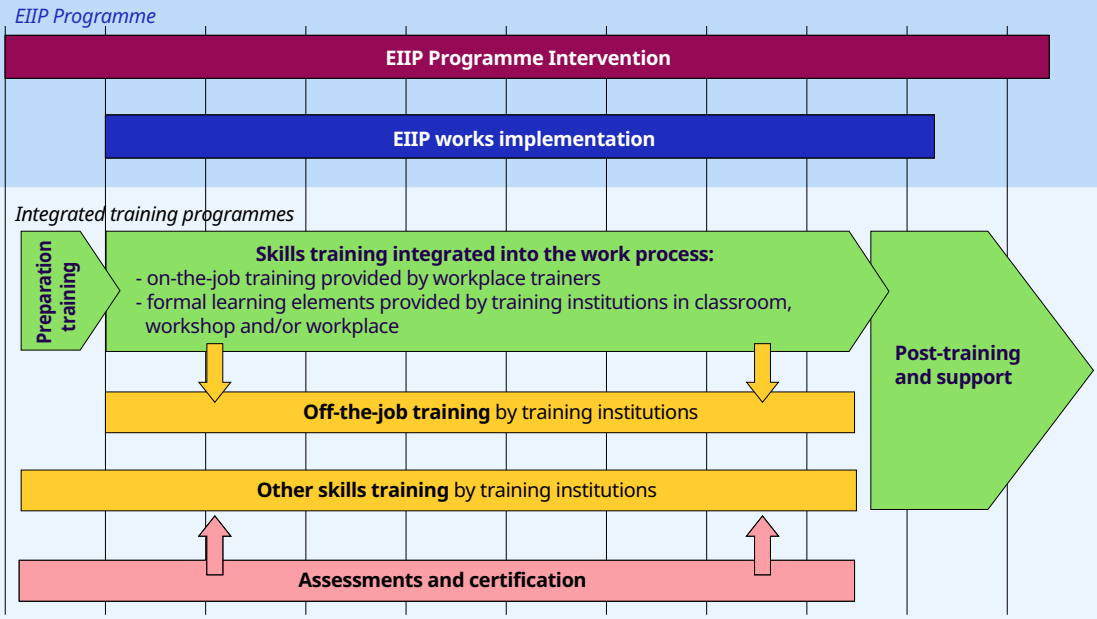
It is important to first identify a realistic scope of the skills training programme before determining how to design and provide the training. In general, learning can happen in three ways:

- **Formal learning:** instruction given in education and training institutions or specially designed training areas, including within enterprises in formal apprenticeship systems. Training is structured and has precise learning objectives.
- **Non-formal learning:** learning taking place in activities not exclusively designated as learning activities, but which contain an important learning element.
- **Informal learning:** learning resulting from activities undertaken daily at work, in the family or in leisure activities.

All three approaches may be applicable for skills development in EIIPs. Indeed, a combination of approaches is the most likely method. For example, for the skills set "Basic Building Skills" technical knowledge and basic skills can be provided by a recognized training institution (formal learning), while the attachment to an EIIP worksite enables on-the-job learning (informal and non-formal learning).

The most suitable approach depends on a number of factors as discussed before, e.g., time and resources available, existing institutional training capacity, training capacity at the workplace, and others. The following graph provides an overview of the possible integrated training modes.

▶ **Figure 2. EIIP integrated training modes**



The following sections discuss the above training modes and how they can be applied or combined.

1.3.1 Preparation training

The learners can have quite different educational backgrounds and thus it is difficult to start a training programme on a relatively equal level of knowledge. The experience from many EIIPs shows that especially **numeracy, common units of measurement and the calculation of lengths, areas, volumes, weights and gradients** cause difficulties. Other basic knowledge may also be required to be introduced, such as general construction tools and materials, health and safety issues, etc. Often a tailor-made preparation training must be organized before the actual qualification training programme can begin. Tests at the beginning and end of the preparation programme may be necessary to determine the actual level of understanding.

1.3.2 On-the-job training

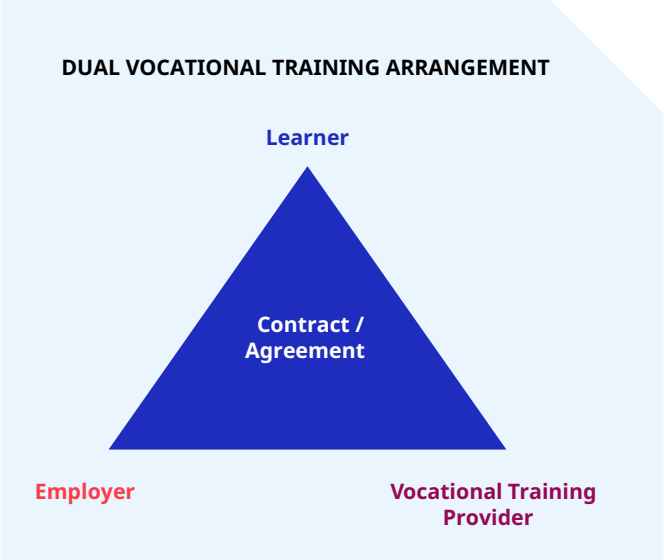
On-the-job training is the most appropriate method for developing skills during EIIP works. It makes use of the existing background experience of the learners and allows site work to continue while the learners actively participate in the production process by enabling them to learn in the real world of work.

The learner acquires knowledge and skills by fully participating in the work process. A **competent work supervisor or a master craftsperson with instructional skills** (workplace trainer) is responsible for training the learner on-the-job. The required theoretical knowledge is imparted through explanations by the instructor using manuals, worksheets, checklists, learner logbooks, digital tools, etc. (*for details on selecting and training of trainers see **Section 3.1.8***).

- On-the-job training needs to comply with safeguards and labour standards (*see **Section 2.3.2***).
- **The contractor**, as required by the conditions of contract, guarantees full integration of skills training into the work process, ensures that the workplace trainers are competent/trained, **follows the requirements of the training programme** (curriculum for recognized training) **and complies with the conditions of contract.**
  - Example apprenticeship agreement from Indonesia: https://www.ilo.org/dyn/asist/asistdocs.details?p_lang=en&p_sess=sessid&p_accessionno=200898
  - Example apprenticeship agreement from Tanzania: https://www.skillsforemployment.org/KSP/en/Details/?dn=EDMSP1_254629
  - Example apprenticeship agreement from Switzerland: https://vpet.ch/dyn/bin/21423-21425-1-lv_engl_2018_interaktiv.pdf
- The learner's **performance is assessed** throughout the combined work and learning period (formative). A final practical and theoretical test (summative) may be required depending on the qualification and assessment requirements of the respective national qualifications' authority.

Dual training arrangement/apprenticeship

For **vocational skills development**, the most effective arrangement is a tripartite arrangement between the Learner, the Employer and the Training Provider with mutual roles and responsibilities. Where applicable, national legislations on apprenticeships apply. The ILO's Quality Apprenticeship Toolkit, Volume 2: Guide for Practitioners (ILO 2020b) provides extensive guidance, templates and tools for developing, implementing, monitoring and evaluating apprenticeship programmes. Policymaking is covered in Volume 1: Guide for Policy Makers (ILO 2017).



- The **Learner** enters into a dual training contract a) with the Employer to work and learn at the workplace and b) with a Vocational Training Provider to attend vocational-oriented schooling.
- The **Employer** employs the Learner to work and at the same time to learn in his firm and provides time and means for the Learner to attend learning sessions at the vocational Training Institution. The employer offers on-the-job training, for which selected and qualified employees (workplace trainers) are trained.
- The **Vocational Training Provider** provides sessions/courses for the Learner in agreement with the Employer. Depending on the learning objective, the training can take place in the classroom, in a workshop or workplace of the institution or at one of the sites where the Learner works.

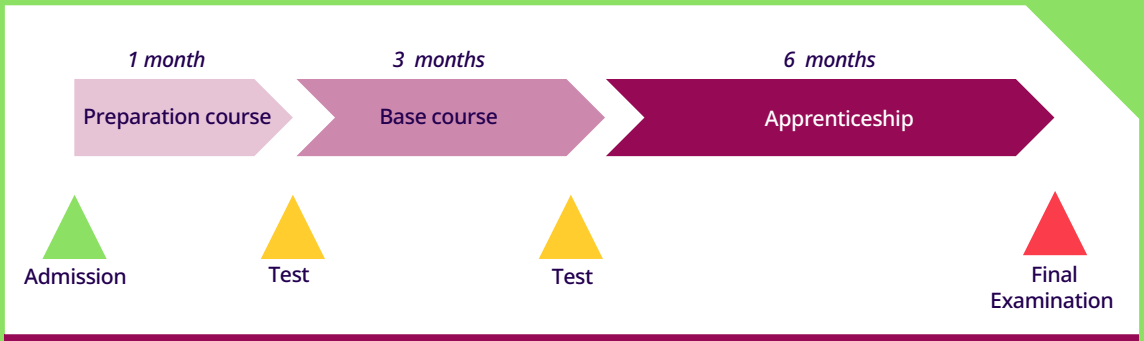
▶ Case Study 4
Indonesia: EIIP integrated apprenticeship

The capacity-building component of the Rural Access and Capacity Building Project on Nias Island included training for local government staff, contractors and community work groups to ensure effective project implementation and to contribute to the development of the construction industry.

The domestic construction sector on Nias, a relatively small Island with a population of about 750,000 people, consists mainly of small- and medium-sized construction firms. Their capacity was grossly underdeveloped and thus unable to cope effectively with the reconstruction works. Particularly capable technicians and skilled labourers were not available. As a consequence, the rural access roads project introduced a training programme for local youth, offering the opportunity to develop a career in the construction industry. The aim of the training was to create a cadre of young well-skilled site supervisors capable of mastering all common road construction tasks.

A detailed curriculum and learning material were developed during the preparatory phase. Eight selected engineers and technicians employed by the ILO were introduced to vocational training methods in a concentrated training-of-trainer's course. A recognized vocational training expert (education and training programme planner) from the Vocational Education Development Centre (VEDC) Malang provided support throughout the training programme.

The instructors/trainers are introduced to the training programme and how to conduct vocational training.



Out of 220 applicants 42 trainees were selected and admitted to the training programme. The training programme was divided into three main phases shown above.

Preparation *course*

- Objective: provide an equal theoretical knowledge for base course and apprenticeship.
- Duration: 3–4 weeks, depending on need to revise basic knowledge subjects, e.g., numeracy, reading drawings, etc.
- Methodology: mainly theory in classroom with practical demonstrations, site visits and practical exercises, e.g., survey and setting out methods, etc. to acquire basic road construction skills.
- Evaluation of performance through: i) intermediate subject assessments (formative); and ii) end-of-course test (summative).

Base course

- Objective: gain knowledge/skills required to effectively perform as road construction supervisor apprentices.
- Duration: 8–12 weeks, depending on performance level and site conditions.
- Methodology: structured practical training to master all road construction and supervision skills combined with intermediate theoretical inputs and problem-solving sessions as required. Detailed instructional training and close coaching by the training team.
- *Evaluation of* performance: i) throughout field exercises, and ii) at end-of-course practical and written tests.

Apprenticeship

- Objective: to provide on-the-job training under real working conditions to effectively apprehend all required work elements of a site supervisor.
- Arrangement: selected contractors issued with a normal construction contract (FIDIC short form) with an additional condition "apprenticeship agreement" to include and manage the assigned apprentices in the work process (click for a copy of the Apprenticeship Agreement).
- Duration: about six months, depending on performance level and site conditions.
- Methodology: structured on-the-job training by selected contractors with close support from the ILO training team. Intermediate problem oriented and in-depth training sessions to review the learned content and to ensure full mastering of skills.
- Compensation/wage: a monthly lump sum of IDR2,200,000 (approximately USD300 or USD13.6 per workday) paid by the contractor covered by a special pay-item.
- Evaluation of performance: carried out throughout the apprenticeship.

Practical skill training during the apprenticeship – hand-packed stone base for a rural road

Final test

A final practical and written test combined with the results of the two courses and the performance during the apprenticeship determined the level of competence achieved. Successful candidates were issued with a Certificate of Competence as Construction Supervisor.

Results and impact

The courses proved both effective and popular, in particular the apprenticeship phase. Most participants completed their training programme and were immediately absorbed by the industry, either as supervisors in construction firms, with the public works departments or with NGOs involved in infrastructure works as shown by the following examples:

Sukaria Halawa

"After the apprenticeship in 2010, I was employed in the ILO implemented Nias suspension bridge programme as a Technical Supervision Assistant. In 2013, I joined a local consulting firm and in 2014, I was recruited as a Supervisor by the Ministry of Manpower for their labour-based suspension bridge programme in Yogiakarta Province and later in South Sulawesi Province. In 2016, I returned to Nias and worked for consulting firms, before again joining a suspension bridge project as a Works Supervisor for the Public Works Department of Gorontalo Province on Sulawesi Island."

The obvious success of the vocational training programme in Nias can be attributed to:

- Careful training needs analysis;
- Initial thorough training of trainers and continuous professional coaching of trainers by the VEDC expert trainer;

- Carefully developed curriculum, lesson and coaching plans including performance evaluation procedures;
- Ensured professional technical, managerial and logistical guidance and support from the EIIP programme staff (the capacity of the local professional programme staff needs to be advanced through rigorous training and coaching before a vocational training programme can start);
- Well-tested and established work methods (LRB methods, standards and quality assurance procedures, including specialized designs and skills, such as required for trail and suspension bridges, bioengineering, etc.);
- Ensured commitment of the trainees (own contribution and performance agreement including an assured stipend);
- Initial preparation training to ensure all trainees start the actual training on a more or less common level of knowledge and skills;
- Theoretical lessons with immediate transfer to practice (instructional training on a training site);
- Well prepared and coached apprenticeship on real construction sites (trainees employed by contractors with follow-up from trainers. on-site coaching and problem-oriented training interventions);
- Continuous performance assessment throughout the training and apprenticeship programme; and
- Certification of competence issued to all successful trainees at the end of their training.

Job placement support and counselling by the ILO

Some of the trainees were employed by the ILO to continue working under the programme, while others were recruited by contractors and the local administration responsible for public infrastructure.

1.3.3 Off-the-job training

The actual on-the-job learning process can be complemented with additional learning elements to obtain a particular qualification or to add knowledge and skills that can be useful for increasing employability, starting a business or acquiring valuable core/life skills. This should ideally take place in parallel to on-the-job training (e.g., a few hours per week or in short blocks), and be organized through:

Face-to-face training

- Recognized vocational training institutions provide the complementary theoretical and practical training to prepare the learners to participate and learn effectively during the on-the-job training phase. The training institution may also be the custodian of the curriculum and learning material, and manages the entire training programme (for detailed partnership arrangements see ***Section 1.4.2)***
- Off-the-job training can also include entrepreneurial skills, core and/or life skills, job-search skill, bridge-courses to qualify for further training, additional sets of skills to qualify for a full occupation, job search skills, etc.

Distance or blended learning

Distance or blended learning, often referred to as "e-learning" or "online learning" is a mode of delivering education and training programmes or modules remotely. E-learning is computer-based or internet-aided learning, which can be on-line or off-line (educational applications stored on a tablet or smart-phone). It is an option to ensure access to quality/certified training.

Different forms and levels of interaction between learners and trainers are possible. For EIIP integrated vocational skills training a number of applications may be useful if combined with the practical work on site:

- providing the theoretical part of on-the-job training;
- practical demonstration of work activities with instructions, e.g., video type;
- saving and providing guidelines, manuals, work-sheets, formats;
- on-line coaching by the trainer/instructor;
- testing theoretical competence; and
- responding rapidly to changing skills demands, e.g., introduction of new work method or material.

Essential for quality e-learning is effective training management, competent professional trainers/coaches, basic digital skills of learners, access to suitable electronic equipment and reliable internet connection.

Coaching

Coaching in a broader sense than skills training can be a useful additional service to supplement the learning process and assist learners in a number of specific situations. For example, advice on opening a bank account, taking out insurance, applying for support programmes, writing applications, preparing for job interviews, etc.

1.3.4 Other skills training

Technical or vocational skills that have nothing to do with the implementation of the actual EIIP project directly may be offered to workers who are not part of the on-the-job training programme or even to community members residing within the vicinity of the project. Examples are weaving, hairdressing, plant breeding, commercial gardening, building material production and many other economically useful occupations. The construction industry is highly occupationally segregated, and often cultural norms and stereotypes may prevent women from taking up positions as workers in the construction industry. Analysing market opportunities and skill needs for the wider community may, therefore, provide an avenue to offer a more gender-balanced approach. Training for community development can also be included, such as community group formation and management, financial management, literacy and numeracy, entrepreneurial development and others.

For the implementation of this type of skill training, suitable and qualified institutions must be sought as partners in order to guarantee recognized training results. However, external support is often needed to ensure that these institutions have the necessary capacity to deliver the planned training.

Reference:

- Rural Skills Training, A Generic Manual on Training for Rural Economic Empowerment *(TREE) Volume IV*, (ILO 2009).

1.3.5 Assessment and certification

The learning progress in skills development programmes is best achieved through competency-based assessments during the programme (formative assessment) to monitor that the defined learning objectives can be achieved. A final examination (summative assessment) verifies that the learner has achieved all expected learning objectives. Such assessments also recognize competencies acquired through informal and non-formal learning.

- Formative assessments are usually integrated into the learning programme conducted by the training providers, i.e., vocational training institutions, or by workplace trainers during on- or off-the job training.
- Summative assessment and certification can be offered by national assessment and certification authorities for full or partial qualifications. Where this is not possible, the EIIP may offer assessment and certification as part of the programme in possible collaboration with, for example, employers' associations, line ministries or other training institutions.
- The RPL is an assessment procedure to identify and validate existing competencies of training candidates and workers. The type and level of skills that potential learners already possess are decisive factors in the design of the training programme. (For more information on RPL see ***Section 2.4***).

References:

- *Recognition of Prior Learning (RPL); Learning Package; ILO, Skills and Employability Branch;* (ILO 2018b);
- *Assessing skills in the informal economy; A resource guide for small industry and community organizations; ILO, Skills and Employability Branch* (Lange, et al. 2015); and
- *Manual on skills testing and certification: Jordan* (ILO 2015c).

▶ Case Study 5
Nepal: Skills training programme "beyond" road works

The long-term District Roads Support Programme (DRSP) and its successor programme, the Local Roads Improvement Programme (LRIP), were designed to facilitate the labour-based approach of road construction and maintenance. It has created an enabling environment for the socially discriminated and economically poor people living within the road corridor to participate in programme activities and gain from employment opportunities.

With the objective of improving living conditions Beyond Roads activities are introduced within the community involved in implementation works. These activities supplement road works through income generation and non-income-generation activities. Communities themselves decide upon the choice of activities they intend to take up. Initially DRSP provided financial support to the groups and later facilitated the local community groups to manage their own programmes.

Examples of non-income-generating programmes:

- Family discussions
- Adult literacy classes
- Village reading centres and awareness training

Examples of income-generating programmes:

- Savings and credits
- Beekeeping
- Thangka painting
- Traditional weaving
- Gabion weaving
- Soap making
- Animal health services
- Vegetable farming

There are now several small businesses operating in the districts based on the skills learned through these trainings.

Examples of success

Manakamana Khpangi is 32 years old and mother of two children. She is a resident of Ranichuri, Sindhuli comes from the Magar minority community. She married at 16 but lost her husband five years ago when he died in prison. After his death, she and her family suffered great hardship.

One day she heard on the radio that the district would form Local Road User Committees (LRUC) in which the DRSP-LRIP was active. A single mother belonging to a minority, she was chosen to join the LRUC and was even elected secretary of the group. Since then, she was working regularly on the construction site, organizing the road work groups, managing tools and materials and giving advice to the workers. This has enabled her to attend a number of useful training courses, such as working methods and standards for construction and maintenance in DRSP-LRIP, first aid, insurance claim procedures, gender and social inclusion, accounting and good governance. She never missed any training and was thus able to increase her awareness and knowledge from training to training.

Due to her good and committed work, she was selected as the women's representative of the Village Development Committee after completion of the road construction project DRSP-LRIP.

Today Manakamana Khpangi is very interested in development activities at the community level. She has managed to rebuild her house, her two children are studying at secondary school, she grows cereals and runs a small business from her house.

Yam Bdr Hayu is 47 years old and has a large family of 11 members to look after. He owns only a small piece of land from which he cannot survive. During the big earthquake, his house was heavily damaged.

Before he was offered a job on one of the DRSP-LRIP road construction sites, he often sought seasonal jobs in other parts of Nepal and in India. Because of his good work and conduct, he was selected and trained as one of the road maintenance workers, which now provides him with a regular income. The training was not only about maintenance activities, but also about various life skills competencies.

Today he is happy because he has been able to rebuild his house, his children can go to school and he was able to pay back his debts. Today he can feed his family in a healthy way again and he has been able to stock enough food for the coming months.

▶ Case Study 6 - Tunisia: Identification of employment-intensive infrastructure and assessment and certification of training

Background

The ILO is implementing an EIIP project on integrated local development Initiative Pilote pour un développement Local Intégré (IPDLI) in Tunisia (2018–2022). The project is implemented in the country's five governorates, namely, Jandouba, Nabeul, Gafsa, Kasserine, and Tataouine, to support their decentralization efforts. In order to systematize the EIIP workflow in these governorates, the project initiated the identification of employment-intensive and local resource-intensive works within the framework of urban and rural infrastructure. Through this initiative, a list of local infrastructure projects with high labour intensity has been established in collaboration with the Civil Engineering Department of the National Engineering School of Tunisia, and the Loan and Support Fund of local communities.

Establishment of demonstration sites using the "Chantier école" approach

In its preceding pilot phase for the introduction of the EIIP approach during 2012-2017, the team in Tunisia launched pilot construction sites introducing the "Chantier école" approach for various infrastructure assets including roads, buildings, and agricultural hydro works. This approach focuses on skills development through on- and off-the job training during construction work. It enabled the preparation of jobsheets that listed out skillsets of workers in public works such as construction and rural engineering. All the tasks that each worker performed on a construction site were also included in these jobsheets.

In collaboration with the Tunisian Vocational Training Agency (ATFP), the Agricultural Extension and Training Agency (AVFA), and the National Agency for Employment and Independent Work (ANETI), the EIIP team identified the equivalence between the tasks described in the jobsheets and the national vocational training courses. This alignment between the EIIP (and its theoretical and on-the-job training), and the national vocational training courses, enabled the project to develop a systematic process of validation and certification of the training at the completion of the EIIP school sites. The trainers of the State services regularly visit the trainees on the construction worksites and organize, in collaboration with the ILO team, additional training modules. The additional training includes lectures on labour law, cost calculation, professionalism, and so on. Once trainees are certified by one of the national training agencies, they have the opportunity to follow a training course on entrepreneurship in the construction and public works sectors under the supervision of the Ministry of Employment and Vocational Training. They also enjoy expedited access to specific financing channels.

Currently, EIIP Tunisia is working on digitizing the entire workflow. This includes: 1) development of the list of infrastructure that can be employment-intensive; 2) registration of corresponding training curriculum for the whole period of implementation, which is submitted through the system and is approved by the central vocational training authority; 3) profile of trainees, including their skills, responsibilities, wage scales, and work attendance records; 4) performance assessment by the workplace supervisors in relation to their mastery of different tasks; and 5) information on final assessment and its results.

1.3.6 Post-training support and entrepreneurial development

Ideally, support after the training is an integral part of the training programme. The services provided to learners at the end of their training programme may include, but are not limited to, the following:

- increasing the learners' comprehension of the world of work;
- providing job-related coaching;
- providing entrepreneurship skills;
- advocating with employment services, further training providers and the private sector;
- developing job-search skills, etc.; and
- referring to other relevant services, including enterprise development, day care services, and other training or employment services

(For more information see ***Section 4)***

▶ 1.4 Preconditions for effective vocational skills development

1.4.1 Supporting policies and implementation strategies

A national vocational skills development policy provides the guiding framework for any kind of skills development by: i) providing a common vision of the skills that a country is aiming to build; ii) disseminating a set of required changes to be pursued; iii) facilitating coordination with related policies and strategies; iv) clarifying institutional arrangements; and v) initiating collective commitments with shared responsibilities among the involved partners.

For introducing vocational skills development programmes to EIIPs it is important to identify the existing human resource development policies, strategies, programmes, learning resources and requirements for the construction sector.

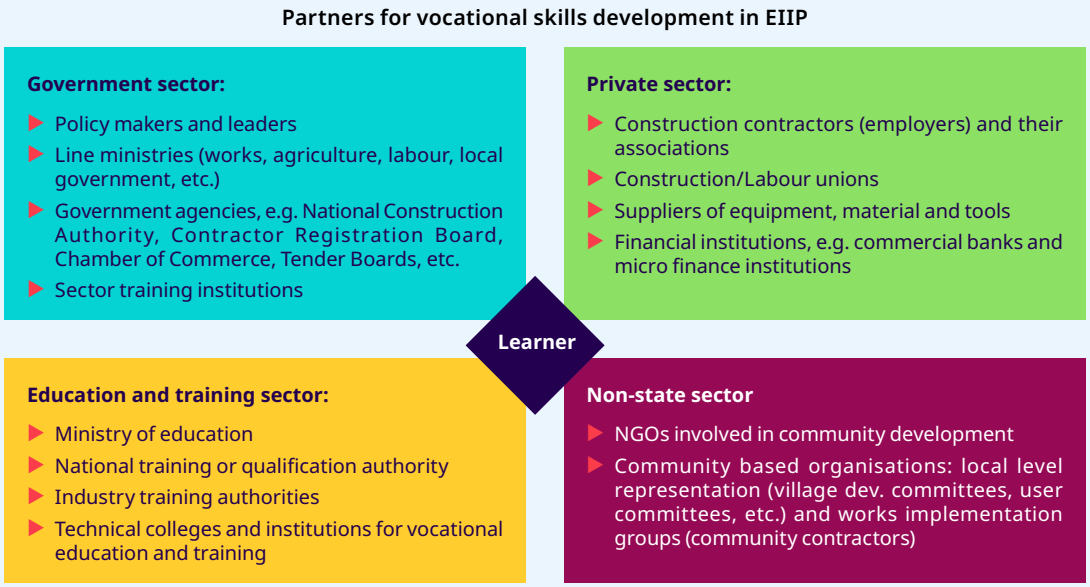
▶ Guiding questions 2:
Understanding existing skills development policies and systems

- Do contractor associations have human resource development strategies and programmes?
- Does the country have national, sectoral or local skills development strategies or policies? Do sector skills bodies, in particular for the construction sector, exist?
- Are there special skills training programmes for economically vulnerable and socially excluded persons, e.g., for youth, women, migrant workers and others?
- Is there a public-private partnership to jointly deliver training?
- What is the availability and capacity of TVET institutions and sectorial technical training centres?
- Are there any existing relevant qualifications for the sectors and skills concerned, a National Qualification Framework (NQF), or a Recognition of Prior Learning (RPL) system to identify implications for the envisaged skills training in terms of learning objectives, qualifications to envisage, and procedures to follow?
- What are the existing occupational standards and procedures, as well as responsible institutions, related to quality assurance and auditing, and with construction sector authorities, e.g., line ministries, construction development boards, and contractor registration boards?

1.4.2 Effective partnership and support arrangements

The key issue at the start of an integrated vocational skills development programme is to identify the most likely partners for a given situation. A number of partners are directly or indirectly involved in the design and implementation of vocational skills development programmes. Strong cooperation between the partners is essential for the success of the programme. Figure 3 shows the partners that could be considered for the development of a recognized and sustainable vocational skills development programme.

▶ **Figure 3. Partners for vocational skills development**



In a functioning partnership there are different obligations and responsibilities:

- The **government** provides the enabling environment with relevant policies, strategies and possibly financial support, e.g., for vocational training institutes, including strategies to advance sensitivity on conflict, gender, and diversity issues related to the implementation of its policies and strategies.
- The **training or qualifications authority** provide occupational and/or qualification standards, registers qualifications, verifies/approves qualifications and recognizes professional bodies (training providers) and professional individuals (trainers, instructors).
- **Employer's organizations,** such as contractor associations, can reach an agreement with their members on how they develop human resources in the sector and how to finance it, including the promotion of women workers in the sector.
- **Trade unions/worker organizations** play an important role in negotiations with employers' organizations and the government on creating favourable conditions for training and protection of workers, including on behalf of marginalized workers in the sectors, such as migrants, women, and people with disabilities.

- **Financial institutions,** like banks, insurance, and micro-finance institutions, can provide financial support to establish and run training facilities and programmes that are cognisant and customized to the different challenges of workers, including marginalized groups.
- **Suppliers** of equipment, tools and building materials can provide applied training in the operation or use of their goods. Training services must be included in the supply contracts.
- **Non-governmental organizations** (NGOs) and civil society organizations can be useful partners, providing training through their own training capacity and being important intermediaries for the workers and their community. Moreover, they can support project partners in reaching out to and targeting the communication needs of vulnerable members of the community/beneficiaries.

▶ Example of partnership arrangements in Jordan

A high unemployment rate in Jordan and the immense influx of Syrian refugees poses serious challenges to the country and thus it is of crucial importance to allow for both Syrian refugees and vulnerable Jordanians to secure decent livelihoods. The ILO's EIIP programme creates immediate jobs through employment-intensive projects for both Syrian women and men refugees and host communities through: i) construction and maintenance of schools; ii) support to local farmers (construction of water cisterns, terracing of slopes); iii) construction and maintenance of agricultural feeder roads and other public facilities.

A training programme designed for engineers to apply LRB approaches brought together the following partners:

- The **Jordan Engineers Association** with its training arm, the **Engineers Training Centre**, is the official provider and custodian of the "Certified Competence Programme for Civil Engineers for Local Resource-Based Management".
- The **ILO** provides the necessary technical assistance through a dedicated support programme for managing all involved partners, developing the required managerial and technical capacities, developing and introducing the training programme, as well as backstopping and monitoring the implementation of the training programme.
- The **Ministry of Public Works and Housing** is the leading implementing agency of the programme and as such the originator of and main client for the training of engineers.
- The **Ministry of Agriculture** and the **Ministry of Local Government** together with municipalities are further clients of the training programme.
- Registered **contractors** are the main beneficiaries of the training programme.
- The **German KfW** (Kreditanstalt für Wiederaufbau) together with the Government of Jordan finance the programme.
- The **World Bank** supported the Municipal Services and Social Resilience Project (MSSRP) with technical assistance from the ILO. The MSSRP also utilizes the LRB engineers' training programme for their capacity-building programme.

▶ Example of partnership arrangements in Nepal

Strengthening the National Rural Transport Program (SNRTP) forms part of the Government of Nepal's efforts to improve road access in rural areas by improving and providing maintenance to local roads and enhancing the availability and reliability of transport connectivity for rural communities in the districts. SNRTP is World Bank-funded and with ILO technical assistance, has introduced an effective system for planning and implementation of rural road maintenance, as well as building capacity for the effective implementation of such works.

The ILO supported the establishment of Road Maintenance Groups (RMGs) that focus on the continuous preventive maintenance required for rural roads and are therefore engaged for longer periods. This support targeted skills development of the RMG workers thereby allowing for more types of work potentially being delivered through them. Partnerships were established between the ILO; the Department of Roads; the RMGs; the Institute of Engineering for masons training; the Red Cross who delivered certified first aid training as well a refresher training in collaboration with local hospitals and health posts); and with local craftspersons such as painters who delivered painting courses for bridge and road furniture works.

Before commencing routine maintenance works, several training courses were organized for the RMG workers. The training included basic concepts of maintenance, typical maintenance activities, work methods, rules to be followed by the RMGs, methods of measurement and inspection, and payment arrangements.

The training also improved skills in building dry walls, stone soling, and painting crossing structures, plastering culverts, tree planting and bioengineering. Training was conducted through classroom sessions, practical demonstrations and as on-the-job training. Refresher training was organized in each district bi-annually, which included introducing new or revised work activities and procedures. Because of the skills development they received, many of the RMG workers were also engaged in reconstruction of buildings in earthquake-affected districts. Many RMG workers worked for construction firms during the 4.5 months of demobilization from SNRTP. Similarly, due to their experience in periodic maintenance and upgrading works, some workers found employment with contractors when the project maintenance works ended. Some of the RMG workers also found long-term employment with the Department of Roads as maintenance workers because of their work experience and skills development under SNRTP. All RMG workers received first aid training and became first aid trainers, facilitating their use of first aid medicine while encountering accidents at worksites.

1.4.3 Enabling funding arrangements

Skills development is an important investment for the socio-economic development of a country in general and for the learners, employers and the communities in particular. Appropriate funding for initial and continuous (life-long) training needs to be assured. However, training provision in many countries is underfinanced and fragmented and thus fails to meet the labour market needs.

For training programmes embedded in EIIP projects, cost-sharing arrangements involving the government, employers and employers' organizations, learners and possibly donors are most appropriate.

▶ Guiding questions 3:
Analysing potential funding arrangements

- Does the **government** fund/subsidize existing public vocational training institutions, e.g., through a skills development fund, industrial training fund or similar?
- Do **contractors and contractor associations** provide training for their own staff? If yes, how is it financed?
- Is there a general **training levy**, e.g., a certain percentage on government contracts, which is paid into a training fund?
- Do **workers' organizations** have funding schemes for skills training?
- Are there specific **donor contributions** (grants) to skills development programmes that can be tapped?
- Are there specific government or non-governmental programmes addressing the economic empowerment of vulnerable groups or women that could be tapped?
- Does the **EIIP programme have an appropriate budget for capacity building**, e.g., for senior personnel of government departments, as well as contractors and their technical supervisory cadre.
- Does the EIIP programme have a specific budget for skills development of workers?
- Can **workers** afford to pay a nominal fee for their skills training? Can a training bond be considered?
- Are there **foundations** that support vocational skills development or **other sources** that could be used, e.g., social development funds, employment creation schemes, poverty reduction fund, entrepreneurial development fund, etc.?

The most practical and possible funding formula must be found for each EIIP project. However, it is important to consider funding arrangements beyond the project if the skills developed during the project are to be mainstreamed and sustained.

▶ Examples of training funding

In Côte d'Ivoire and in Tanzania, levy income is supplemented by donor contributions and, in Côte d'Ivoire, by government funding. Formally, the National Training Fund in Togo is also financed by a payroll levy, the government and donors. It is however not clear how much of the proceeds are transferred to the fund. The new funding system being established in South Africa is financed by a uniform one per cent payroll levy. Eighty per cent of proceeds are allocated to new sectorial training bodies (SETAs) for disbursement within their sectors. In Kenya, the Industrial Training Fund is funded by eleven separate sector-based training levies; separate sectorial accounts are kept with no subsidization across sectors. The government and the World Bank finance the training fund in Madagascar. While a payroll levy is planned, Madagascar now provides an example of a fund that is not financed by an earmarked training levy, whether based on payrolls or otherwise.

Source: World Bank 2008, and ILO 2020d.

▶ Recommendation for a diversified financing framework based on multiple partnerships in Lebanon

The provision of quality TVET cannot be achieved without securing adequate funding for the TVET system, while rationalizing spending and devising new mechanisms to reduce costs and ensure efficiency in spending. These mechanisms include expanding partnerships with employers. Except for the Dual System, no mechanism is currently in place for employers' financial contribution to the system. A stronger partnership with the private sector could potentially reduce the dependence of TVET providers on the public budget, allowing educational institutions to support themselves.

The specific objective will be achieved through the following actions:

- Diversify financing of the TVET system, by giving more autonomy to providers and allowing them to take more responsibility for their own financing;
- Encourage public training providers to partner with private sector companies, who can subsidize part of the training costs;
- Transition to performance-based financing, establishing benchmarks and making conditional a share of the public budget allocation on agreed results;
- Establish a training fund to be financed by international partners, the diaspora and local private sector resources on a voluntary basis.

Source: National Strategic Framework for TVET in Lebanon, 2018–2022, and ILO 2018c.

▶ 1.5 What this means for EIIPs

1.5.1 Consequences for EIIP programme design and implementation

The inclusion of vocational skills development in EIIP work programmes has a number of consequences that must be considered:

- In addition to the construction contract parties (client, contractor and supervisor), a number of **partners involved in skills training must be considered**, involved and their commitment ensured (for details see ***Section 1.4.2***).
- Standard work contracts normally do not include provisions for training. For EIIP integrated skills training **special conditions of contract and pay items may be added.**
  - Conditions commit the contractor to provide resources and time for training on- and off-the-job. Site supervisors have to be trained as workplace trainers to be able to provide work-site training. Tools, equipment, materials and transport have to be made available to the learners beyond what is directly required to carry out the work on site. Conditions may also regulate the partnership arrangement with the learner and training providers.
  - Training activities may be paid through extra pay items, e.g., under the bill for preliminary and general items or as a separate bill. Alternatively, the training costs may be included as a percentage in the unit rates.
- There can be **consequences for the work programme** which need to be identified and taken into account, especially if the training programme requires additional time inputs, e.g., after the daily working time or after completion of the project (at the end of employment).
- The **cost of training** must be carefully assessed and calculated, i.e., for the training component included in the work contract; the training provided by a vocational training institution; the development of the curriculum, for registering qualifications and assessing; for distant learning inputs, if applicable, etc. (for detailed information see ***Section 3.1.8***).
- A serious restraining factor to an integrated vocational skills development programme is sub-contracting certain works to usually unqualified subcontractors who are not able and not willing to participate in skills training. Corruption and collusion have serious implications for the effectiveness and efficiency of infrastructure works and ultimately for the development of skills.

1.5.2 Required support measures

Vocational skills development, integrated into the implementation process of EIIP works, requires supporting measures and arrangements, such as:

- ***Suitable engineering designs:*** Conventional engineering designs take into account factors such as structural requirements, cost effective solutions, appearance and work execution approaches. However, alternative designs can generate better opportunities for skills development and create more jobs. For example, retaining walls are very often constructed using reinforced concrete, while using gabion boxes or stone masonry walls could be equally suitable. Slope stabilization or erosion control could often be achieved using suitable bioengineering methods that are also more environmentally friendly. The same applies to buildings where locally produced materials can replace imported materials. These and many more alternative solutions create additional jobs and enable the development of more skills in the workplace.

- ***Partnering and creating awareness***: Contractors' and engineers' associations can be strong partners in developing appropriate working methods and training skilled construction workers. In fact, it is in their best interest to have sufficient trained personnel to meet the requirements of the industry. Trade unions are important partners in lobbying for more and better employment opportunities and conditions. Raising awareness among all partners involved is essential to ensure their support (for details see ***Section 1.4.2***)

- ***Supporting professional development programmes for engineers, technicians and site supervisors:*** Continued professional training of engineers, technicians and contractors involves new developments in their profession, and therefore alternative designs and work-integrated skills training programmes should be included as well. Site supervisors are the back-bone of construction sites. Besides their technical and managerial competencies, they also need to be able to **deliver on-the-job training for the workers assigned to them** (for details see ***Section 3.1.9***).

▶ Lebanon: Appropriate designs for increased employment in Lebanon

A World Bank financed main road development project aimed to help Lebanon meet its important needs in the road sector, and to create jobs for Lebanese and Syrians and therefore easing the economic and social pressures from the Syrian refugee crisis. The ILO was requested to advise on how to increase the employment impact of capital investments using ILO's experience in employment-intensive infrastructure investments.

For this reason, the ILO experts carried out a review of the standard drawings, specifications and contract conditions to advise alternative design and work methods. On technical standards and designs the main advices were:

- Replacement of concrete retaining walls with stone masonry, concrete block walls and gabions;
- Replacement of unreinforced concrete ditches with cement masonry;
- Replacement of asphalt pavements for sidewalks, service and parking areas with cobble-stones or concrete blocks;
- Applying bioengineering for slope and erosion protection where possible; and
- Carrying out routine maintenance activities using locally available labour.

The World Bank adopted these recommendations for the implementation of the project.

- ***Creation of new recognized skill sets:*** As can be seen from the analysis in Section 1.2.1 there are a number of suggested skill-sets that do not really appear on the list of traditional construction occupations. Such skill-sets need to be promoted and recognized in the sector. Combinations of skill sets from table 6 could lead to full-scale occupations. For example, stone masonry in combination with stone/cement block paving and gabion box installation could become the new occupation "stone construction worker". Another example is "road builder", which could be an occupation that consists of all skills involved in road construction and maintenance.

- ***Identifying funding sources: Usually***, EIIP projects include capacity building in their budgets. However, skills training programmes introduced during the project period will not be sustainable unless reliable and continuous funding can be secured. In general, funding for vocational training can come from a variety of sources, such as: Government commercial/entrepreneurial development funds, subsidies or training grants; Training levies on all construction contracts or other employer contributions; On-going support from development partners; Fees from trainees; and others (for details see ***Section 1.4.3***).

▶ Kenya: Road building, an accredited new occupation

The Kenya Institute of Highways and Building Technology realised that project-based training without any accreditation was not sustainable for the countrywide adoption of local resource-based work methods in particular and road-building skills in general. The Institute also considered the growing need within the private sector for trained and skilled personnel for road works. As a result, the Institute introduced a *Road Builder Craft Learning Programme*.

The duration of the programme is three years. It deals with materials and equipment management, design and drawing skills, public and private sector enterprises, administration and monitoring, and the utilization of local resource-based and equipment-based techniques for road works. The programme is open to school-leavers and staff from government road agencies, consisting of theoretical classroom learning at accredited technical colleges and practical attachments to renowned construction companies.

At the end of the course, successful candidates receive a nationally accredited craft certificate that qualifies them as site supervisors for any type of road construction work, covering both equipment-intensive and labour-based work methods, and for either government or the private sector. After completing this course, those who wish to embark on an academic career can join a diploma course in civil engineering.

2

How to design skills development for EIIPs

▶ 2.1 The design process

Before the implementation of the training programme can be planned and organized in detail, some crucial questions must be clarified (see figure 4).

- Are there already existing training programmes that can be utilized for the EIIP skills development programme? (see ***Section 2.2***)
- Are there barriers to entry for marginalized groups? See ILO Guide on making TVET and skills development inclusive for all? (ILO 2020e)
- What is the content of a comprehensive skills training programme that also includes, core skills, safeguards, labour standards, gender equality and entrepreneurial skills? (see ***Section 2.3***)
- What skills do potential learners already have that can be used in the skills training programme and how can they be identified? (see ***Section 2.4***)
- Are there existing potential training providers and what is their existing capacity to deliver EIIP related skills training at a training institution and at the workplace? (see ***Section 2.5***)
- What are the requirements that must be met for the planned training programme to produce the expected results, including inclusiveness of women, persons with disabilities and other vulnerable groups?
- How can skills training be integrated into the on-going work programme? What are the necessary resources to be considered and what additional support services are required?

▶ Figure 4. Skills development design process for EIIPs

▶ 2.2 Review existing training programmes

There may exist vocational skills training programmes that could be used for skills development in EIIPs. Therefore, it is necessary to identify existing curricula of vocational training programmes that might be relevant for the present project, to review them and find out whether they are suitable for the project or not, or whether they can be modified. The following steps may be taken:

- Identify and collect curricula from existing vocational skills training programmes that could be relevant to the skills required in the present project.
- Compare the learning outcomes described with the skills required in the present project (for potentially applicable skills see ***Section 1.2.1).***
- Analyse the differences between the existing and required training programmes and decide whether or not to utilize the existing programme. It may also be possible to use existing programmes as a basis for developing new or improved programmes in cooperation with the relevant authorities or institutions.
- Check the training entry requirements, particularly with regard to barriers for marginalized groups.
- Check with the training and qualifications authority and training providers whether the identified training programme could be modified or used to formulate a new training programme that meets the requirements of EIIP works. Clarify what the consequences could be (procedure, time, funds).
- Modify an existing curriculum or develop a new curriculum, if necessary, and request approval, if deemed feasible.

The review process should be carried out in a curriculum development workshop with representatives of the training or qualifications authority, identified training providers, representatives of employers' organizations and other stakeholders. Existing training material (textbooks, manuals, presentation material, etc.) besides the actual curriculum should also be part of the review.

▶ 2.3 Design the training content comprehensively

2.3.1 Recognition and inclusion of core skills

Core skills, also called key competencies, are generic skills that are crucial for an individual's employability. They are valid for all types of occupations discussed in this Guide and thus it is important to identify them in order to: a) acknowledge the existence and level of core skills; and b) be able to include core skills development in the intended training programme. Core skills to secure a job, retain employment and progress in the labour market are described in Table 6 (Brewer 2013).

▶ Table 6. Designing training content: Core skills

Broad category	Core work skills/abilities
Learning to learn	▶ think abstractly ▶ use learning techniques to acquire and apply new knowledge and skills ▶ organize, process, and maintain information ▶ interpret and communicate information ▶ pursue independent learning ▶ conduct systematic inquiry; and follow through to find answers ▶ take responsibility for own learning ▶ spend time effectively ▶ stay on task ▶ select the best approach for tasks ▶ begin, follow through and complete tasks ▶ manage own learning ▶ adaptable ▶ works safely ▶ is willing to learn ▶ uses time efficiently without sacrificing quality
Communication	▶ competent in reading ▶ write to the needs of an audience ▶ write effectively in the languages in which the business is conducted ▶ listen and communicate effectively ▶ listen to understand and learn ▶ read independently ▶ read, comprehend and use materials, including graphs, charts, displays ▶ understand and speak the language which the business is conducted ▶ use numeracy effectively ▶ articulate own ideas and vision
Teamwork	▶ interact with co-workers ▶ understand and contribute to the organization's goals ▶ work within the culture of the group ▶ plan and make decisions with others and support the outcomes ▶ work in teams or groups ▶ respect the thoughts and opinions of others in the group ▶ coach, mentor and give feedback ▶ lead effectively ▶ lead when appropriate ▶ mobilize a group for high performance ▶ manage oneself at work ▶ accountability for actions taken ▶ build partnerships and coordinate a variety of experiences ▶ work toward group consensus in decision-making ▶ value others' input ▶ accept feedback ▶ resolve conflicts
Problem solving	▶ think creatively ▶ solve problems independently ▶ test assumptions ▶ identify problems ▶ take the context of data and circumstances into account ▶ adapt to new circumstances ▶ ability to identify and suggest new ideas to get the job done (initiative) ▶ collect, analyse and organize information (planning and organization) ▶ ability to plan and manage time, money and other resources to achieve goals

In one way or the other most of the above core skills are required for the occupations listed for effective and efficient EIIP work implementation. However, particular core skills that seem to be generally important for employability (Brewer and Comyn 2015) are:

- Communication
- Teamwork
- Problem solving
- Entrepreneurship (see ***Section 2.3.3)***
- Numeracy
- Occupational safety and health
- Ability to plan and organize

The table of EIIP relevant occupations in ***Annex 2*** suggests the core skills required for the listed skill sets or occupations. ***Annex 4*** provides a typical skills profiling questionnaire that also includes core skills.

When developing curricula for EIIP skills learning programmes, core competences must be an integral part and therefore need to be carefully assessed. Core skills cannot be achieved or enhanced through one or two training sessions, but only through a continuous and integrated learning process throughout all work and training phases. It is therefore important to ensure that core competencies are not only mentioned in the curricula but are also incorporated into the teaching/lesson plans (e.g., using templates), the training methods, and the assessment system. It is equally important to ensure that the development of core competencies is integrated into the training of trainers.

2.3.2 Inclusion of safeguards and labour standards

Social and environmental safeguards are meant to prevent and mitigate a wide variety of possible negative impacts of infrastructure and green works. As such they need to be integrated into any type of training that is undertaken through EIIPs.

▶ ILO's Decent Work Agenda

Productive employment and decent work are key elements to achieving a fair globalization and poverty reduction. The ILO has developed an agenda for the community of work looking at job creation, rights at work, social protection and social dialogue, with gender equality as a cross-cutting objective.

Decent Work is defined as productive work for women and men in conditions of freedom, equity, security and human dignity. Decent work involves opportunities for work that: i) are productive and provide a fair income paid on time; ii) provide security in the workplace and social protection for workers and their families; iii) offer prospects for personal development and encourage social integration; iv) give people the freedom to express their concerns, to organize and to participate in decision-making that affects their lives; v) protect against exploitation of the under-age; and vi) guarantee equal opportunities and treatment for all.

Social and environmental safeguards may also include specific measures to remove barriers against disadvantaged groups and thereby serve to increase economic, social and environmental benefits among all stakeholders. Social safeguards are essentially guided by universal values promoting sustainable development, upholding basic human rights as well as seeking compliance with international labour standards.

▶ Fundamental principles and rights at work (ILO)

Basic labour standards also apply to workers employed in the construction industry. Local contractors are expected to observe national labour legislation and its related regulations.

Four categories of principles are universally echoed and reaffirmed in international declarations, international trade agreements, business-to-business terms of engagement and contract, collective agreements, national and international financing agreements, as well as national laws and any sector specific codes of conduct. These are:

- freedom of association and the effective recognition of the right to collective bargaining;
- freedom from all forms of forced or compulsory labour;
- freedom from work as a child; and
- freedom from discrimination in respect of employment and occupation (which may include discrimination based on sex, race and ethnicity, nationality and the case of migrant workers, religion, political opinion, social origin, disability, etc.).

In addition, there are particular concerns related to local resource-based works in respect of minimum wages, protection of wages and safety and health.

Table 7 lists safeguards for integrated EIIP vocational skills training programmes that can be practically applied in the daily work process.

▶ Table 7. Relevant safeguards for EIIP vocational skills development

Safeguards relevant for inclusion in EIIP vocational skills development programmes	
Social safeguards On site	▶ Recruitment and conditions of employment; ▶ Gender-equitable participation and outcomes; and ▶ Protection of wages. ▶ **Reference for detailed information:** *Developing the Construction Industry for Employment-Intensive Infrastructure Investments. Geneva: EIIP (ILO 2019a), and Building a Gender-equitable Future Through Employment-Intensive Investment Programmes. Policy Brief.* Geneva: EIIP (ILO 2019b).
Occupational safety and health On site (particular attention required)	▶ Safety and health hazards: mechanical, biological, chemical and ergonomic; ▶ Personal protection equipment for use on site; ▶ Safety measures on site including first aid; ▶ Traffic control on road sites; and ▶ HIV-related measures and other safeguards related in dealing with infectious diseases, e.g., Covid-19, Cholera, Ebola, etc. ▶ **Reference for useful information:** *Basic Safety and Health Guidelines for Rural Road Works*. Dili (ILO 2018a).
Environmental safeguards On site	▶ Safe disposal of construction waste and refuse; ▶ Safe and economic equipment handling and maintenance; ▶ Dust suppression; and ▶ Cleanliness on site. ▶ **Reference for useful information:** various ILO guides and training manuals depending on type of work

2.3.3 Inclusion of entrepreneurial skills

The EIIP's vocational skills training programme can be complemented with the development of entrepreneurial skills. Some of the learners may be interested in starting their own business and therefore want to be prepared with the necessary knowledge of how to start and run it. In fact, most of the identified infrastructure occupations (see ***Section 1.2.1***) can be the basis for an own business. There are basically two options:

a. Becoming a construction sub-contractor with the option to grow and become an independent small-scale contractor and possibly grow even further. This applies to most of the construction skills and occupations (***Table 3*** → A1 to A9 plus B1).

b. Establishing an independent business as for public services and supply or manufacture of building materials (***Table 3*** → B2 and B3 plus C1 to C6).

▶ Supply of locally available materials by community enterprises

Local communities can play a useful role in the supply of locally available building material. For example, they can excavate, process, transport and store materials such as stone, aggregate, sand and timber at locations that are accessible to trucks. Community based material extraction can be at quite a large scale, forming an integral part of the local construction industry.

Typical examples are building stone, crushed aggregate from coral materials or even sandstone façade tiles. Fabrication of gabion boxes by community groups is another good example how manufacturing can be organized at local level. These activities are thriving and can result in additional steady income to local communities.

There are a number of basic entrepreneurial competencies that are required to establish an own firm, such as:

- developing a business plan;
- financing the business and opening a business bank account;
- acquiring permits, licences, insurances, bonds, etc., and registering the firm;
- preparing and reading accounts (bookkeeping) and managing the cash-flow;
- calculating costs and developing prices;
- purchasing material, tools, equipment;
- setting up workshop/production site/shop;
- managing the business administration;
- managing employees/workers;
- work programming and time management; and
- marketing and communicating with clients.

The development of entrepreneurial skills can, of course, also be part of any other skills training programme that is not directly related to the implementation of EIIP infrastructure works. For example, it can be combined with handicraft, hairdressing, joinery, tree cutting and sawing, plant rearing, and many more occupational trainings. The ILO's *Know About Business programme* has been integrated in many technical and vocational skills development programmes globally. The development of entrepreneurial skills can also be offered as a stand-alone training course. The ILO has developed toolkits to train entrepreneurial skills such as *Start and Improve your business (SIYB)* or *Get Ahead for women*. See also the *Implementation Guide for SCORE Training* (Ulrich 2016).

▶ Case Study 7 Mali: EIIPs, the PEJHIMO Project Employment-Intensive and Infrastructure Programmes in Mali

Project information

The Agency for the Promotion of Youth Employment (APEJ) implemented a national youth employment programme targeting disadvantaged youth through the EIIP PEJHIMO project. Financed by the Grand Duchy of Luxembourg and implemented by APEJ with ILO technical assistance, its first phase created more than 70,517 working days since 2006 through irrigation works, marketing of agricultural products, renovation and maintenance of rural roads, and extraction of quarry stones used for road surfacing.

The programme uses an on-the-job learning approach called "Chantiers École" and collaborates with technical training programmes that integrate modules on the EIIP approach. Moreover, vocational training institutions have integrated the "Chantiers-École" approach. The PEJHIMO project demonstrated how labour-based work coupled with skills training improves employability of participants by giving them initial work experience and skills acquired on the job. It also provided entrepreneurship skills and therefore facilitated self-employment of youth after the programme.

Project evaluations highlighted the need to continue investment in the capacity of trainers to ensure the quality of skills development on-the-job, and sustained learning through improved teaching materials such as manuals, booklets, and documents given to learners at the end of the training. Strengthened partnerships with the National Directorate of Vocational Training to monitor training quality were also recommended.

Sources: *Government of Mali. Ministère de l'Emploi et de la Formation Professionnelle: . APEJ HIMO – Haute Intensité de Main d'Œuvre (2010); Rapport d'évaluation finale du Programme Emploi-Jeunes (PEJ) (2009); Rapport définitif, Secrétariat Général Programme Emploi-Jeunes (PEJII) – Document-Cadre (2011-2015), version finale, Bamako, Document-Cadre de la Politique Nationale de l'Emploi; PEJIMO, Capitalization des acquis du PEJIMO, Mimeo, Bamako (2011).*

▶ 2.4 Ensure existing skills of workers are taken into account

The workers of an EIIP project are a diverse group of potential learners for the vocational skills development programme. For example, their educational background may range from illiterate to university graduate. It is therefore obvious that the workers employed for EIIPs already have a certain amount of knowledge, different skills and life experiences that they have acquired so far. A careful assessment should be carried out and used for the design and implementation of the skills training programme. In addition, selection criteria for participation in the various skills training programmes must be defined.

Learning is universal and happens throughout life. Many of the regular activities done in the home, in the community, or recreationally provide the core skills that result in learning outcomes. Other learning outcomes come through on-the-job training, informal apprenticeship, participation in community organization etc. Most of them are not officially recognized and there is no certification for acquired knowledge, skills and experiences (ILO 2012).

Some countries have **Recognition of Prior Learning (PRL) systems** in place that acknowledge that skills can be acquired in different ways, forms and settings. RPL is a process, which relies on an assessment of learning outcomes to formally recognize skills and competencies and provide full or partial qualifications. Through RPL, learning outcomes can be assessed, not the learning itself (or where or how it took place). In some countries RPL is an official standard procedure that can be utilized for the purpose of an EIIP skill development programme and certify skills at the beginning of the programme to make best use of existing skills of workers. Or it can be offered to workers after the EIIP skills development programme to enhance their employability through a formal qualification. Often, guidance and counselling forms part of the RPL process so that candidates receive individual feedback on the skills they possess or still need to build.

▶ **Reference for detailed information:** *Recognition of Prior Learning (RPL): Learning Package; ILO, Skills and Employability Branch* (ILO 2018b).

In countries where RPL does not exist, candidates' skills need to be profiled at the beginning of the programme and compared to the expected learning outcomes of those occupations that are required for the implementation of the project. To ensure focused and effective integrated EIIP skills training it is important to be fully aware of skills required and those that are added to ensure further employability (for details see ***Section 1.2.1).***

A* skills profiling exercise would have to focus on identifying existing: i) Core skills (for details see *Section 2.3.1); ii) Knowledge (educational background); iii) Practical skills, and iv) Prior jobs (work experiences). This information can be obtained when recruiting workers through a simple standard questionnaire (for more information on skills and training needs assessment see ***Section 3.1.3 and a typical skills profiling questionnaire in Annex 4***).

▶ Case Study 8
Timor-Leste: Identifying existing skills among community members

Background

The ILO's capacity-building programmes had undergone an evolutionary process in the construction sector in Timor-Leste. It started with emergency employment and peace-building programmes and providing food during crisis and turned into cash for work and eventually the structured EIIPs during peace time.

EIIPs that began in 2004, found limited technical capacity to implement and supervise road works, and thus the focus was on developing capacity within relevant government institutions to implement the works. ILO experts built capacity within institutions to plan, implement, manage and deliver infrastructure projects.

Integrated skills training for labourers

The approach initially involved public works units to implement road improvement works. ILO experts trained government staff to supervise, who in-turn instructed labourers, and also transferred some skills to labourers. From this a cadre of skilled labourers evolved, such as gang-leaders, semi-skilled or skilled labourers, who were then able to use the skills within the community or elsewhere. For reasons of sustainability the programme later expanded to involve capacity

Workers receiving instructions

building of the private sector, in order to enhance infrastructure delivery and maintenance. The ILO Enhancing Rural Access (ERA) programme was involved in establishing capacity through the Don-Bosco Training Centre and the Institute for Business Support (IADE) to capacitate contractors in technical and business management aspects. The contractors' technical and supervisory personnel were taught, as part of their training programmes, how to teach construction skills and enable community workers to carry out the work effectively.

The normal practice has been to identify people with prior knowledge and skills within a community, e.g., masons and carpenters and then engage them, or where necessary capacitate them to carry out work to the required specifications together with low-skilled labourers. Where those skills were not present, skilled people from other areas worked with those in the community and developed the necessary skills. Other skills such as setting-out, concrete mixing, gabion fixing and various operations in labour-based surfacing were trained on-the-job. Those with appropriate skills were encouraged to work together and form Community Maintenance Groups. The following activities were found applicable for skills development: setting out; stone masonry; concreting; gabion fixing; carpentry; gravelling, etc.

Masons trained on-the-job

Results and impact

The objectives of the EIIPs were primarily to create jobs, rehabilitate and maintain roads and build the capacity of public sector personnel and contractors with their technical staff. The training was not specifically targeted at the workers but indirectly through the training of the staff of contractors, who in turn trained the workers.

The training programme for contractors and site managers was particularly successful. Through accredited and well institutionalized courses, a number of former workers were able to progress from casual workers to skilled workers, then to managers and in some cases even to construction contractors. Many workers who learned a skill found employment with contractors relatively easily.

A story of Sergio Babo

Sergio Babo completed his Technical High School Education in 2007. At the time he was unfortunately not able to further his career. In 2010 he got an opportunity to work with a Contractor on an ILO Project. He was trained on-the-job to plan worksite activities. His technical background was a valuable asset for reading and interpreting drawings. This enabled him to be trained in the ERA project as a Supervisor for Linoel Unip Lda. He later worked for the Don Bosco Foundation. Sergio acquired both technical and management skills that allowed him to support the Project Engineer with Buibel Unip. Lda as a Site Agent on various rural road projects.

A story of Jacob Linu Maria Gomes

Jacob Linu Maria Gomes finished Senior High School Education in 2001, but did not manage to secure a meaningful job until the TIM-Works Project in 2007, where he was given an opportunity to be a Gang Leader supervising other workers. This was the beginning of his career, where his skills were recognized by the project engineer and he was involved in setting-out activities and other field-related works in four different TIM-Works projects at until 2011. Following the shift from extra work force-account operations to contracting in 2014, Jacob managed to secure a job as Supervisor with the contractor firm Lamegua Star Unip Lda. where he received training from the ERA training programme and then worked in various capacities as a Supervisor with seven different contractor companies implementing rural road projects.

▶ 2.5 Assess capacity of training providers

2.5.1 Capacity of vocational training institutions

Besides identifying existing training programmes, it is particularly important to find out whether there are Technical and Vocational Education and Training (TVET) institutions that are capable of delivering them. These might be public or private institutions. In some cases, even contractor associations offer vocational training. The national training agency or regulatory body should be able to advise which TVET institutions can deliver the identified programmes. Often technical and/or vocational training is gender-segregated. Therefore, attention should be paid that training of local providers is accessible to both genders.

This will depend on:

- institutional set-up and management capacity;
- capacity of instructors/trainers and their qualifications;
- facilities in terms of classrooms, workshops laboratory, library and/or access to practical sites, learning equipment, and accessibility;
- accommodation, catering and recreation facilities;
- transport facilities, and distance to settlements/villages etc.; and
- capacity to prepare the required training material.

Furthermore, a qualified TVET institution should also be able to develop and introduce an on-the-job learning programme and prepare the contractors' site supervisors to become workplace trainers.

It is rarely possible to find an institution with the capacity to provide all the above services competently without support. However, alternative arrangements are possible (see ***Section 1.3*** for details).

2.5.2 Capacity to train on the workplace

Most of the skills training is carried out on the workplace through on-the-job learning. In order to ensure the desired learning outcomes, it is necessary to have qualified work supervisors and/or master craftspersons on site who are trained as workplace trainers and can spend sufficient time with the learners. Workplace trainers must be able to implement an on-site learning programme, possibly prepared by a master trainer. (How work-place trainers can be trained is explained in ***Section 3.1.8***).

▶ 2.6 Consider important preconditions for effective training

- Before the actual vocational skills training programme can be carried out, important conditions must be met to ensure effective training results, for example:
- ensured funding arrangements;
- defined technical standards and work norms;
- enabling contractual conditions and arrangements;
- identified and committed training provider(s); and
- informed government officials, engineers, contractors, etc.

(For detailed information see ***Section 1.4***)

▶ 2.7 Plan for time, resources and support

The main objectives of most EIIP infrastructure and environmental programmes are to build or maintain rural and urban infrastructure using locally available resources and to create productive and decent jobs for the local communities. Training of decision-makers and managers, engineers, technicians, work supervisors and contractors is usually part of the overall capacity development strategy and therefore sufficient resources and learning programmes are included in the overall project/programme plan and budget. When planning an integrated vocational skills training programme, additional requirements must be taken into account, such as:

- **Time requirement and work programming:** Skill training can be time consuming. Although much of it can be done on-the-job, theoretical sessions, special practical exercises and additional subjects require extra time that needs to be planned for. This is not only an issue to be considered when planning the training interventions, but also for programming the actual works on site. When drawing up the workplan, the contractor must provide for training sessions during and possibly after work on site and for the involvement of his staff in on-the-job training. This training plan needs to be mindful of the different time constraints that female beneficiaries may have due to additional care and household responsibilities.
- **Resources and costs:** Depending on the content and format of the skills training programme additional resources in terms of tools, material, equipment and transport may be required. Extra resources, training competence and project time have an impact on the project costs. For work-based training it is important to ensure sufficient allowance either in the unit rates or through separate items in the Bill of Quantities (BoQ) (for more information see ***Section 3.1.7).***
- **Integration of vocational skills training requirements in the procurement process:** As shown in the following table, appropriate measures must be taken throughout the contract procurement process in ***Table 8***.

▶ Table 8. Steps for integrating vocational skills requirements in contract procurement

Procurement process step	Recommended steps for training requirement
1. Planning the procurement process	**Prepare document** describing scope of work-based training requirement, link to national training framework, and responsibilities of the contractor. **Designate training expert** as point of contact for procurement expert to clarify training-related questions during the procurement process.
2. Preparation of the bidding document	Transfer information on training requirement into the Standard Bidding Document (SBD), i.e. particular conditions of contract. Transfer information on training requirement from SBD to Invitation to Bid.
3. Pre-bid meeting	Invite training expert/institution to deliver briefing on training requirement and to answer bidder questions.
4. Site meeting	No relevant action.
5. Requests for clarifications	The training expert/institution to provide the technical input for responses to requests for clarification related to the training.
6. Bid opening	No relevant action.
7. Bid evaluation	Training expert to be available for training-related questions from Bid-Evaluation Committee.
8. Contracting	The bidding document is included as an appendix to the contract. The document provides the contract with guidance and conditions in regard to the training requirement.
9. Hand-over from procurement team to contract implementation team	The training expert/institution participates in the hand-over meeting: Plan for implementation draft monitoring plan and assign responsibilities.
10. Initial meeting with project and contractor	Training expert/institution ensures that the training provision including responsibilities are part of the implementation plan.

Source: GIZ 2020.

▶ Support functions by the support unit

Developing and implementing the training programme usually requires external expertise, e.g., from a programme support unit or a recognised vocational training authority. This may include:

- Reviewing/developing curricula;
- Preparing training material (learners' material and instructional material);
- Developing and implementing training administration procedures and formats;
- Programming and organizing the training;
- Training and coaching the contractors and their work supervisors to be able to implement skills training through the work process;
- Providing special training inputs and follow-ups;
- Carrying out intermediate performance evaluations.

- **Cultural, physiological and psychological context:** EIIPs are implemented in different cultural, political and climatic settings that need to be considered in the planning and implementation process of skills training. In particular when implemented in fragile contexts or with groups of forcibly displaced populations and host communities, interventions need to be mindful of possible conflicts and ensure that training and work contributes to peaceful coexistence and social cohesion (ILO 2020f).
- **Support capacity:** Integrated training programmes depend heavily on the technical and managerial capacity of the project support unit, usually through a technical assistance arrangement. The members of this support team must be adequately prepared for the vocational skills training programme through continuous internal training and coaching by experts and specialists in specific areas. Furthermore, technical solutions, standards and working methods must be well developed and documented.

3

How to implement vocational skills training in EIIPs?

Vocational skills training can be integrated into EIIP projects through a comprehensive preparation and planning process and adapted organizational and implementation arrangements.

▶ 3.1 Planning and organizing the training

3.1.1 The planning and preparation process

- A successful training programme depends to a large extent on careful planning and preparations. This process is demanding, time-consuming and therefore requires the necessary attention from programme managers and all stakeholders.
- Figure 5 provides an overview of the required preparatory and planning activities that the EIIP programme manager needs to initiate and facilitate. Detailed descriptions are provided in the following sections, with the design process for EIIPs depicted in figure 4.

3.1.2 Analysing the job

- After selecting the occupations to be included in the vocational skills training programme (ref. ***Section 1.2.1***), the individual job tasks need to be identified for each skills-set or occupation.
- ***Annex 2*** (classification of EIIP relevant skill-sets/occupations) provides guidance for determining the job tasks and the therefore required competencies. A job analysis is best carried out by a team of practitioners, (e.g., contractors and their site supervisory staff together with trainers from vocational training institutes) who have first-hand experience in performing, instructing or monitoring the skills in question. This process has to be facilitated by a competent trainer.
- A possible method of analysing the job is to develop a job profile by listing all job tasks with the therefore required competencies and respective performance levels. It may also be necessary to further analyse the individual tasks in terms of Difficulty, Importance and Frequency (DIF rating) as this can have a significant impact on training planning and implementation. For example, a task may be moderately difficult, very important and frequently required. The consequence is that training should pay more attention to this task than to a task that is very difficult, not really important and not frequent.
- When utilizing existing recognized occupations and qualification standards it is necessary to carefully analyse the standard competencies vis-à-vis the ones actually required to carry out the works. There may be differences that need to be discussed and agreed with the training or qualifications authority to ensure compliance with the qualification standards.

▶ **Figure 5. Planning Activities**

3.1.3 Assessing the skills and training needs

Training needs are the gaps between the existing and desired levels of competencies. Training Needs Assessments (TNA) form the basis for any training, whether it is for an already existing and accredited programme or for a new training programme. For existing programmes, it is important to identify to what extent, to what depth and with which method learners should be taught. While skill needs analysis happens at the level of sectors, at national or local level, a TNA is conducted at individual level. For new courses, skill needs for the required occupation form the basis for developing the curriculum and determining the appropriate training methodology and programme.

▶ Guiding questions 4 for a skill needs analysis

- What **skills and occupations** are required? The job profile and analysis of required competencies (see Section 3.1.2 above) provides this information.
- Is there a shortage **on the market?**
- How many need training?

Guiding questions for a training needs analysis (TNA):

- **Who** needs training?
- **What** can the person do now? (For more details on RPL and skills profiling refer to ***Section 2.4***)
- **What training** do they need?

The gap between the two defines the training interventions and allows for decisions on:

- Target audience,
- Content and method of training,
- Timeframe for the training process; and how to evaluate training outcomes.

When planning an integrated vocational skills training programme, it is particularly important to carefully assess the knowledge and skills that workers may already have. The training programme must also be planned to meet the level of the existing competencies. For example, experience from many training programmes has shown that it is necessary to start with **special sessions on numeracy**, common units of measurement, and calculations of lengths, areas, volumes, weights and slopes to ensure that all learners are at a similar level of understanding to start the actual skill training.

3.1.4 Organizing training providers and partners for support

Effective partnership and support arrangements are described in ***Section 1.3.2.*** However, the first step is to select the right partner organizations and commit them to participate in the programme. The most important are:

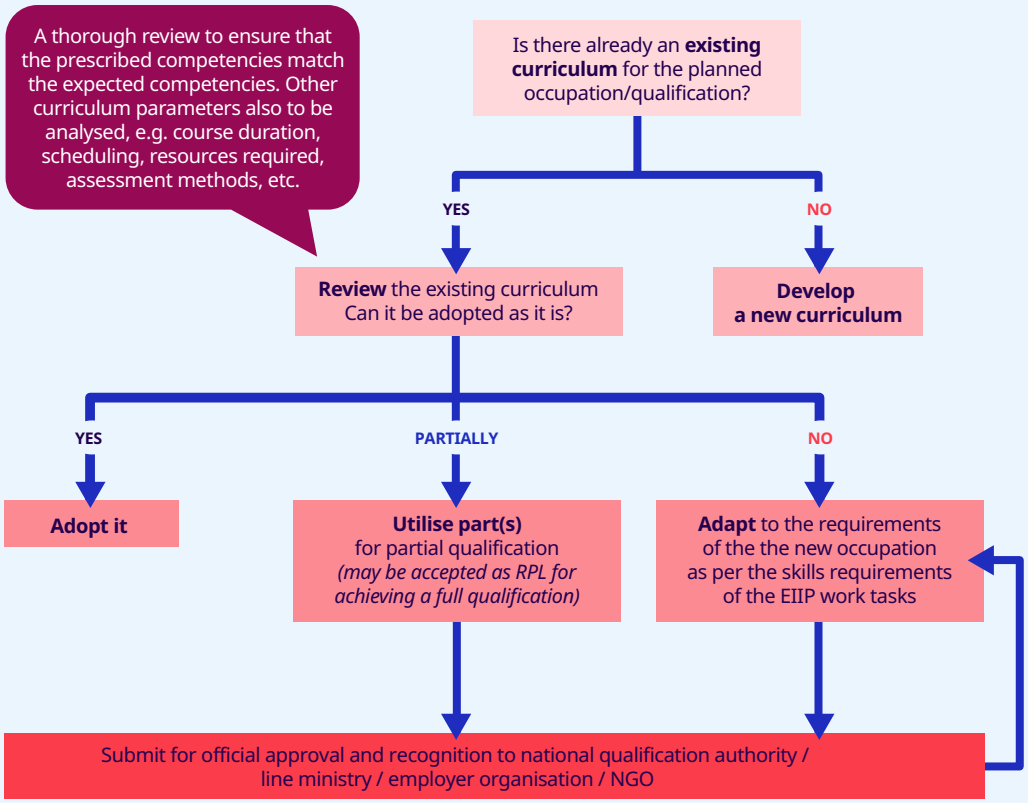
- The vital partners for vocational skills training programmes are established and recognized **Technical Education and Vocational Training** (TVET) institutions (see ***Section 2.1.2*** for details and to ***Annex 3*** for suggested selection criteria).
- Suitable **training institutions** have to be also identified for the training of government officials, engineers and technician as well as for contractors and their supervisory staff.
- Essential is the collaboration with the **training or quali cations authority** for curriculum development and accreditation/certification including the **testing/assessor and certi cation authority** (they might be different authorities).
- **Line ministries and implementing agencies** are not only the main partners for public infrastructure works, but also for the development and integration of appropriate capacity-building programmes. Their participation is crucial for allocating sufficient resources to works integrated training. Work contracts must include training activities and the therefore required resources. Occupations and skills must be recognized and made a condition for submitting and winning a contract.
- **Contractor associations** are important partners whose approval and support for the integration of learning programmes into the work process and the identification of the skills to be trained must be ensured. In principle the demand for occupations/skills must come from the construction industry.

3.1.5 Reviewing and developing the curricula

Reviewing an existing curriculum or developing a new one is the most important element of designing a learning programme. A training curriculum refers generally to the expected competencies acquired during a learning programme. It may include learning standards and objectives, courses and lessons, assignments and projects given to the learners, the course material and how the training is evaluated (see figure 6).

- For **accredited, formal courses,** the format, content and method of developing curricula is regulated by the **national training or quali cations authority.**
- For **non-accredited, non-formal courses** a curriculum can be prescribed according to the needs as perceived by a **competent training provider** (e.g., government or NGO)**, line ministry, employer organization** (e.g., contractor association)**, or a support agency** (e.g., chamber of commerce).

▶ **Figure 6. Curriculum review process**



Reviewing or developing a curriculum is a participatory process for ensuring that the needs and interests of the learner, institution, employer, profession, society and the government are considered. The national training or qualifications authority normally regulates the applicable procedure for accredited training. Procedures for non-accredited training may be specified by the respective training institutions, line ministries, associations or support agencies. A typical curriculum of a formal accredited course is presented in ***Annex 5*** (Kenya: Cobblestone Pavement Paver, Trade Area Competence, Skills Upgrading).

3.1.6 Planning and preparing the resources

The planning and preparation of training resources includes all activities necessary for the effective implementation of the training programme, such as shown in table 9:

▶Table 9. Checklist vocational skills training resources

Checklist for vocational skills training resources	
Trainers	▶ Vocational trainers/instructors (professional trainers) ▶ Workplace trainers (contractors' site supervisors, work-group leaders) ➔ Qualification requirements are described in **Section 3.1.9**
Facilities	▶ Classrooms for **theoretical training** sessions. Depending on the type and extent of theoretical training, classrooms can vary from fully equipped as in well-established training institutions to arrangements "under a tree". ▶ Workshops or demonstration/training sites for the **practical training** required for practicing skills under "real-life conditions" ▶ Appropriate worksites for **on-the-job training** (employment by a contractor) ▶ **Accommodation** may be required for learners to attend classes at training institutions
Training aids	▶ Equipment for theoretical training, e.g.: ▶ projector; ▶ black/white board; ▶ flipchart, demonstration posters; ▶ IT facilities, etc. ▶ Equipment for **practical training**, e.g.: ▶ measuring tools/instruments/templates; ▶ quality standard handtools; ▶ quality material samples; ▶ personal protective equipment; ▶ site safety and security equipment; ▶ demonstration posters, flipchart, etc.
Training programme and administration	▶ Curriculum (ref. Section 3.1.6). ▶ Training programme (timetable) for all training phases (theory, practical, on-the-job, tests). ▶ Lesson plans for formal training (theoretical and practical sessions). ▶ Test guidelines and formats ▶ Training records and reports, e.g.: ▶ list of learners and/or learners' portfolios; ▶ training agreement/contract formats; ▶ records of trainers and workplace trainers; ▶ attendance records; ▶ reporting formats (progress, performance, expenditures); ▶ resource records; and ▶ procedural guidelines, etc.

Checklist for vocational skills training resources	
Learning/training and reference material	▶ For learners: ▶ trainee's learning manuals/modules; ▶ task sheets (for exercises); ▶ field reference handbook/worksheets; and ▶ if needed technical and work procedural reference documents (e.g., equipment operating instructions, assembly instructions). ▶ For trainers/instructors: ▶ trainee's learning manuals/modules; ▶ trainer's manual/guideline; ▶ task sheets (for exercises) with samples; ▶ field reference handbook/worksheets; ▶ subject reference material; ▶ training aids for those who may need them; ▶ if needed technical and work procedural reference documents (e.g., equipment operating instructions, assembly instructions); and ▶ test and performance assessment formats including guidelines. ▶ For workplace trainers: ▶ guidelines for on-the-job coaching; ▶ coaching plans/programme; ▶ trainee's learning manuals/modules; ▶ field reference handbook/work sheets; and ▶ assessment formats for practical performance including guidelines.
Training evaluation and tracing	▶ Training records, e.g.: ▶ details of trainees; ▶ details on trainers/instructors and recourse persons; ▶ course/training reports; and ▶ qualification records. ▶ Administrative records, e.g.: ▶ licenses, registrations and accreditation evidence; ▶ physical resources; ▶ accounting/bookkeeping records; ▶ financial audit reports; ▶ insurance policies.
Transport	▶ Transport may be required for: ▶ leaners to attend theoretical sessions or site visits; ▶ transporting training aids, tools, equipment and materials; and ▶ trainers to visit worksites.
Funds	➔ for details see **Section 3.1.8**

3.1.7 Costing the training

Estimating the cost of vocational training is a complex matter, especially when it is integrated into an on-going work process and when different actors are involved in delivering the training. In the case of vocational skills training integrated in EIIPs the services of up to three training implementation partners have to be considered:

The **Programme Support Unit (PMU): Most if not all** EIIPs are supported through technical assistance arrangements. Capacity building is usually one of the main objectives of a PMU. An integrated vocational training programme is one of the capacity-building tasks that absorbs a significant part of the resources provided. Normally, the training programme is only one element of the overall capacity development programme. A precise separation of the costs for the different capacity development tasks is therefore not really practicable. Consequently, reasonable assumptions are best suited to determine the costs resulting from the PMU services.

- The **vocational training institution:** Wherever possible, nationally recognized vocational training institutions should be considered for the provision of skill training. However, their ability to provide this type of training may need to be developed first. This comes with a cost that needs to be considered as well.

- The **contractor:** In most cases contractors carry out works for EIIP infrastructure programmes. Integrated vocational skills training activities are an addition to the normal contract work and therefore generate extra costs. In addition, the contractor's ability to provide high quality on-the-job training must first be developed.

Depending on the actual arrangements for implementing an integrated vocational skills training programme, the following cost items may arise, as shown in Table 10:

▶ Table 10. Cost items for vocational skills training

Cost items for developing and introducing a new vocational skills training programme
1. Curriculum review or development (see **Section 3.1.5** for details);
2. Accreditation process by national qualification authority – if pursued;
3. Capacity building for vocational training institution(s), including training of trainers (see Section 2.5 for details);
4. Contractors' capacity development for on-the-job training (see Section 2.5 for details); and
5. Development of learning/training material (see **Table 9** for details).
Cost items for the actual implementation of a training programme
1. Provision of learning material;
2. Training programming including course plans;
3. Provision of training aids (see Table 9 for details);
4. Provision of training by vocational training institution;
5. Hiring training facilities (required if classroom and other facilities are needed for training sessions not held by a training institution – see Table 9 for details);
6. Hiring the services of external resource persons, e.g., medical doctor for first aid training, expert on OSH, agricultural extension officer, insurance expert, etc.;
7. Transport and travel (see Table 9 for details);
8. Accommodation and food;
9. Insurances (as required by national law);
10. On-the-job training costs by the contractor, such as for additional time for the site supervisor acting as a workplace trainer, extra tools/equipment and personal protection equipment, additional administration and transport expenses, unproductive time of the learners, etc.; and
11. Training assessments and/or testing by training or qualifications authority.

Commonly used **units of costs** for vocational training are **cost per learner** and **cost per instruction hour**. Cost per learner is the most widely used unit in planning vocational training. In order to realistically compare costs, however, **costs per learner and hour or day** are best suited.

3.1.8 Training of trainers

Skills training in EIIPs is usually an integral part of infrastructure works. Skills development is usually provided by: i) qualified vocational trainers working for training institutions; and ii) site supervisors or qualified artisans who are employed by the contractors with the additional qualification of workplace trainer. Vocational trainers and workplace trainers must be prepared for their training duties in EIIPs and have to be able to work together. However, they have different training or preparation needs in order to be able to provide the required training inputs.

Vocational trainers/instructors are qualified trainers working for a recognized vocational training institution. They have to be fully conversant with all knowledge and skill competencies for the occupation to be instructed. They usually have the required methodical and didactical competence, but not necessarily the technical knowledge and skills for the new or specific occupations or skill sets to be trained. Vocational trainers usually require a thorough preparation and "gap-filling" training for the skills to be trained. The actual training needs may be different for each training programme and thus have to be carefully assessed.

▶ Kenya: How to become a competent construction instructor

To qualify as a competent construction instructor at the Kisii Training Centre (KTC) in Kenya, candidates have to undergo a rigorous training programme. Entry requirement is a higher diploma in civil engineering. After acceptance by KTC, the new entrants are first attached to an on-going training site to learn practically labour-based road construction techniques. They are also attached to senior instructors who provide guidance on practical and theoretical training.

After this first phase of practical learning, the instructor trainees attend the Kenya Technical Teachers College for a one-year course to attain a diploma in Technical Teacher Education. Alternatively there is a course at the college that combines the teacher diploma with a higher civil engineering diploma in which candidates go through a four-year learning programme. Candidates need to have both diplomas to be accepted as an instructor at KTC. Even when meeting these requirements, new instructors are first given an apprentice role to gain sufficient on-the-job experience before they are regarded as a fully qualified instructor. They will be given the full responsibility as a course guide only after some years of this practical experience. On average, it takes 3–5 years to reach this level of competence.

Generally, their preparation training includes theoretical knowledge for all subjects related to the occupation and the practical skills as specified in the relevant job profile and curriculum. They should also be guided on how to cooperate with the workplace trainers during the on-the-job training phase. The training programme of vocational trainers needs to be structured in such a way that it can be effectively integrated into the implementation of the EIIP programme to be undertaken:

During the planning phase of the EIIP programme, trainers must be briefed of:

- the EIIP programme to be undertaken;
- the LRB work methods and applicable technical standards (ideally including a visit to an on-going LRB worksite);
- the social and environmental safeguards, including the applicable labour standards, gender equality and the occupational health and safety requirements to be met; and
- the training arrangements that are made and their role in this.

Before starting the actual work, trainers must be adequately prepared. Their training may include the following:

- an introduction to the curriculum, the proposed training programme and the learning material, if already available;
- knowledge and practical skills competencies of the occupations to be trained;
- the detailed arrangements for the integrated training programme including roles and responsibilities of the implementation partners and the administrative requirements;
- gender and diversity training and learner-centred pedagogy to address different learning needs of vulnerable people; and
- if possible, a practical attachment to an on-going construction site to gain first-hand work experience and to get familiarized with working with the workplace trainers.

During the implementation of the training programme, trainers require continued support and their inputs need to be well coordinated. The PMU or programme management may need to organize intermediate follow-up training sessions or workshops to address upcoming challenges or shortcomings. Regular meetings between the trainers, workplace trainers, the contractor and the PMU are helpful.

In most EIIPs the workplace trainers are qualified construction site supervisors or qualified artisans usually employed by contractors. They have all necessary competencies to competently carry out their job under the guidance of their employer or superior. What they lack is how to effectively train their workforce, especially vocational skills using appropriate on-the-job training methods. Therefore, they must learn how to teach applied occupational knowledge and skills on the worksite. This means that workplace trainers must be able to appropriately communicate with the learners, explain and demonstrate each work step clearly, monitor and correct the learners' activities, and assess and report on their performance, in a gender, disability and inclusion sensitive manner. The workplace trainers must also be able to work together with the vocational trainers and all other training experts involved in the training process. In principle, workplace trainers need a "crash-course" on how to deliver training on the job.

- One of the hurdles to be overcome is to convince the contractor to allow his/her employees to participate in training so that they can become workplace trainers. Prior awareness raising and negotiation may still be required, although the provision of workplace trainers should be a bid submission requirement and a contractual condition.
  - The training of workplace trainers may be combined with the pre-bid training for contractors that is often organized for EIIPs.
  - During the implementation of the works, the workplace trainers must be supported with coaching services from the PMU or the programme management. It is advisable to agree with the contractor and his workplace trainers on a coaching plan in coordination with the vocational trainers.
  - Trained workplace trainers should, whenever possible, receive a certificate of competence or at least a letter of recognition for their additional skills.

In some cases, EIIP works may not be carried out by registered and licenced contractors, but directly by an EIIP implementation unit or community groups. In both cases, the workplace trainers must be recruited separately and need to be trained if they do not have the necessary qualifications.

▶ Case Study 9
Kenya: Training of trainers for chisellers, pavers and do-nou technology workers

Background and Programme information

The Kenyan Road Authorities have been trying different types of road paving options in order to enhance quality of works and maximize employment opportunities for the rural and urban poor. These include options like the cobblestone paving and Do-nou technology.

The Government of Kenya with funding from the Government of Japan and with technical assistance from the ILO undertook in 2012/13 a youth employment programme to empower young women and men to participate in addressing the socio-economic challenges in their communities by providing them with marketable skills, decent jobs and business opportunities.

The **immediate objectives** of the programme were:

- Development of 130 Micro and Small Enterprises owned by up to 2,500 young men and women trained and engaged on labour-intensive infrastructure development and maintenance as well as the use of "cobblestone paving" and "Do-nou" technologies.
- Building local training capacity for these technologies.
- Capacity building for implementing agencies on the adoption of green jobs approaches.

Training for cobblestone chisellers and pavers

Road works using the LRB approach employs a large number of low-skilled labourers from the vicinity of the road to be worked on. Low-skilled labourers can do most of the road formation and drainage works. Certain skills are required for higher quality works, such as paving the road using the cobblestone technology as introduced to Kenya by the project.

Training of the required occupations for Chisellers (preparing the cobblestones) and Pavers (setting the cobblestones) was introduced and piloted through a special skills training programme. The adopted strategy consisted of five development components:

1. development and introduction of a cobblestone training course to the curriculum of the Kenya Institute of Highways and Building Technology and the Kenyan Youth Polytechnics;
2. development of curricula for skill-upgrading courses for cobblestone chisellers and pavers, and accreditation with the National Industrial Training Authority;
3. formulation and implementation of a pilot training programme for trainers and a first batch of trainees (mainly youth);
4. rollout of the full training and project implementation project; and
5. awareness creation for all interested stakeholders in Kenya.

The capacity to implement civil engineering projects in Kenya is relatively well developed within the road construction sector. Higher education and practical training is being offered through a wide spectrum of universities, colleges and training institutions. Such training also includes road formation works and pavement construction. However, cobblestone setting is a craft that is not specifically promoted and thus also not trained. It was therefore necessary to develop and introduce specific skills training for the cobblestone technology.

A comprehensive training programme for ensuring full coverage of professionals and artisans as well as ensuring the development of a sustainable

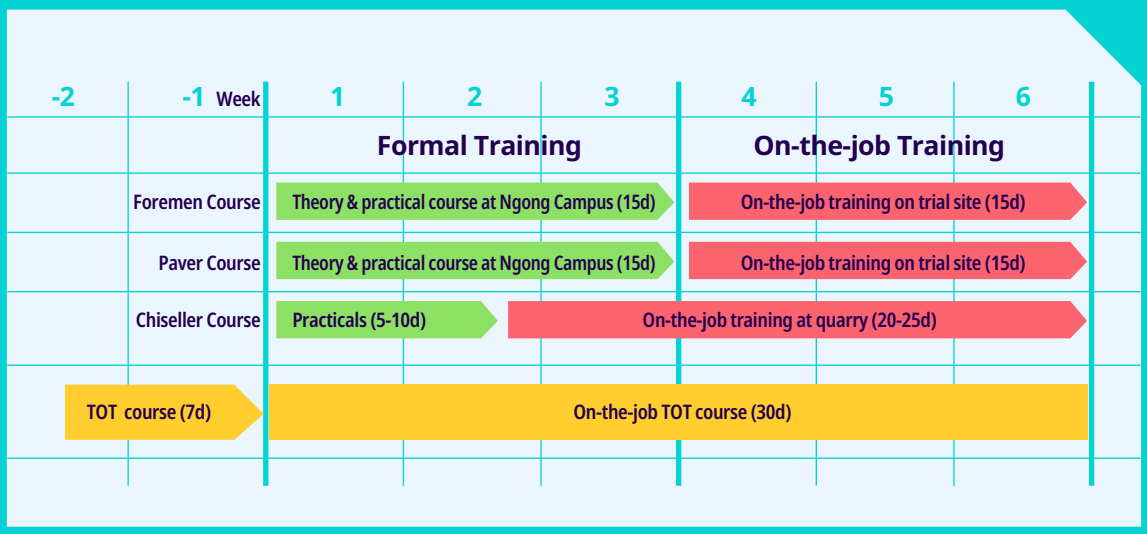
training capacity had to be established based on the following training needs:

- **Planning and Supervision Engineers/ Technicians** require adequate information for i) design, contract preparation and work planning including costing and crosscutting issues, and ii) work supervision, particularly quality control.
- **Emerging Contractors** (20) managers/owners require specialized training in work planning and mobilization, resource management, basic road work technology and work methods, cobblestone preparation and paving, work supervision, administration and business management (basic), and integration of cross-cutting issues including occupational health and safety measures.
- **Contractors' Foremen/women** (40) require specialized training in contract management including pricing, site work planning and supervision, site organization, labour management, instructional skills, site administration, quality control on site and application of crosscutting issues on site level including occupational health and safety measures.
- **Contractors' Chisellers** (500) require skill training to prepare (cut) the stones to the required shapes in accordance with the required quality specifications including occupational health and safety measures.
- **Contractors' Pavers** (80) require skill training to carry out all paving activities in accordance with the required quality specifications including occupational health and safety measures.
- **Trainers** (16) require skills training to be able to carry out the above trainings. The selected trainers are certified instructional trainers already working for various technical institutions. It is assumed that their professional background allows them to pick up the required knowledge and skills for cobblestone pavement training in a short time. This was achieved through a special ToT course as part of the Pilot Training Programme.

The pilot training programme consisted of two training stages:

- training of trainers from technical training institutions; and
- training of four emerging small-scale contractors consisting of foremen, chisellers and pavers.

▶ **The graph shows the interlinked training programme:**



At the training centre, qualified instructors acquire the skills of cobblestone paving technology by building their own practical training ground for pavers.

The training module for cobblestone pavement provided an additional opportunity for the technical training institutions to complement their already existing civil engineering and vocational learner programmes, particularly for the labour-based road construction technology.

The **curricula for chisellers and pavers** were developed in close collaboration with the National Industrial Training Authority (NITA):

- Skill upgrading course "Cobblestone Pavement Chiseller Training" (trade area, tested and certified by NITA); and
- Skill upgrading course "Cobblestone Pavement Pavers Training" (trade area, tested and certified by NITA) (*The curriculum is included in **Annex 5***)

Any recognized technical training institution can now obtain these two curricula, while NITA remains the testing and certifying authority. A training institute providing cobblestone training must have adequate classrooms for theoretical instruction and an outdoor practice area at the centre for basic skills training. Contractors carrying out road works are instructed through their contract to engage cobblestone trainees for on-the-job training. The training centre's trainers/instructors provide follow-up mentoring on site.

Chisellers are trained to excavate suitable rock and cut to the required shape as per standards

Training for Do-nou technology

"Do-nou" is a Japanese word that means wrapping soil in a gunny bag. "*Do-nou*" Technology involves use of gunny bags filled appropriately with either sand, farm soil, or gravel, the opening properly tied and then, compacted manually.

Do-nou is a relatively simple technology that offers quick and affordable solutions for the improvement of road trouble spots, water damming, protection against soil erosion, reinforcing foundations or building simple dams. Through a community facilitation approach about 500 young people were selected and trained by an international NGO in applying the Do-nou technology and how to manage a small business to be able to carry out road works independently as labour-based road maintenance contractors.

In total 20 youth groups consisting each of about 25 members were identified through a selection process within four counties in Kenya (Nandi, Uasin Gishu, Keiyo Marakwet and Trans Nzoia). The selected groups were informed about the training programme through mobilization meetings. The training was carried out on-the-job on seven different road sections, which were heavily damaged to enable a proper demonstration of the Do-nou technology. The training included practical road repair activities using the Do-nou technology and how to manage a small road maintenance firm including site organization, resource management, record keeping, estimating costs and preparing an offer, registering the company, and fundraising through community contributions.

Results and impact

A number of private and government institutions offer cobblestone courses to date. For example, the Kenya Institute of Highways and Building Technology (KIHBT) through their centre in Ngong and Kisii (KTC) have been offering several courses. The participants in these courses receive a certificate of competence from KIHBT.

Master trainers from the institution have been engaged by the ILO to introduce the cobblestone

A youth group is informed about the training programme and their expected commitments.

Trainees practicing setting-out for Do-nou laying along a damaged road section.

skills in other African countries, such as Zimbabwe and Zambia.

Village polytechnics have not been able to introduce and run cobblestone courses due to the relatively high initial investment costs (preparing an adequate training ground at the centre and obtaining the required tools, equipment and materials).

Trained chisellers and pavers have a good chance of being hired by construction companies or starting their own business. The construction sector in Kenya is one of the largest industries in the country. The acquired competencies are useful not only for cobblestone road pavements, but also for other construction works, such as stone masonry and building construction.

There are also some pavers and Do-nou artisans who were given the opportunity to join additional training courses and eventually became successful small-scale contractors. For example, Do-nou Technology Limited is now registered with the National Construction Authority as a contractor in category NCA 7 for building works, road works and for electrical and powerline works. Similarly, the example of Race-Shine Enterprise Limited, which in recent years has managed to develop into a multi-disciplinary company that not only offers all types of civil engineering work, but also has the capacity to plan infrastructure projects.

Conclusions and lessons learned

Training for simple skills may not lead to continued employment or entrepreneurship if it is not accompanied by further complementary training and support. Introducing and mainstreaming new technologies and work approaches through skills training is a critical approach if it is not accompanied by comprehensive development measures in the construction industry. A market must be created to ensure that there will be a demand for the skills to be trained. Decision makers, planners, engineers and contractors must be confident in the technology. Standards and work methods have to be established, and the cost-benefit analysis must be convincing. This process requires sufficient resources and time for testing, demonstration and capacity development.

Learning how to fill the gunny bags and arrange them on the road section under repair.

Learning how to estimate work quantities and costs.

3.1.9 Selecting the learners

The vocational skills training in EIIPs may be aimed at two different categories of potential learners:

- **Workers employed under the EIIP programme by a contractor to carry out LRB works**: EIIP work programmes naturally employ a large number of workers with differing backgrounds for a relatively short period of time. EIIP infrastructure works carried out using LRB methods are not very skill-intensive. Therefore, relatively few workers will get the opportunity to learn an occupation. The main focus of the vocational skills training is to enable the selected trainees to learn an occupation that is necessary to carry out the works on the construction site and/or that enables them to look for further employment opportunities or start an own business.

- **People who live in the area where the EIIP programme is implemented but are not employed under the programme:** The aim of the skills training programme for this category is to achieve an additional impact with the infrastructure development programme by enabling residents to cope better with their lives, enter the labour market with a real chance of employment or participate in income-generating activities.

The selection process for learners of the two categories needs to be carefully established and agreed with all stakeholders. In the case of EIIP works, the selection of learners is normally limited to workers employed by the contractor. The recruitment of workers follows clearly established procedures to enable a fair, unbiased and open process with the involvement of all programme-implementing partners. The workforce can therefore be a fairly diversified group of candidates, from which potential learners can be selected. The process in Table 11 may be applicable for selecting potential learners.

▶ Table 11. Selection process for potential learners

Announcement and application
▶ Announcement of the training (how, where, when, how long and by whom) ▶ Information to be provided by the applicants and format(s) to be used ▶ Copies of certificates if available ▶ Conditions of training and expected commitment by learners ▶ Verification process for the submitted data and documents
Screening and processing of application
▶ Responsibility for receiving and screening the application ▶ Ratio between received applications and available training opportunities ▶ Requirements for short-listing and criteria to be applied ▶ Notification of successful candidates (means, timing) ▶ Reporting requirements for screening and short-listing
Interviews, testing and notification
▶ Responsibility for preparing interview schedules ▶ Representatives for interview panels ▶ Evaluation criteria for interviews and test papers ▶ Interview and test topics including skills profiling (see Section 2.4) ▶ Duration for interviews and (practical) tests ▶ Duration required for interview, test evaluation and report preparation ▶ Procedure and timetable for notifying successful and unsuccessful candidates

Note:

- Depending on the type of occupation/skills to be included in the training programme not all of the above selection steps may be necessary.
- The most critical issue is the **identi cation of short-listing criteria**, which must be carefully defined in consultation with all programme partners. For example, the overall programme objectives may demand **preferential selection of young persons, particular gender consideration, inclusion of persons with disability or refugees, etc.**
- During the selection process potential learners have to be well informed about the training to be received, the learning arrangements and their own commitments and responsibilities. They also need to be made aware about the training programme details including the applicable assessment/testing and qualification requirements and procedures.

3.1.10 Programming the training

In most cases vocational skills training integrated in EIIPs is part of a general capacity development programme. Training is not only offered to workers to learn an occupation, but usually includes all project implementers from project managers, to engineers, technicians, contractors to site supervisors. Consequently, the **vocational skills training for workers must be programmed to fit into the overall capacity development programme**. This means, for example, that basic training of contractors and their site managers and workplace trainers must be completed before the workers can be effectively trained on-the-job.

In principle, the training of skills is integrated into the work process and thus begins with the recruitment of the workers and the execution of the actual construction work. **Training of theoretical subjects or complementary skills** (see ***Section 2.3.2*** for details) can take place outside the actual work processes on site, for example:

- on a **de ned workday, e.g.**, workers are paid for five days of work of which one day is reserved for training;
- on **weekends**, for example Saturday mornings;
- **during the daily work** process so that they take place as required by the learning process (e.g., short briefing sessions "under the tree" in the morning before work starts);
- complementary/further training (e.g., entrepreneurial skills, bridging training, upgrading skills, etc.) that **takes place after** the EIIP employment has ended; and
- **distance learning** (e-learning) with presentation modules and coaching services (see ILO 2019c).

3.1.11 Managing the training

Responsibilities for managing the training programme must be clearly defined and agreed by the EIIP programme implementers in terms of:

- Who initiates, plans and coordinates the training programme?
- Who participates in the organization and implementation of the training programme?
- Who carries out the performance assessment (testing) and who evaluates the training programme?

For more information see ***Section 1.4.2*** and for assessment/testing to ***Section 3.2.3***

▶ Administrative and organizational functions for effective training delivery:

- **Admission of trainees:**
  - formalities (trainee records, participation agreement, etc.)
  - information about the institution's facilities and organization and services
  - rules and regulations
  - programmes and arrangements for training and leisure time
  - accommodation and catering
  - transport arrangements, medical services, communication, etc.
- **Course management:**
  - appointment of course guide/leader
  - programming and preparation of lessons (course programme and lesson plans)
  - preparation of detailed course resource plan and budget
  - orientation of trainers/instructors and guest lecturers
  - detailed course arrangements (logistics, demonstration sites, etc.)
  - preparation of training aids (for classroom sessions and practical exercises),
  - preparation of practical exercises on training or demonstration site
  - copying of training material and provision of reference material, etc.
- **Administration:**
  - student records
  - lesson/course reports
  - allowances
  - bookkeeping
  - personnel management
  - correspondence
  - procurement, etc.
- **Reporting, monitoring and backstopping:**
  - daily/weekly course reviews
  - summary course reports
  - internal and external training monitoring and evaluation
  - support from external experts and/or technical assistance

▶ 3.2 Implementing the training

3.2.1 Starting the training programme

At this point it is assumed that the detailed planning and preparations for the skills development programme have been completed and that all implementing partners are ready and committed. In order to actually start the training programme, the following arrangements must be made:

- **Preparing the detailed course programmes** for the theoretical/classroom training sessions.
- **Briefing all involved trainers/instructors** about their lessons and necessary organization (facilities, training aids, lesson plan, learning material, logistics, trainees and their profiles, etc.) and coordination issues.
- **Preparing the work-based training plans** together with the contractors and the involved vocational training institution:
  - where and when the practical training takes place (in accordance with the contractor's work programme);
  - where and when the trainers/instructors will visit the learners on site during the on-the-job training phase; and
  - other support measures that may be required from the training management.
- **Brie ng the appointed workplace trainers** (contractors' site supervisors):
  - the course programme and on-the-job training phase;
  - their particular training tasks (depending on the work activities under their control);
  - the agreed coaching plan with the contractor;
  - the collaboration arrangements between the vocational training institution and/or the programme support unit (responsible for training management), and the contractor; and
  - the specific recording reporting arrangements and formats to be used.

3.2.2 Running the training programme

For an effective and efficient implementation of the skills training programme, a number of important measures need to be assured.

▶ Guiding questions 5 for smooth implementation of the training programme

- Are there regular coordination and review meetings with all training implementation partners?
- Are we monitoring the training process and the performance of trainers and workplace trainers?
- Are we monitoring the learners' progress?
- Are advisory/coaching services for trainers and workplace trainers in place where and when needed?
- Is support available for learners if they need it?
- Is support for contractors available if needed?
- Is the course administration efficient?

3.2.3 Assessing and certifying the training

Training assessment is important in any learning programme. Standard **assessment** procedures apply for **accredited** courses. The training provider has to fully abide by these procedures, which are usually detailed in an assessor's guide. A **certificate** states that the learning outcomes have been achieved and confirms that a person possesses the required competences and meets the full or partial qualification requirements recognized by the national authority. For non-formal training it is advisable to also provide certificates of competence, e.g., by contractor associations and/or training institutions.

It is important that all parties involved in the training are fully aware of the system and its procedures. Setting clear performance criteria combined with a rational rating system is essential for a workable, transparent and fair evaluation system. The evaluation should be based on the actual job competencies, which are informed by the job profile.

Training assessments should not only be carried out at the end of the training programme but include intermittent assessments during the course. The results of the intermediate assessments (formative assessment) should be combined with the final examination (summative assessment):

Assessment during the learning process (also called formative assessment – evaluates the training process) allows to continuously monitor the learning process to improve the learner's learning; to evaluate smaller content areas or learning steps and make corrections if necessary; to receive immediate feedback. For example, a learners' logbook or diary for self-monitoring can be used for recording the learning process and progress, or a standardized checklist that is filled out jointly by the trainee and trainer(s).

- ▶ An example for a logbook from an apprenticeship programme in Bhutan can be found here: https://www.skillsforemployment.org/KSP/en/Details/?dn=EDMSP1_254638, and an example for a mobile logbook here: https://bccranesafety.ca/logbook/

The evaluation result provides an immediate feedback whether the learner has been able to master a specific task or not. The learning process can therefore be adapted to the needs of the learner. Tests

do not need to be sophisticated. Vocational skills training programmes should focus on the testing and assessment of practical work activities. For example: does the learner mix cement concrete using the correct proportions of stone aggregate, sand, cement and water, using the tools/ equipment correctly and achieve the required quality of the concrete mixture. Formative evaluation can also be linked to assessment requirements during the training programme (see example in box below).

Assessment at the end of the learning process (also called summative assessment)

Evaluates the training result), assesses learner's final achievements using a formalized and structured process; evaluates the end result, not the process; and allows to assign grades and awards certification. Depending on the learning objective, the assessment can take place in the classroom, in a workshop or workplace of the institution or at one of the sites where the learners work. Evaluation at the end of a learning process should be standardized for all learners in order to check whether learners are able to master a particular skill.

▶ Example of combining assessments during and at the end of a Construction Supervisor Course

The following qualification steps and requirements apply for attending the capacity-building programme:

Step	Requirements
1. **Entry to course**	▶ Entry requirements fulfilled as stipulated
2. **Preparation Course**	▶ Continuous assessment during course (75 per cent) ▶ End of course test (25 per cent)
3. **Base Course**	▶ Continuous assessment during course (75 per cent) ▶ End of course test (25 per cent)
4. **Apprenticeship/ Workplace attachment**	▶ Continuous assessment during apprenticeship/ workplace attachment
5. **Final Qualification**	▶ End of training test (30 per cent) plus intermediate performance results from base course (30 per cent) and apprenticeship (40 per cent)

For integrated vocational skills training, it is important to ensure that **both assessment systems are used.** Formative tests/assessments could be taken into account on a percentage basis, e.g., average results of all formative tests/assessments = x% plus result(s) of the summative test(s) = y%. For accredited training, testing and certification is regulated and carried out by the respective qualification and assessment authorities.

3.2.4 Monitoring and evaluating the training programme

Monitoring and evaluation are necessary for effective programme management and for continuously improving the quality of the training programme.

Monitoring takes place during the implementation of a training programme to ensure that it proceeds according to plan. In terms of skills training, monitoring should ensure that training delivery and learners' performance keep pace with the targets and the requirements of the training.

Evaluation is focused on whether the programme achieved its intended results. This can be done both in terms of evaluating the performance of learners, trainers and workplace trainers during the training,

as well as assessing how effective the training and post-training support were for qualified learners in their transition to work (for more details see ***Section 4.1.3***).

Digital technology has been introduced in many EIIPs for planning, implementation, monitoring and evaluation purposes. Capacity building and training are usually part of the system. See the ILO's Technical Brief "Using digital technologies in employment-intensive works (ILO 2020c).

▶ Tools for a comprehensive monitoring and evaluation system of the training programme

Monitoring of all inputs and the training performance as well as evaluating the institution's services can be achieved through an internal review process that could be structured as follows:

- course evaluation using a standardised checklist jointly completed by trainee and trainer;
- intermediate and end of course discussions with trainees and trainers to obtain direct feedback;
- daily review by the trainers (strengths, weaknesses, areas for improvement, arrangements for the next day);
- performance records (test results) for all participants as a means to assess the effectiveness of training;
- final standardised course report to ensure the collection of all relevant data and enable comparisons; and
- tracer studies are a useful tool to determine whether former learners are still employed, have started their own business or have managed to use the acquired skills for further training. Tracer studies should be an integral part of the monitoring and evaluation system of the training programme with pre-defined indicators.

▶ Guiding questions 6 for monitoring training programmes

- **Assumptions:** Are the basic assumptions in the training design monitored to ensure they are still valid, and to check whether adjustments are needed (e.g., assumptions related to preconditions, training process, partnership arrangements, etc.).
- **Inputs**: are all the planned components (training facilities, work sites, trainers, curriculum and training material, training aids, tools and equipment, etc.) of the training design available?
- **Activities**: is the training programme being delivered (trainee selection, learning activities including on-the-job, coaching services, testing and certification) as it should?
- **Outputs**: does the training programme achieve the expected results (increasing competencies of trainees, providing job/business opportunities)?

▶ Guiding questions 7 for evaluating training programmes

- **Relevance:** Do programme align with beneficiaries' expectations?
- **Validity of design:** Is the programme's design logical and coherent?
- **Progress and e ectiveness:** Have the programme's immediate objectives been achieved, particularly those of the vocational skills training?
- **Efficiency of resource use:** Have resources (funds, expertise, time) been used economically?
- **E ectiveness of management:** Have the results expected from the training been achieved?
- **Impact and sustainability:** Will the programme contribute to broader, longer-term, positive change, particularly in creating more employable occupations/skills and mainstreaming them in the construction industry and elsewhere? Will the example of the programme be sustained, scaled up or replicated after the programme ends?
- **Social impacts:** What has changed in the social lives of the learners?
- The impact of training can best be assessed through a tracer study well after the training has taken place. Clear indicators need to be identified to be able to assess impact issues like: rate of employment and/or business generation; job satisfaction; income; quality and effectiveness of production; skills utilization; and continuous professional training opportunities, etc. (See Braňka 2016).

▶ Case Study 10 Mauritania: EIIPs/Skills development using the "Chantier école" approach

Background and Project Information

In response to the protracted crisis in the north of Mali and with the support of Japan, the ILO launched in April 2019 the project "Promoting youth employment opportunities for refugees and host community with employment-intensive construction works in Mauritania". The ILO implemented the project in the M'Bera refugee Camp, 1'400 km east of the capital city of Nouakchott. It applied a unique approach centred on an innovative skills training programme combining infrastructure works with on-site training and theoretical training under the direct supervision of professionals from the construction sector, which had been developed under previous ILO projects in Mauritania to build rural schools and roads among other infrastructure work in other regions of the country.

Preparation

Before the training, ILO assessed the needs of the local actors in the construction sector in terms of qualifications and job profiles. Consultations with local government and refugee committees also enabled the identification of gaps in terms of access to infrastructure in the region.

To respond to those needs three training programmes (masonry, brickmaking, steel working) that ILO had developed previously were adapted to the local context and used. These programmes were elaborated in partnership with the Mauritanian National Institute for the Promotion of Technical and Vocational Training (INAP-FTP) using the Analysis of Work Situation (AST) approach. They were articulated around the following steps: i) the analysis of the needs of the private sector; ii) the identification of the skills required to perform a job; iii) the definition of the occupational profile; iv) a skills profile; and v) the drafting of the training programme.

Mauritanian authorities had been involved in the process and validated the programmes, enabling beneficiaries that went through the complete training programme to be eligible for taking a national exam to receive a formal qualification.

Implementation

A private company provided the pedagogical and technical supervision of the training as no regional Technical and Vocational Training School was present near the construction site. Local ad-hoc committees, comprising of refugees and host communities' representatives supervised and administered the selection of beneficiaries and the certification of trainees. On-site, private companies provided the expertise to supervise and train the beneficiaries and built the primary school. Everyone that was involved with the construction works received occupational safety and health training.

Inclusion was promoted by a partnership with a micro-finance institution that opened bank accounts for trainees and delivered financial education training. A private structure, set-up by the ILO, provided post-training support for the labour market integration of beneficiaries.

Employment-Intensive and Infrastructure works and skills training through the “Chantier École” approach

Key takeaways

This dual training approach applied allows for:

1. The implementation of training in short cycles (7 months), accessible to young people with a basic level of education (end of primary education). The recognized skills certificate then allows the beneficiaries to pursue further training in the Technical and Vocational Education and Training System if they want.
2. A strong practical focus (80 per cent of training time) during the training.
3. Flexibility in the pedagogical organization of training courses.
4. Triple output of short-term employment creation, training of beneficiaries and increased access to services through infrastructure construction.
5. Capacity building and reinforcement of local economic actors (construction companies, suppliers, training providers).

4

How can post-training support and transition be ensured?

Ideally, skills training introduced through EIIPs should be recognized, lead to increased job security, open career opportunities, and should be institutionalized and mainstreamed to ensure sustainability.

Figure 7 presents a range of factors which are linked to sustained skills development.

▶ **Figure 7. Factors for sustaining skills development**

▶ 4.1 Basic requirements for skills development programme sustainability

The sustainability of a vocational skills training programme integrated in an EIIP programme depends in principle on:

- skills training courses that are recognized by the training or qualifications authority, client organizations, the construction industry, government (line ministries) and funding agencies;
- the demand for the respective occupations/skills in the job/business market;
- skills training courses that are still being offered and run by qualified vocational training institutions; and
- sufficient learners who are motivated to acquire the EIIP introduced occupations/skills.

4.1.1 Recognizing training and skills

The occupations/skills initiated by the EIIP must be based on an actual demand in the construction industry in order to create a sustainable training market. It is therefore equally necessary to strengthen the labour market in order to make training indispensable. The most important measure is to **ensure that the occupations/skills are recognized** as a prerequisite for qualitp^^^àpy work and effective performance. Effective cooperation of all partners involved is critical to anchor the world of learning in the world of work.

- The **professional associations** (engineers and contractors) representing the employers must agree that specified operational standards and technical norms can only be achieved if the work is carried out by competent workers and therefore decide that: i) skilled workers/artisans must have a certificate of competence, and ii) contracting authorities (clients) must be made aware that they would only offer their work if it were carried out by workers with the required certificate of competence.
- The **clients** (contracting/procurement authorities) must be convinced that competent skilled workers with the necessary skills are essential for high-quality work leading to lasting benefits. Qualified skilled workers should therefore be an added requirement (included in the list of the contractor's key personnel with the required qualifications) for submitting a bid and qualifying for an award of a contract.
- The **national vocational education and training authorities** must be made aware that the integration of "new" skills and qualifications or partial qualifications are necessary for the industry, for creating meaningful employment opportunities and for strengthening the training providers. The EIIP training programme must therefore be inevitably linked to the national vocational skills development system.
- The **vocational education and training institutions** are the providers of skills training and must therefore be convinced that new vocational skills development programmes can complement their training portfolio and expand their training market.
- Training programmes for **government and authority officials, engineers, contractors and technicians** must include the requirement for quality workmanship, the need for certified skilled workers and how vocational skills development can be integrated into the work process.

- The **workers** must be committed to learning vocational skills and acquire the necessary competencies. Their prospects for further employment and development must be realistic and post-training support must be assured.
- **Workers' organizations (trade unions)** must support the demand for recognition of qualifications by employers and actively negotiate conditions favourable to workers. Their participation in the entire vocational skills development process is therefore important.

4.1.2 Identifying and creating opportunities for "EIIP skills"

To identify and create opportunities for EIIP skills the question is whether the national construction industry has a demand for the occupations/skills trained through EIIPs, and whether those occupations/skills are recognized by all partners as described in ***Section 4.1.1*** above.

In addition, the analysis of potential occupations in ***Section 1.2.1*** shows that many if not all listed occupations can be useful for most infrastructure and green works, be it labour- or equipment-based. It is therefore important to:

- establish an **e ective partnership network** right at the start of the EIIP and tailor the training programme to the real needs of the labour market (for details refer to ***Section 1.4.2***); and
- **publicize and promote the "EIIP skills" among all partners** in the construction industry.

Many of the listed skill sets can also be considered to lead to partial qualification and thus be linked to further training for achieving a full qualification or as a bridge to further education and training. **Early communication and clarification with the vocational education and training authority and training providers** is therefore advisable. This is particularly important with regard to recognition of prior learning (refer to ***Section 2.4*** for details) and the synchronization of learning objectives between partial qualifications, full qualifications, or related qualifications to create the necessary links and recognition.

The skills acquired under EIIPs can be useful not only in the construction sector but also in other sectors such as agriculture, forestry, public services among others. **The partnership network should also include , therefore, potential actors from other sectors** to broaden the scope of the job market.

Many of the "EIIP skills" can also lead to **self-employment by creating a business**. To enable this, it is necessary to complement the vocational skills training with entrepreneurial skills (for more details refer to Section 2.3.3) and to provide support for the start-up of the new business.

4.1.3 Providing post-EIIP support

During the integrated vocational skills training programme learners may have hopes and aspirations for future employment or managing a business. The reality of joining the labour market, however, can be frustrating as the gap between what has been learnt and what is required of them might different. The challenges are many, such as:

- lack of job-search, presentation and negotiation skills;
- lack of connection with potential employers;
- lack of access to finance and high bank interest rates (for those starting an own business); and
- lack of access to service or product markets.

Creating sustainable employment opportunities is always an important EIIP objective. Consequently, post-training support must be an integral part of the training programme and must be taken into account when designing and estimating the resources required. General support services may include:

- providing job-related coaching and psychological support;
- increasing the trainees' understanding of the world of work;
- referring the trainees to employment services, other training providers and companies;
- increasing the trainees' job search skills; and
- improving the trainees' access to start-up capital, suppliers and markets.

Specific support arrangements for career counselling, job search and starting a business are described in ***Sections 4.2.3, 4.2.4*** and ***4.2.5*** respectively.

▶ 4.2 Creating pathways to employment and entrepreneurship

4.2.1 Guiding principles

Vocational skills training programmes integrated in EIIPs must include a number of features that assist in the transition from training to employment or starting an own business.

▶ Important Principles for creating pathways to employment and entrepreneurship

1. Skills training must be oriented towards employment/entrepreneurship for improved livelihoods.
2. Competency-based certification is the most effective way of communicating skills to an employer or the market when it is provided by a trusted source.
3. The involvement of employers and other economic actors in skills training is critical for building effective pathways to employment.
4. Transition from training into work or self-employment requires support over a period of time. Post-training support should be part of all training programmes.

Source: Guidelines for non-formal market-based skill training in Lebanon (ILO 2018c).

The above Principles 1 to 3 are requirements that are intrinsically tied to the design of a sustainable vocational skills training programme. By comparison, post-training support (Principle 4) is a programme activity, which is not normally considered as part of an EIIP training programme but is essential for achieving sustainable employment.

There are some support measures that can be easily included in an on-going EIIP vocational skills training programme, for example advising learners about employment possibilities, further learning programmes or potential business opportunities (for details refer to ***Sections 4.2.4*** and ***4.2.5*** respectively). Contact can also be made with potential employers and information about the training programme can be provided.

However, further support measures require inputs beyond the end of the training programme and additional resources must be made available for this phase.

4.2.2 Promoting the learner's competencies

As mentioned before, recognition of the occupations/skills acquired through EIIP training is most important to open a pathway to employment or entrepreneurship. It is therefore essential to ensure that all learners have a full set of documentation of their knowledge, skills and experiences when seeking a new job or investigating career path opportunities. Learners should therefore be assisted in the preparation of a personal portfolio, including:

- the skills profiling assessment (summary) made at the beginning of their EIIP training;
- copies of certificates of education, qualifications, training or job performance ever attained;

- certificate of successful completion or qualification of the EIIP skills training – or the qualification obtained through an existing RPL process;
- copies of reference letters from former employers;
- a well-developed curriculum vitae; and
- an abstract summarizing the learners existing competencies.

EIIP training programme partners, the construction industry and any other potential employers need to be made aware when learners graduate, signalling they are available for the job market. Effective arrangements are:

- official presentation of learning programmes and successful graduates in the media and on-line (e.g., social-networks, website of the training programme, workers' organizations, employers' organizations);
- preparing and distributing information material (the skills development programme, achieved qualifications, names and pictures of successful graduates, etc.);
- invitation of potential employers to on-going training programmes and graduations; and
- organizing job fairs with vocational training institutions, employers, graduates.

4.2.3 Career path opportunities and counselling

An integrated approach to career guidance and counselling right from the selection of learners to the end of the training programme provides a better chance for continued employment or entrepreneurship. However, such services should ideally extend beyond the end of training to further support learners.

- **Job-placement and career counselling services** can be provided by organizations, other than the one delivering the vocational skills training, for example, by employment service centres, private sector development organization, individual career counsellors and others. Therefore, early arrangements have to be made with the relevant institutions to ensure that they are included in the partnership of service providers to the training programme (also refer to ***Section 1.3.2***).
- **Career counselling** provides learners with information and advice on their personal development opportunities and helps them define their career goal. Career options can be pursued by developing vocational skills, entrepreneurial skills, core and/or life skills, job search skills, bridging programmes to qualify for training and certification, acquiring additional skills to qualify for full qualification, and others.

▶E-counselling platform in Jordan

In 2019, the ILO in Jordan launched an on-line-job counselling and guidance platform for Jordanian and Syrian job-seekers. The aim of the platform is to improve access to job and training opportunities across multiple sectors in Jordan.

The platform complements the work that is carried out by the ILO's network of employment centres, which provide a physical place where jobseekers can go to seek employment and training advice, job matching services and career guidance. The e-counselling platform includes posting of information relevant to various occupations, the labour market, announcements from government agencies, as well as awareness raising on important subjects, such as occupational safety and health, Covid-19 and others.

- **Bridging programmes** are particularly useful as they provide learning intended to fill gaps accumulated by individuals during education and training, mainly to enable them to participate in further training or obtain a qualification. In order for bridge programmes to be effective, they need to be aligned with the recognized qualification requirements and the therefore existing training programmes.
- **Job counselling** can assist former learners in their employment or business start-up. Counselling services can also be provided through e-counselling.
- **Follow-up with former learners** is important to determine the impact of the training on their employment and as feedback for further counselling and training.

4.2.4 Effective job search

Job search skills can be **included as a complementary training subject** (also refer to ***Section 1.3.4***) towards or at the end of the EIIP training programme and could include how to:

- check for employment opportunities in the media, on-line portals or other posted advertisements;
- register/contact with employment offices, job centres, professional associations, workers' organizations and private employment agencies;
- prepare a convincing CV and portfolio;
- perform in an employment interview;
- network with co-workers, contactors, friends' acquaintances, etc. (informal search can be quite effective as most job vacancies for skilled workers are not necessarily advertised);
- evaluate a job offer, i.e., employment conditions, salary, labour regulations, insurances; and
- pursue further education and training.

▶ **Reference:** The ILO guide Surfing the Labour Market: (Corbanese and Rosas 2012).

In addition, providing job search support to graduates from EIIP vocational skills training programmes can be an **effective post-training service** to achieve long-term employment. For example, a career counsellor/officer can be engaged to:

- advise learners regarding employment or business opportunities;
- facilitate and support contact with contractors and other potential employers;
- facilitate contact with workers' organizations;
- provide support with job applications; and
- assist in evaluating a job offer.

4.2.5 Entrepreneurial development

For some of the learners who participate in EIIP training programmes, wage employment opportunities may be limited or not applicable. Indeed, there are a number of occupations proposed in ***Section 1.2.1*** (all Class C-Supply occupations), which may only be suitable for self-employment through the creation of micro-enterprises (with the option to grow). For those occupations or skill sets, the training programme should therefore include the development of entrepreneurial skills. For all other occupations, the development of entrepreneurial skills can be added as complementary training (for details refer to ***Sections 1.3.4*** and ***2.3.3***).

Post-training support for entrepreneurs can be provided through "business incubators", i.e. a single place where small businesses can find all the resources they need to start their businesses (office/workshop, technology and equipment, training, methodological resources, etc.). This approach has proven successful in creating and sustaining new businesses, as the incubator continually assesses and responds to challenges identified during the businesses' development. The success of incubators is dependent on the definition of a) entry criteria, i.e. which businesses can be accepted in the incubator; b) exit criteria, i.e. until what stage of development can businesses be supported; c) what services the incubator will provide; d) its governance system; and e) if it functions on a subsidized basis and for how long funding will be provided.

Source: ILO 2011.

Post-training support/guidance can include:

- access to finance;
- access to premises, tools and equipment;
- advice on legal requirements for starting a business (registration, licensing, etc.);
- marketing support;
- access to business networks; and
- providing contact to financing agencies, chambers of commerce and other agencies for starting and supporting a business.

▶ Case Study 11
Kenya: Skills Development for Road Workers: A long-term programme

Background

Skills development through employment-intensive infrastructure programmes has been promoted through the Rural Access and Minor Roads Programmes and in particular by the national "Roads 2000" programme since the last four decades. The Roads 2000 programme officially began in 1991 and is still in operation today as the national road maintenance strategy for all road agencies. It aims at rehabilitating secondary rural roads plus maintaining the entire road network of Kenya using LRB work methods.

On-the-job training of workers has always been considered an integral part of the overall capacity-building strategy. Since its inception, the ILO's EIIP has been involved in various capacities in the design and development of Roads 2000, in particular capacity building not only for the cadre of the road authorities and contractors with their technical staff but also for skills development for workers. Over the years, thousands of mainly young women and men have participated in on-the-job training which have been considered useful beyond the projects for which they were originally recruited.

Integrated on-the-job training for casual workers

Contractors' site supervisors were trained on how to instruct and teach workers the required special skills. Construction activities under the Roads 2000 programme are:

i) setting out and site clearing activities;
ii) road formation activities;
iii) gravelling and improved sub-grade activities; and
iv) laying road base and surfacing activities.

Selected labourers were trained on-the-job as headpersons (gang leaders) to master the necessary skills for controlling a labour gang and carrying out the above-mentioned activities. The educational and technical qualification requirements to become a headperson (level 2) are a secondary school certificate and showing special motivation in leading a group of workers (level 1). The following skills were acquired by the headpersons through on-the-job training:

Activities	Skills through on-the –job training	Potential progression to:
Setting out/Site Clearance	– Basic Surveying – Setting of straight lines; methods of setting out curves; widths, right angles, 30deg; 60deg angles etc.	Chainman Leveller
Formation	– Slots – balance cuts/fills – Levelling - Level plat form – Drainage – free flow – Camber formation – Culvert installation – Headwall construction	Mason Plumber
Gravelling/Improved Sub grade	– Basic soil mechanics – Trial pits /sampling – Good gravel – grading – Compaction – field density tests OMC; MDD	Soils lab attendant
Base/Surfacing	– Soil Stabilization – Bitumen emulsion – Aggregate quality; grading – Priming; tack coat	Soils lab attendant Bitumen lab attendant

A contractor instructs one of his headmen in the proper use of slope template

A trained headwomen demonstrates the correct use of the slope-ditch template

After working for some time, the headmen were then rotated on to other activities until they were able to run the construction site on their own, even in the absence of the site supervisor. However, most of the headpersons did not get an official recognition. Those that worked with contractors or consultants were given a reference letter to show appreciation of good work at the end of their contracts.

The national education system that prioritized university qualification discouraged many from trying to further their education and training. Opportunities for village polytechnic training were never sufficiently nurtured and little government support for such institutions was available at that time. The new Kenya National Qualification Framework does recognize the career progression potential, however, no structured approach to recognition of prior learning has been set up to award formal qualifications and ensure sustained success.

A well set-out and organized road construction site controlled by trained site overseers and headpersons.

Emulsion bitumen works require special skills that labourers can learn. Ensuring quality workmanship for this type of work is essential.

Results and impact

Do workers who have acquired skills have a better chance for further employment or starting a career?

The majority of labourers that acquired skills from the on-the-job training have not progressed vertically because they could not further their training due to the demanding admission criteria to enter technical training institutions (e.g., a secondary education certificate to become a mason).

On the other hand, most headpersons were recruited just like every other casual labourer and because of their educational background and ability to learn quickly, they were identified, initially to explain to other workers what was expected of them and eventually to lead workers and ensure that the constant presence of the supervisor was not necessary. There are many examples of such workers who made the progression from headperson to overseer (level 3) to inspector (level 4). There are also a few who have made it to university and obtained a civil engineering degree (level 5) or were able to start their own construction firm.

A road construction contractor, who progressed from casual labourer to owner of a construction firm, proudly demonstrates his self-invented road-base shutter.

Labourers trained on-the-job as soil or bitumen laboratory attendants. They have a good chance of getting further employment.

Can workers use the skills they have acquired through road works for other activities?

Many former road workers progressed to other road or building construction activities. All those who were involved in culvert installation easily joined building construction projects. Soil conservation measures, such as “fanya juu” terraces, check dams, scour checks are benefits from labour-based road construction projects to agriculture.

What is the general impact of skills training over the years through RARP, MRP, and Roads 2000?

There are some examples of people who started off as casual labourers, promoted to headperson and due to their good work were recommended for training at the Kisii Training Centre for site supervisor training. When the programme availed opportunity for further training at the National Polytechnics for a diploma in civil engineering course, those with the right qualification were allowed to proceed for training paid by the Government.

Capacity building of casual workers has not been given emphasis in the private sector under the current road authorities. However, there are many examples of those who worked with the former rural access roads programme who made an impressive career progression. Several who started as headperson became site supervisors, then inspectors and later started their own construction companies and now are able to handle projects worth more than USD1 million. Others also managed to progress from headperson to training instructors after completing a diploma in civil engineering. There is also an exceptional case where a plumber made a progression through the ranks up to the position of senior engineer in the Kenya National Highway Authority. The certified road builder craft course (a three-year learning programme including practical attachments) that what introduced through the Roads 2000 programme has been nationally mainstreamed and is today conducted by the following institutions:

	Name	Country/Location
1	Kenya Institute of Highways and Building Technologies – KIHBT	Nairobi
2	Sensei Institute of Technologies	Thika
3	Enisos Technical Training Institute	Eldoret
4	Mawego Technical Training Institute	Homa Bay
5	Bondo Training Institute	Siaya
6	Kitale National Politechnic	Kitale – Trans Zoia
7	Vitech Training Institute	Nairobi
8	Eldoret Technical Training Institute	Eldoret

Conclusions and lessons learned

The example of Kenya provides a review of a 40-year history of successful labour-based road construction works on a country scale. Over time, many lessons have been learned from which many other countries have benefited when introducing their own EIIPs. One of the key findings is that good workmanship is essential when carrying out labour-based road works and that this can be achieved by effective skills training on-the-job. The focus has therefore always been on practice-oriented training of site supervisors, who learned to master the necessary skills themselves before instructing and training their workers.

Some former casual workers were able to use their employment in EIIP projects to grow and make a remarkable career. However, this was only possible through personal initiative and access to capital to start a business.

The introduction of newly recognized and certified craft or skill training is a relatively laborious and costly undertaking. In addition, the private construction industry has not shown particular interest in participating in the development of a skilled construction labour-force. The consequence is that necessary occupational skills are not fully developed, standardized and are insufficiently recognized. For labourers trained on-the-job in EIIP projects it is still rather difficult to gain meaningful employment and to enter a career path.

For skilled workers, vertical career development has been limited due to the restrictive academically-oriented education system. However, the newly introduced National Qualifications Framework allows for more horizontal transition and vertical progression and provides for a stronger focus on vocational training.

Annexes

▶ Annex 1. Reference materials

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Available ILO databases

ASISTDOC - Bibliographic database
http://www.ilo.org/dyn/asist/asistdocs.home

Skills for Employment Global Public-Private Knowledge Sharing Platform
www.skillsforemployment.org

▶ Annex 2. Classification of EIIP relevant occupations

General core skills for all listed occupations:
Ability and willingness to learn and adapt; Mastering basic reading and writing (reading work instructions, filling reports); Solving practical job related problems; Receiving instructions, implementing them and giving feedback; Performing in teams/ groups; Working responsibly and disciplined.

Essential competencies:

The lists do not claim to be complete, but are intended as a guide for the development of programme specific competencies.

**** Level of difficulty,** in the context of skills requirements for construction works:*

- ***Low:** None or very basic literacy and numeracy, minimal knowledge, few practical skills, can follow precise instructions and work in groups → short practical on-the-job learning process*
- ***Medium:** Basic literacy and basic numeracy, elementary job specific knowledge, limited but job specific practical skills, can work independently with precise instructions → combined theoretical and practical on-the-job learning process of limited duration*
- ***High:** Basic literacy and job specific numeracy, advanced job specific knowledge, advanced job specific skills, can work independently with little supervision → combined theoretical and practical on-the-job training process of extended duration.*

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS

Class	Occupations – short description	Essential competencies – vocational skills	Level of difficulty*
A. CONSTRUCTION	A1 **Stone masonry** *(dry and wet)*: One of the most needed skills for the construction of structural walls (retaining walls, building walls), including filling of gabion boxes.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Identifying class, quality and potential usage of stone – Interpreting simple construction drawings/sketches – Listing and describing construction materials for stone masonry (dry and wet) – Listing and describing common masonry and measuring tools and their use – Describing the process of erecting dry and wet masonry structures including foundations, walls and installing/filling gabion boxes – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out structural objects to be constructed using stone masonry or gabions – Selecting suitable stone and checking quality with practical on-site methods – Preparing mortar of the required mixture on-site using simple mixers or manually – Constructing masonry and concrete foundations – Constructing dry masonry walls and mortar-bound (wet) masonry walls to standards including finishing work (tops and joints) – Constructing gabion walls including setting the boxes, filling and tying the boxes and all finishing works – Backfilling retaining walls, including filter and drainage arrangements – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	HIGH

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
A. CONSTRUCTION	**A2** **Stone/concrete-block paving:** Required for paving rural and urban roads, parking spaces, walk ways and public places using either dressed stones or pre-cast cement blocks.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Identifying class, quality and potential usage of stones and concrete-blocks – Interpreting simple construction drawings/sketches – Interpreting bill of quantity and specifications (norms) for stone and concrete-block paving – Listing and describing construction materials for stone and concrete-block paving – Listing and describing common stone/block cutting and paving tools and their use – Describing the process of stone/concrete-block paving including: base course preparation; setting out; all paving activities; finishing activities – Describing the most common dressed-stone paving patterns (e.g., row patterns, segmental arch pattern) – Describing the most common concrete-block paving patterns (e.g., row patterns, herringbone pattern, parquet pattern) – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out paving lines, areas, and gradients – Selecting suitable stone/cement-blocks and checking quality with practical on-site methods – Identifying and selecting sand and concrete aggregates of the correct quality – Preparing mortar and concrete of the required mixture on-site using simple mixers or manually – Constructing kerb-stones, side drains and pavement transitions – Constructing pavements using dressed-stone (cobblestone) to standards including finishing work (filling joints and compaction) – Constructing pavements using pre-cast cement blocks of different shapes to standards including finishing work (filling joints and compaction) – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**
	A3 **Do-nou technology:** The technology allows reinforcing structural components, e.g., road embankments and dams using soil filled gunny bags that need to be properly prepared, placed and compacted.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, and volumes) **Knowledge:** – Interpreting simple construction drawings/sketches – Listing and describing materials needed for Do-nou works (gunny bags, principal soil types) – Listing and describing tools and their use for Do-nou works – Describing the process of Do-nou construction works, i.e. setting out, base course preparation; bag filling and placing, compaction and adding the surface gravel course – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out lines, areas, heights and slopes – Selecting suitable filling material – Preparing the base to lines and levels – Filling, placing and compacting the gunny bags – Laying and compacting the surface layer using approved material, e.g., gravel – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
A. CONSTRUCTION	**A4** **Gabion installation and filling:** Gabion boxes have to be placed and arranged in accordance with the design of the engineer, filled with in the correct way, and closed and tight as per the given standard.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, and volumes) **Knowledge:** – Listing and describing materials needed for gabion works (gabion boxes, matrasses, binding wire, stones, backfilling material) – Listing and describing tools and their use gabion works – Describing the process of gabion installation and filling, i.e. setting out, excavation and preparing base, assembling and placing boxes and matrasses, filling with stones, tying and closing boxes, backfilling and finishing works – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out lines, areas, heights and slopes – Selecting suitable filling material – Excavating and preparing the base to lines and levels – Assembling and placing gabion boxes and matrasses – Filling with stones (dry stone masonry work), tying and closing the boxes/matrasses – Backfilling gabion box walls with approved percolating material – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**
	A5 **Emulsion bitumen works:** Working with emulsion bitumen for road base and surface layers requires special skills for preparing the mixtures and process the material.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Listing and describing materials used with emulsion bitumen works (base course materials, surface materials) – Listing and describing common equipment and tools for emulsion bitumen works – Describing the production process of emulsion bitumen treated base course – Describing the production of the emulsion bitumen surface layer (cold-mix asphalt) – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out lines and areas – Selecting the required material, equipment and tools for the job at hand – Setting out and installing shutters for emulsion bitumen treated base course construction – Mixing aggregates with emulsion bitumen using equipment or by hand – Laying, compacting and curing the emulsion bitumen treated base course – Setting out and installing the surface layer guides and preparing the base course surface for asphalting – Spraying primer or tack-coat – Mixing aggregates with emulsion bitumen by hand – Laying, compacting and finishing the cold-mix asphalt – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
A. CONSTRUCTION	**A6** **Erosion control – bioengineering:** Bioengineering techniques can control soil erosion on steep and fragile slopes. The same technology can also be used to reinstate quarries and soil-borrow pits. Selection and planting of the right plants, installation of natural barriers and other preventive measures require a broad spectrum of knowledge and skills.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Listing and describing materials used with basic erosion control practices (suitable plants – seeds, grass, shrubs, trees etc.; organic surface protection material, e.g., nets and mats covers; wooden barrier material; gabions; local stones and gravel, etc.) – Listing and describing common equipment and tools for erosion control works – Describing the work process for common types of erosion control measures, particularly for bioengineering – Describing the (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out lines, areas and gradients for the job at hand – Identifying, selecting and processing the required seeds and plants for bioengineering works – Selecting the required construction material, equipment and tools for the job at hand – Seeding, planting and maintaining living soil protection – Working with non-living materials – constructing barriers, terraces, drainages etc. – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**
	A7 **Plant production/rearing and planting:** Knowledge and skills are required for working in afforestation programmes. This includes preparing the nursery facility, rearing the seedlings, planting them and carrying out all the activities that are necessary to maintain the plantation.	**Knowledge:** – Listing and describing the plants to rear – Describing the plant production facility with the required resources and its preparation – Listing and describing the common equipment and tools for a plant nursery and for planting – Describing the work process for rearing the seedlings, planting and maintaining them – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Preparing the plant production facility (nursery) – Selecting and preparing the correct soil for rearing the seedlings including composting – Rearing the seedlings in the nursery until they are ready for planting – Planting and maintaining the mature seedlings at the designated locations – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**
	A8 **Operation of light construction equipment:** Light and intermediate equipment is required for certain activities that cannot be done by labour, like compacting soil/ gravel/bituminous mixes, transporting heavy materials, drilling rock/ stone, etc. Such equipment needs to be operated and maintained with the required professional skills and attitude.	**Knowledge:** – Listing and describing common light construction equipment, e.g., drills, compressors, concrete mixers, compaction equipment, vibrators, etc. – Describing principle operation practices for the selected equipment – Describing common maintenance operations for the selected equipment – Mastering the required theory for obtaining the operation licence for the selected equipment, if required – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Operating competently and efficiently the selected equipment – Obtaining the official operation license for the selected equipment, if required – Carrying out routine maintenance operations and minor repairs for the selected equipment – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
A. CONSTRUCTION	**A9** **Basic building skills:** These are skills sufficient for the construction and maintenance of simple buildings and may include masonry including minor concrete works, plastering, simple carpentry and roofing, installing window- and doorframes, basic plumbing, wall painting and possibly some other unsophisticated activities.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, gradients, angles, volumes and weights) **Knowledge:** – Interpreting simple construction drawings/sketches – Listing and describing common construction materials for simple buildings (foundation, stone/brick walls, concrete structures, roofing, windows and doors, appliances, etc.) – Listing and describing the use of common measuring instruments, tools and equipment for the construction of simple buildings – Describing the process of constructing simple buildings (setting-out, excavation, foundations, walls, concrete works including form works and reinforcements, roofing, doors and windows, simple appliances – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting out structural objects to be constructed – Planning the resources required for construction, e.g., material, tools and equipment, personnel – Selecting and using the appropriate materials, tools and equipment for the construction of simple buildings – Excavating foundations to the specified dimensions and levels – Constructing masonry or concrete foundations and floor slabs – Constructing simple concrete structures including steel reinforcement (pillars, slabs) – Constructing masonry walls including plastering or finishing work – Fixing ready-made door and window frames – Erecting roof trusses and roofing sheets/tiles – Carrying out any other simple construction activities necessary for finishing the object, (e.g., laying sewerage pipes, installing septic tanks, fixing standard appliances, etc.) – Recording and reporting used materials, personnel inputs, and progress – Backfilling retaining walls, including filter and drainage arrangements – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**
	A10 **Surveying:** The main tasks of the construction surveyor are the determination of the positions, measurements and levels for the infrastructure to be built or rehabilitated. As such, the surveyor has to master basic surveying instruments and measuring equipment. Precise and reliable work is the most important characteristics of the surveyor.	**Additional Core Skills:** – Mastering applied computing (enhanced mathematical operations, units of measurements, calculating areas, gradients, angles) – Working precisely, reliably and efficiently **Knowledge:** – Reading and interpreting geographical maps – Reading and interpreting construction plans/drawings – Listing and describing common survey methods for construction works – Listing and describing the use of common survey instruments and setting-out equipment and tools – Describing the surveying procedures for simple construction works. – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Mastering common survey equipment and measuring aids for setting out and controlling construction works – Carrying out all setting-out works required throughout the construction process – Preparing of survey sketches and information for use by the construction team – Verifying and recording the measurements of completed work – Preparing survey reports/records for the given project – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
B. MAINTENANCE AND SERVICES	**B1** **Road maintenance:** Maintenance of gravel and paved roads are predestined for labour-based methods. The activities involved require different practical skills that can be easily learned on-the-job. Working independently and reliably are important qualities of maintenance workers.	**Additional Core Skills:** – Working independently and reliably **Knowledge:** – Describing causes of common road deterioration and defects plus the basic measures for repairing them – Listing and describing the set of handtools and minor equipment required for labour-based routine maintenance works – Describing the basic materials to be used for routine maintenance works – Listing and describing the common routine maintenance activities – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Inspecting the assigned road/section for identifying immediate maintenance requirements – Reporting observations of maintenance requirements, road failures, accidents etc. to the superior/engineer in charge – Carrying out all assigned routine maintenance activities using the correct tools and, if necessary, material – Filling simple site records and progress reports – Effectively communicating with road users and community – Installing traffic safety and control signs if required – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**
	B2 **General building maintenance:** Basically this requires workers that have an array of skills to carry out smaller repairs, keep buildings clean and tidy, and detect and report damages.	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) – Working independently and reliably **Knowledge:** – Describing causes of common building defects – Describing the basic building maintenance activities, including cleaning, smaller repair works, painting – Listing and describing the set of tools and equipment required for building maintenance works – Describing the basic materials to be used building maintenance works – Describing site planning and reporting requirements (basic formats to be used) – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Inspecting the assigned the building and identifying maintenance needs – Assessing basic maintenance needs (including cause, extent, required measures) and reporting them – Carrying out all assigned maintenance activities using the correct tools and material – Filling simple site records and progress reports – Effectively communicating with building owner and for public buildings with the community – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**
	B3 **Municipality services:** Simple skills are required for general clearing and cleaning works of public infrastructures, including waste collection and disposal, maintenance of parks and public furniture, etc.	**Knowledge:** – Listing and describing common public service operations, e.g., waste collection and disposal, clearing and cleaning activities, simple maintenance activities, etc. – Listing and describing the tools and equipment used for simple municipality service activities – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Carrying out the assigned activities using the correct tools – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
B. MAINTENANCE AND SERVICES	**B4** **First aid and occupational safety and health management:** Construction sites are known for their relatively high level of accidents and injuries. Effective first aiders must be well acquainted with OSH measures and know how to apply first aid correctly and in good time.	**Additional Core Skills:** – Performing independently, reliably, responsibly and efficiently **Knowledge:** – Listing and describing the common safety and health requirements for construction and/or maintenance projects – Checking and reporting the applied safety and health measures on site – Listing and describing the most common diseases, accidents and injuries on construction/maintenance workplaces – Listing and describing the common first aid equipment, e.g., content of first aid kit and maintaining it – Explaining the process of applying first aid (e.g., identification, triage if necessary, applying, reporting, follow-up etc.) – Describing communication and reporting requirements (e.g., with superiors, clinic, doctor, police, co-workers and community) – Describing the occupational safety and health measures as required for the job at hand – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Inspecting and reporting on a regular basis the safety and health measures and conditions of the assigned site – Maintaining the first aid equipment – Carrying out all identified first aid activities (e.g., identification, triage if necessary, applying, reporting, follow-up etc.)	**HIGH**
	B5 **Site clerk – site administration:** Every contract requires well-established administrative processes, for which reliable plans, records and reports are essential. Most of them must be prepared and maintained on site.	**Additional Core Skills:** – Performing reliably, responsibly and efficiently – Mastering applied writing – Mastering applied computing (basic mathematical operations and statistics) **Knowledge:** – Describing important and relevant conditions of contract – Identifying and describing the standard contract management process – Interpreting bills of quantities – Describing the common cost items for unit rates – Listing and describing site administration requirements and activities – Identifying and filling standard records, minutes and reporting formats – Describing the occupational safety and health measures as required for the job at hand – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Preparing all common site records and reports – Recording minutes of site meetings – Computing measurements and preparing summaries – Collecting and recording personnel data – Preparing payment certificates – Preparing simple site statistics on use of material, equipment and tools, personnel, etc. – Effectively collaborating and working with supervisor, site management and co-workers) – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
C. SUPPLY	**C1** **Fabrication of construction stones** *(dressed stone, building blocks)*: Natural stone is a very important building material and is needed for all kinds of structures and buildings. Stones of the right quality must be selected, excavated and chiselled/cut to the required dimensions. **For self-employment add entrepreneurial skills**	**Knowledge:** – Listing and describing quality of common stone types for construction works – Listing and describing the tools and equipment used for rock excavating, breaking, cutting and dressing – Listing the standard measurements of building stones/blocks – Describing the set-up of the production site – Describing the process of rock excavating, breaking, cutting and dressing – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Excavating and breaking rock using manual methods – Cutting and dressing stone to the required size and shape – Storing produced stones/building blocks – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**
	C2 **Preparation of construction aggregates** *(sand, gravel)*: Good quality sand and gravel are most important materials in construction, especially for cement concrete. Naturally occurring sand and gravel must be collected, cleaned and screened according to the correct standards. Aggregates can be broken out of rock with simple equipment. **For self-employment add entrepreneurial skills**	**Knowledge:** – Listing and describing quality of stone and sand suitable as construction aggregates (for concrete, mortar, cement blocks, etc.) – Listing and describing the appropriate tools and equipment used for rock/stone and sand production – Describing the set-up of the production site – Describing the activities for rock/stone and sand processing – Describing the applied (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Excavating and breaking rock using manual methods – Storing produced materials – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
C. SUPPLY	**C3** **Production of building construction material** *(soil-bricks, roofing tiles, etc.)*: This includes the production of suitable and affordable building elements from locally available materials without the need for expensive production centres and machines. Knowledge and skills are required for an array of activities. **For self-employment add entrepreneurial skills**	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Listing and describing locally available materials for manufacturing building material (e.g., soil-bricks, roofing tiles, etc.) – Listing and describing the appropriate equipment and tools for manufacturing building material – Listing the dimensions of common building material (e.g., soil-bricks, roofing tiles, etc.) – Describing the set-up of the production site – Describing the work process to manufacture the building material (e.g., preparation including extracting the raw material, formwork, mixing, producing, curing/aftercare, storing) – Describing the (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Finding and extracting the suitable locally available raw material – Processing the raw material and producing the building material – Storing and curing the produced building material – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**
	C4 **Production of concrete/ cement ware** *(culverts, paving and building blocks, etc.)*: Prefabricated concrete or cement products can be a lucrative business, but must be manufactured to the required quality standards at an affordable price. Knowledge and skills are required for an array of activities. **For self-employment add entrepreneurial skills**	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas, volumes and weights) **Knowledge:** – Listing and describing the appropriate material for concrete/cement ware (e.g., aggregate, sand, cement, water, additives if required) – Listing and describing the appropriate equipment, formwork/moulds and tools for manufacturing concrete/cement ware – Listing and describing common concrete/cement ware (e.g., cement blocks for walls and pavements, culvert rings, kerbstones, etc.) – Describing the required standards/norms for concrete/cement ware to be manufactured – Describing the set-up of the production site – Describing the work process to manufacture the concrete/cement ware (e.g., preparation, preparing formwork/moulds, preparing and mixing aggregates, producing, curing/aftercare, storing) – Describing the (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Preparing/procuring and storing the production material (e.g., aggregate, sand, cement, water, additives if required) – Manufacturing the concrete/cement ware – Storing and curing the produced ware – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**HIGH**

CLASSIFICATION OF EIIP RELEVANT OCCUPATIONS			
Class	**Occupations – short description**	**Essential competencies – vocational skills**	**Level of difficulty***
C. SUPPLY	**C5** **Weaving of wire gabion boxes:** Gabion Boxes and mattresses are commonly fabricated and sold by international firms but can also be locally produced using galvanised wire of the required strength. Gabion weaving is a skill that can be easily learned. **For self-employment add entrepreneurial skills**	**Knowledge:** – Naming the material required for gabion boxes (galvanised wire of particular strength) – Listing and describing the gabion products (e.g., standard size boxes and mattresses) – Listing and describing the tools and equipment required for weaving gabion boxes – Describing the set-up of the production site – Describing the work process to weave/manufacture gabion boxes – Describing how to store and protect the produced boxes – Describing the (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Preparing/procuring and storing the galvanised wires – Setting-out the gabion shape and weaving them – Storing and protecting the produced gabions – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**LOW**
	C6 **Production and maintenance of simple tools:** This is an opportunity for the production of simple tools and measuring aids used in labour-based works (e.g., templates, setting-out pegs, tool handles etc.). In particular, maintenance of hand tools, such as sharpening and replacing handles, can be performed on site. This requires basic carpentry skills. **For self-employment add entrepreneurial skills**	**Additional Core Skills:** – Mastering applied computing (basic mathematical operations, units of measurements, calculating areas) **Knowledge:** – Listing and describing the material required for the production for wooden (tool) handles, setting-out pegs, templates and measuring aids (e.g., profile boards, A-frames, ranging rods) – Listing and describing the tools and suitable wood to be used for the manufacturing of wooden handles, pegs, templates, measuring aids – Describing the production process (for above) – Describing handtool maintenance activities (e.g., replacing handles, sharpening, etc.) – Describing the (job specific) occupational safety and health measures including the required protection equipment – Describing applied (job specific) labour regulations and gender equality measures – Describing applied (job specific) environmental protection measures **Practical skills:** – Setting up the production site – Selecting the correct tools and equipment and maintaining them – Preparing/procuring and storing the suitable wood – Manufacturing the wooden products, such as handtool handles, setting-out pegs, templates and measuring aids including profile boards, A-frames, ranging rods, etc. – Maintaining handtools, e.g., replacing handles, sharpening blades, minor repairs – Storing and protecting the manufactured products and tools – Applying occupational safety and health measures as required for the job at hand – Applying environmental safeguard measures as required for the job at hand	**MEDIUM**

▶ Annex 3. Most important criteria for selecting partner organizations

Source: Rural Skills Training; A generic manual on training for rural economic empowerment (TREE); ILO, Skills and Employability Department (EMP/SKILSS)

Partner organizations should have a sound track record in market-oriented skills training and the promotion of employment. As far as possible they should meet the following requirements.

1. Be a legal entity duly registered.
2. Have demonstrated technical experience and sustainable results in training and employment promotion for disadvantaged groups, with a minimum of seven years of practical experience in market-oriented skills training and employment (self and wage employment), micro- and small-enterprise development or income generating programmes.
3. Have a demonstrated active presence in the area that has been selected for the TREE programme, good knowledge of the local socio-economic situation and activities in the area, and rapport with local communities.
4. Have the requisite qualified personnel/staff with the technical skills and experience, infrastructure, and administrative and logistical support for under- taking specific activities in the TREE programme.
5. Proven competencies (human resources and skills) and experience in providing training and/or post- training support (technical assistance and follow up, linkages with markets, credit, business counselling, and technology) as demonstrated by the number of self-reliant persons promoted by the organization in sustainable economic activities.
6. Demonstrated understanding of the local community and specific groups with a willingness to be truly inclusive of all and to practice non-discrimination in selecting trainees, hiring staff and providing support to specific groups as needed so the participants can successfully participate and complete the programme and be employed or self-employed.
7. A good understanding of the markets for products and services that poor rural people are likely to produce, including markets for less traditional products and services.
8. Have practical experience in, and the capacity to address gender issues/dimensions in training and employment.
9. Capacity to reach the target group (a minimum of ... persons) in the specified programme area, in a timely manner.
10. Experience in group mobilization and organization, and group strategies, in particular for access to credit and savings services.
11. Good linkages and relationships with government and non-government institutions focusing on vocational training and employment promotion, business development services, savings and credit facilities, market information and marketing.
12. Demonstrated financial reliability and account- ability.
13. An established and effective system of accounts/ audit.
14. Willingness to comply with the TREE reporting and evaluation systems.

▶ Annex 4. RPL - A typical skills profiling questionnaire

Skills identification questionnaire

This questionnaire showcases some example questions used for the purpose of profiling and identifying the skills of people suitable for EIIP work. It is adapted from the EU Skills Profile Tool for third country nationals (EC 2017).

Skills identification
Languages
▶ What is your preferred language for communication in a professional context?
Education and Training
▶ Have you attended any kind of education and/or training, including primary education and informal training?
▶ What was your highest level of education and/or training?
▶ Do you have some prior learning recognized, i.e., certificates of education or training courses you attended?
Professional skills
▶ Do you have any professional/work experience? If yes, for how long?
▶ When were you last in a professional/work setting?
▶ Please indicate briefly your professional/work experience history.
▶ Please mention each significant job or professional/work experience you have had.
▶ Please describe the nature of your professional/work experience:
▶ How long did this experience last?
▶ Please indicate the occupation that best fits the type of work you carried out.
▶ Which skills did you need to do your job well?
▶ What was the size of the organization? (number of people working in the organization).
▶ What was the size of your workplace? (number of people working at your workplace).
▶ Do you have any proof of this professional/work experience with you? Yes/No.

Skills identification

Additional skills acquired (including outside the workplace)

- For the following activities that you are familiar with/used to, please indicate for how long or how often you have practised those activities and in what context:
- Caring for children?
- Caring for elderly people?
- Caring for sick or disabled people?
- Making/mending clothing?
- Preparing meals?
- Cultivating crops?
- Rearing or taking care of livestock?
- Selling or trading products?
- Making household products, e.g., furniture, pottery, carpets, wall paintings, etc.?
- Local house construction works, e.g., simple houses, toilets, home sewage system, rainwater catchment, etc.?
- Agricultural infrastructure works, e.g., building stables, fencing, wells or dams, cattle dips, access tracks/roads, etc.?

Other basic and core/transversal skills

- Please select the statements below which best suit your general working style. I am confident to:
- Work with others
- Work independently
- Solve problems
- Be able to learn new skills
- Work with customers/clients
- Provide a service to others
- Work in stressful conditions/under time pressure
- Use telephones and messenger services
- Use computers (word and browsing internet)

▶ Annex 5. Sample Curriculum: Kenya, Cobblestone Pavement Pavers

Curriculum for Cobblestone Pavement Pavers Training (Trade Area, tested and certified by National Industrial Training Authority)

NOTE: This curriculum has been developed following the standard NITA 'Trade Test Assessment Guidelines' structure as a skill-upgrading course. Lesson plans for the conduct of training courses have to be developed by the respective training institutions to ensure integration into the institutions' existing curricula.

NITA – COBBLE STONE PAVER TRADE AREA COMPETENCE – SKILL UPGRADING

1.0 Introduction

The trade area **Paver Skill** is developed to test competencies of persons engaged in the civil engineering construction sector in order to standardise their operation and certify them for their suitability to carry out tasks expected at the level. The skill area takes into consideration the knowledge requirements, practical competence and attitudes necessary in the job performance.

Persons at this level of competence have full skills, which are required for the performance of all tasks applicable in the trade.

A skilled paver is a skilled operator who has to master all required skills for cobblestone paving, have a good understanding of safety procedures, tools, equipment and materials in order to perform to desired quality standards

The skilled paver is capable of working with minimal supervision on cobblestone pavement construction.

1.1 MAJOR AREA OF FUNCTIONAL COMPETENCY

The graded paver is expected to be competent in the following:

a. Preparation of cobblestone base
b. Cobblestone paving using standard patterns.

1.2 BASIC AREAS OF FUNCTIONAL COMPETENCY

The areas of competency for the level include:

a. Work place and safety procedures
b. Tools, equipment and measuring aids for cobblestone paving
c. Cobblestone pavement standards and materials
d. Preparing base-layer for cobblestone pavement
e. Setting out for cobblestone paving
f. Cobblestone paving (step by step including workmanship control)
g. Environmental protection measures on site
h. Applied cross-cutting issues; gender, people with disability, HIV/AIDS, and labour laws.

▶ Reference to case study *Kenya: Youth Employment for Sustainable Development,* ***Section 3.2***

1.3 WORK PLACE AND SAFETY PROCEDURES

1.3.1 Performance Objectives

a. Explain potential hazards in the use of materials, tools and equipment in work situations

b. Demonstrate knowledge of responsibility/role and relationship of employer and employee in reference to the Health and Safety Act at the work place

c. Observe safety in work preparation and execution

d. Apply the relevant statutory and non-statutory regulations to paving works.

1.3.2 Knowledge Requirements

a. Recognise and explain potential accidents and their causes:

i. Traffic impact – accident with construction equipment and/or passing vehicles on road sites

ii. Falls – material and tools lying on ground and blocking walkways

iii. Cuts and bruises – using sharp and heavy tools wrongly, using equipment (compactor) wrongly

iv. Eye injury and infections – flying chips from cutting stones, dust

v. Muscle strain/trauma – wrong lifting of heavy objects, such as kerbstones, loads of cobblestones, cement bags etc.

vi. Respiratory tracts and lungs infections - dust and fumes

b. Describe working procedures and safety precautions regarding:

i. Protection of eyes

ii. Protection of hands, knees and feet

iii. Protection of respiratory tracts and lungs

iv. Protection of back – lifting of heavy objects, working posture

c. Use of first aid kit:

i. The content and use of the first aid kit for minor and immediate first treatment

ii. Use of elastoplasts, bandages, disinfectant solution, pair of scissors, razor blade, tweezers, pain killers and cotton wool

d. Personal safety precautions:

i. Use of appropriate safety gear in the workplace, i.e. wearing overalls and safety vests, goggles, boots, dust masks and gloves.

ii. Observing rules on workplace regarding traffic control measures, stocking of cobblestones and sand, safe parking and operating of site equipment such as trucks and compactors

iii. Using correct tools for the correct job

iv. Know who to contact in case of emergencies

e. Safety for others in the workplace

i. Consider safety for others in respect to usage of tools, material and equipment; warning and prevention of danger

ii. Know how to react in case of accidents that affects others, e.g., applying first aid, contacting the right persons such as site supervisor, police, doctor and/or ambulance.

1.3.3 Practical Competencies

a. Demonstrate the ability to select and wear the right safety gear

b. Identify proper clothing for cobblestone paving in order to protect the body against:

i. Dirt
ii. Dust
iii. Flying chips
iv. Rough stones and heavy tools

c. Wear gloves to protect hands against:

i. Abrasion due to rough surfaces
ii. Use of heavy handtools
iii. Cuts from sharp objects

d. Put on boots to protect against:

i. Sharp objects which may cause pricking
ii. Heavy objects which may fall or roll
iii. Mortar and concrete (cement slurry)

e. Wear goggles to protect eyes against:

i. Flying chips from chiselling stones
ii. Dust on site

f. Protect the head against:

i. Dust on site – wear dust mask
ii. Extreme sunshine and heat – wear hat

g. Demonstrate safety precautions for others on the workplace. While observing personal safety, it is also important that safety for others is considered with respect to use of tools, good housekeeping and displaying and warning of danger, particularly the installation of traffic warning signs.

h. Demonstrate important first aid measures against:

i. Bruises and cuts
ii. Eye injuries and infections
iii. Muscle strain and trauma
iv. Respiratory tract and lung infections
v. Shock

i. Demonstrate the use of traffic signs and traffic regulatory methods:

i. Appropriate signs to warn and regulate traffic passing on construction sites
ii. Appropriate measures to control traffic passing on construction sites, such as signal-men or traffic lights

j. Recognise potential accidents and their cause due to:

i. Traffic impact – accident with construction equipment and/or passing vehicles on road sites
ii. Falls – material and tools lying on ground and blocking walkways
iii. Cuts and bruises – using sharp and heavy tools wrongly, using equipment (compactor) wrongly
iv. Eye injury and infections – flying chips from cutting stones, dust
v. Muscle strain/trauma – wrong lifting of heavy objects, such a kerbstones, loads of cobblestones, cement bags etc.
vi. Respiratory tracts and lungs infections- dust and fumes

1.4 TOOLS, EQUIPMENT AND MEASURING AIDS

1.4.1 Performance Objectives

a. Select the correct tools for the work at hand
b. Describe the safe use, care and maintenance of tools
c. Demonstrate the correct use and maintenance of work place equipment
d. Identify setting-out and measuring aids
e. Demonstrate the safe use of setting-out tools and aids

1.4.2 Knowledge Requirements

a. Select the correct tools for the work at hand

i. Measuring tape (3m)
ii. Earth/setting-out nails
iii. Mason's square (90°)
iv. Straight edge
v. Spirit level
vi. Sledgehammer
vii. Chisel/mason hammer
viii. Paving hammer
ix. Hand rammer for compaction
x. Chisel flat/tipped
xi. Shovel
xii. Trowel
xiii. Pick-axe
xiv. Rake
xv. Wheelbarrow
xvi. Broom

b. Safe use, care and maintenance of tools

i. Measuring tape (3m)
ii. Earth/setting-out nails
iii. Mason's square (90°)
iv. Straight edge
v. Spirit level
vi. Sledgehammer
vii. Chisel/mason hammer
viii. Paving hammer
ix. Hand rammer for compaction
x. Chisel flat/tipped
xi. Shovel
xii. Trowel
xiii. Pick-axe
xiv. Rake
xv. Wheelbarrow
xvi. Broom

c. Correct use, care and maintenance of work place equipment (compactor)
   i. Cleaning
   ii. Checking fuel and oil levels
   iii. Greasing
   iv. Storage

d. Select the correct setting-out and measuring aids for the work at hand
   i. Measuring tape (30m)
   ii. Line level
   iii. Strings and pegs/earth nails
   iv. Set of boning rods
   v. Ranging rods

e. Safe use, care and maintenance of setting-out and measuring tools
   i. Measuring tape (30m)
   ii. Line level
   iii. Strings and pegs/earth nails
   iv. Set of boning rods
   v. Ranging rods

1.5 COBBLESTONE PAVEMENT STANDARDS AND MATERIALS

1.5.1 Performance Objectives

a. Demonstrate basic knowledge of road formation

b. Demonstrate basic knowledge of road drainage system

c. Describe detailed requirements in terms of principle standards and materials for cobblestone pavement layer, kerbs, intersections and drains

1.5.2 Knowledge Requirements

a. Basic knowledge of road formation layers, their function and principle quality standards

b. Basic knowledge of road drainage system, e.g., side drains, gullies, inverted camber

c. Detailed knowledge of principle quality standards for cobblestone pavement, sand/crushed stone and stones

d. Detailed knowledge of standards for kerbs, intersections and drains

e. Knowledge on required material, standards and mixing procedures for construction concrete and mortar for kerbs, intersections and drains

1.5.3 Practical Competency

a. Identifying and checking the quality of crushed stone for cobblestone paving

b. Checking soundness and hardness of cobblestones using simple on-site testing practice, e.g., water test, visual check

c. Checking correct aggregate size and mixture ratio for concrete

d. Checking quality of cement and sand/crushed stone for concrete and mortar

1.6 PREPARING BASE LAYER FOR COBBLESTONE PAVEMENT

1.6.1 Performance Objectives

a. Demonstrate basic knowledge of base layer checking and preparation before paving activities commence

b. Assist the site foreman in checking and preparation activities

1.6.2 Knowledge Requirements

a. Basic base layer requirements in terms of surface condition, geometric measures and gradients

b. Measures to take if base layer is not as per required standards

c. Methods of correcting small error spots, such as potholes or smaller weak areas, e.g., soaked spots

1.6.3 Practical Competency

a. Assist the site foreman to assess the base layer surface condition in terms of evenness and compaction

b. Assist the site foreman in confirming the base layer's geometric measures using the required tools and measuring aids

c. Assist the site foreman in confirming the base layer's gradient, e.g., camber or one-side slope, using the required tools and measuring aids

d. Assist the site foreman in recording deficiencies and reporting severe short comings

e. Correct small uneven areas or spots to ensure adequate ground for cobblestone paving as instructed by site foreman

1.7 SETTING OUT FOR COBBLESTONE PAVING

1.7.1 Performance Objectives

a. Demonstrate basic knowledge of setting out requirements for cobblestone paving

b. Assist the site foreman in setting out activities for cobblestone paving

1.7.2 Knowledge Requirements

a. Basic setting out requirements in terms of measurements and gradients

b. Principal methods of setting out the various construction elements, e.g., pavement width, kerbs, levels, stone set patterns, drains.

1.7.3 Practical Competency

a. Assist the site foreman in determining and setting out the road/area parameters to be paved with cobblestones

b. Assist the site foreman in determining and setting out the correct levels and gradients

c. Assist the site foreman in setting out the kerbstones and intersections to other pavement types

d. Assist the site foreman in determining and setting out cobblestone set patterns

1.8 COBBLESTONE PAVING

1.8.1 Performance Objectives

a. Demonstrate knowledge of all construction activities for cobblestone paving
b. Perform all cobblestone paving activities

1.8.2 Knowledge Requirements

a. Workplace preparation and organization
b. Installing kerb stones and intersection stone courses embedded in concrete/mortar
c. Spreading crushed stone bedding layer to required thickness and levels
d. Setting of cobblestones to the required standard pattern (arch and straight rows)
e. Filling the joints with crushed aggregate/sand , compacting cobblestone sets and completing works
f. Applying quality control measures to ensure good workmanship

1.8.3 Practical Competency

a. Prepare tools and materials on site ready for works
b. Excavate foundation trench for kerb stones and set them in concrete with mortar joints
c. Level foundation strip for intersection courses, set stones in concrete and fill joints with mortar
d. Mixing concrete and mortar on site for kerbs and drain lining
e. Spreading crushed aggregate bedding layer to required thickness and levels
f. Setting cobblestones to the required pattern (arch or straight rows)
g. Setting cobblestones for drains with required shape and gradient as required.
h. Filling cobblestone joints with sand/crushed stone, water, brushing and compacting
i. Appling quality control measures throughout all activities to ensure good workmanship and required quality standards are achieved
j. Finishing all works, clean work place, tools and equipment
k. Maintaining hand tools, e.g., fix new handles, sharpen chisels

1.9 ENVIRONMENTAL PROTECTION ON SITE

1.9.1 Performance Objectives

a. Demonstrate knowledge of practical environmental protection measures on site
b. Perform environmental protection measures on site

1.9.2 Knowledge Requirements

a. Basic knowledge of environmental hazards stemming from cobblestone construction works, such as dust, noise and spills
b. Know how to avoid or reduce unnecessary dust and noise emissions
c. Know how to avoid fuel and lubricant spills from equipment
d. Know how to safely dispose of construction waste

1.9.3 Practical Competency

a. Reducing dust formation by wetting dry surfaces and sand

b. Reducing noise emission through careful operations

c. Avoiding spills by using correct filling containers, oil changing procedures and careful greasing practices

d. Collecting and disposing off safely any construction waste.

2.0 APPLIED CROSS-CUTTING ISSUES

2.1 Performance Objectives

a. Demonstrate basic knowledge of common cross-cutting issues on gender equity, people with disability, HIV/AIDS and labour laws

b. Perform basic duties with respect to observing cross-cutting issues in carrying out daily works

2.2 Knowledge Requirements

a. Basic knowledge about gender issues; equal rights of women and men on worksites, special needs of women on site

b. Basic knowledge about people with disability; their principal rights, their abilities to participate in work, special needs on site

c. Basic knowledge about HIV/AIDS; causes, treatment, protection and working with people with HIV/AIDS

d. Knowledge of principal labour laws as applicable for construction works

2.3 Practical Competency

a. Performing work on site in the work team with full consciousness of all crosscutting issues

b. Participating actively in all awareness creation exercises on cross-cutting issues and translate them into working routine

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