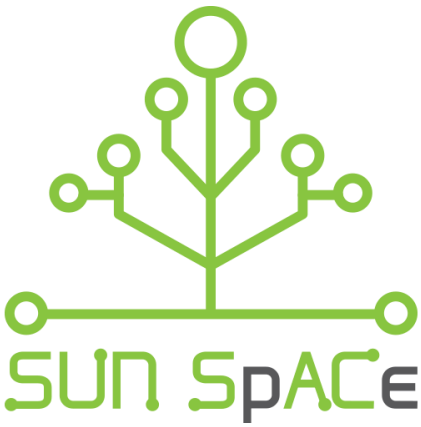

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SUstainable developmeNt Smart Agriculture Capacity 'SUNSpACe'

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Contents

List of updates

date	Author	Modifications
2020.02.14	ULL	First draft based on literature review, proposal and collaborative work during the skype meeting
2020.04.14	ULL	First shared draft, including feedback from asian partners
2020.06.14	ULL	Second shared draft, including additional work on past approaches
2020.09.09	ULL	Pre-Final version, including comments from partners and additional details regarding the progress tasks of WP3 and WP2.
2021.07.14	ULL	Element on Smart Farm Trainer qualification.
	all	Review by partners
2021.09.14	CMU	Validation
2022.12.04	ULL	Revised and Closed

List of Abbreviations

Term / Abbreviation	Definition
VET	Vocational Education and Training
EQF	European Qualification Framework
Logframe	Logical Framework Matrix
RF	Results Framework
AO	Assistance Objective
Cedefop	Centre for the Development of Vocational Training
LFA	Logical Framework Approach
EQF	European Qualifications Framework
TPQI	Thailand Professional Qualification Institute
CTEVT	Council for Technical Education and VocationalTraining
BAC	Bhutan Accreditation Council
NSTB	National Skill Testing Board
NVQS	Nepal Vocational Qualifications System
QAAD	Quality Assurance and Accreditation Division

1 Introduction

SUNSpACe proposes an appropriate adaptive learning approach to develop the farmers capacity to implement Smart Farms. The Training Program addresses both “train-the-trainer", and “train-the-farmer”. For each pilot, the Training Program trains smart Farm trainer (20/PCs) and certify the Smart Farmer Trainer capacity to train and coach farmer (5 farmer/smart farmer). With this “cascade” approach, knowledge transfer will be fast and efficient and the number of trained farmer crosses quickly. Academic staff is also part of the Training Program to promote the project, to better manage the project and its sustainability.

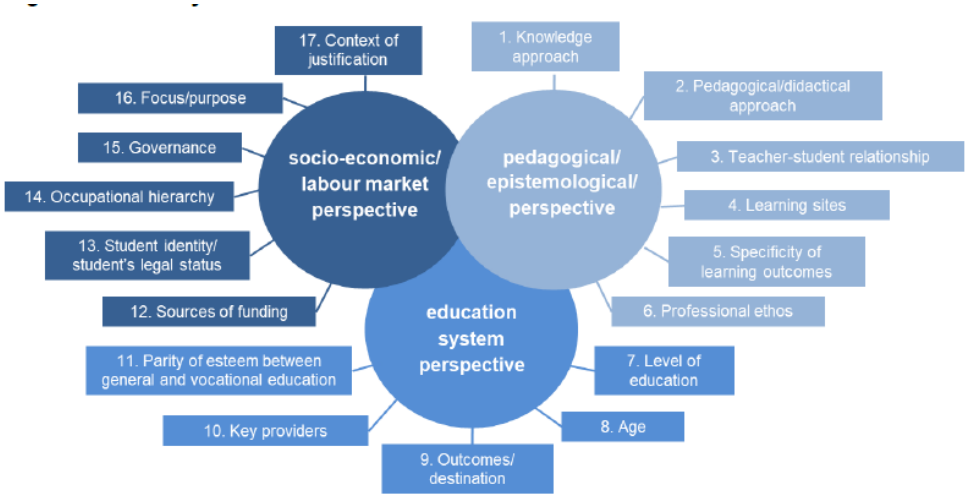
The main WP3 objective is to ensure the quality of the Training Program. So, it first reviews VET quality assurance, considering process of certification and accreditation in European and Asian partner countries. In particular, it considers the way to evaluate SUNSpACe Training Program effectiveness by using the Kirkpatrick model. Task 3.1 focus on the process to ensure both the quality of the Training Program and recognizing Smart Farmer Trainers’ skills.

2 Quality for Vocational Education and Training (VET)

Vocational Education and Training (VET) is becoming more and more important in a changing world (CEDEFOP, 2019). The main objective of VET is to equip people with the knowledge, know-how, skills and/or competencies required in a particular occupation or more broadly to facilitate entry and evolution into the labour market. VET responds to the need of the economy but also to the needs of citizenship. VET contributes to developing the competitiveness of enterprises, but also individual professional careers. In Europe VET is an important element of Lifelong Learning (LLL) system.

Europe developed a multi-perspective VET conception model that consist in an epistemological/ pedagogical perspective; a socioeconomic or labour market perspective; and an educational system perspective.

Figure 1: VET European Muli perspective model (Source: Cedefop (2019), Changing nature and role of vocational education and training (VET) in Europe)



The European Centre for the Development of Vocational Training (Cedefop) is the European Union's reference centre for vocational education and training (https://www.cedefop.europa.eu). Cedefop was established in 1975 for focusing on the issue of accreditation and common quality assurance framework (CQAF) to make quality and quality assurance policy for higher education and VET. The main objectives of Cedefop are to develop a single framework for the transparency of qualifications and competences, credit transfer in VET, and quality assurance to improve the performance, quality and attractiveness of VET.

Quality assurance in VET is very important to ameliorate between education and training demand and supply. It's a key priority in Europe to develop among which mobility of workers and learners, and lifelong learning. European cooperation on quality in VET started in 2001 and was supported by cedefop. This cooperation led to the definition of common principles, guidelines, and tools for quality development which resulted in the establishment of EQAVET (European Quality Assurance in Vocational Education and Training). EQAVET emerged from the 2009 Recommendation of the European Parliament and Council, which invited Member States to use indicative descriptors and indicators to strengthen the quality of VET.

The development of quality in vocational training has resulted in a large number of schemes concerning the above Training Bodies and Learning Programs.

European Qualifications Framework (EQF)

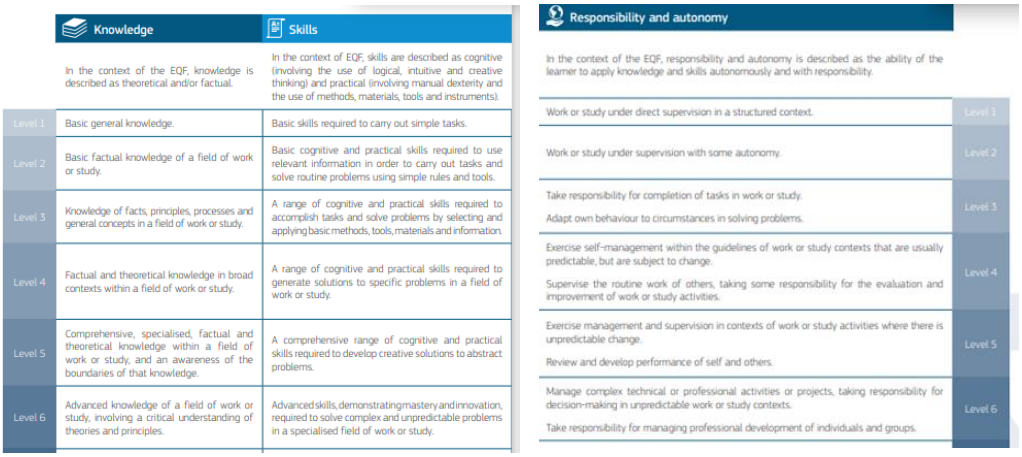
One of these schemes is the development of the EQF (European Qualifications Framework) and the ECVET (European Credit system for Vocational Education and Training), and the development of the accreditation process.

EQF is a system that permits to the comparison of training and qualifications. It aims to improve the transparency, comparability, and portability of people's qualifications in Europe and also in World. It's a common reference framework of qualifications, expressed as learning outcomes at increasing levels of proficiency. It serves as a translation device between different qualifications systems and their levels. Adopted by Europe in 2008, it is a way of mapping qualifications across EU member Countries and a common European reference framework which links countries' qualifications systems, using to make qualifications more readable and understandable in Europe. It is elaborated considering the balance between demand and supply of knowledge and skills. It is not a classification of individual competences and couldn't allow to directly assess or validate a level.

Each country has its own National Qualification Framework (NFQ) in coherence with its own national Educational System. What is important for SUNSPACE project is that the EQF applies to all types of education, training and qualifications, from school education to academic, professional and vocational. It is a LLL framework, by promoting the validation of non-formal and informal learning and covers all types of qualifications from those acquired at the end of compulsory education (Level 1/ basic) to the highest qualifications (Level 8/advanced) and including vocational qualifications. The 8 levels indicate the difficulty level and focus on the outcome of learning (what a learner knows, understands, and is able to do) and the person's

actual knowledge and skills, rather than the amount of study needed. It is supported by three criteria: the complexity of knowledge (theoretical and factual), skills and know-how (cognitive and practical), and degree of responsibility and autonomy (ability to apply knowledge and skills autonomously and with responsibility).

Figure 2: Descriptors defining level in EQF



	Knowledge	Skills
	In the context of the EQF, knowledge is described as theoretical and/or factual.	In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments).
Level 1	Basic general knowledge.	Basic skills required to carry out simple tasks.
Level 2	Basic factual knowledge of a field of work or study.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and solve routine problems using simple rules and tools.
Level 3	Knowledge of facts, principles, processes and general concepts in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information.
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study.	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study.
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study, and an awareness of the boundaries of that knowledge.	A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.

Responsibility and autonomy	
In the context of the EQF, responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility.	
Work or study under direct supervision in a structured context.	Level 1
Work or study under supervision with some autonomy.	Level 2
Take responsibility for completion of tasks in work or study. Adapt own behaviour to circumstances in solving problems.	Level 3
Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change. Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.	Level 4
Exercise management and supervision in contexts of work or study activities where there is unpredictable change. Review and develop performance of self and others.	Level 5
Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts. Take responsibility for managing professional development of individuals and groups.	Level 6

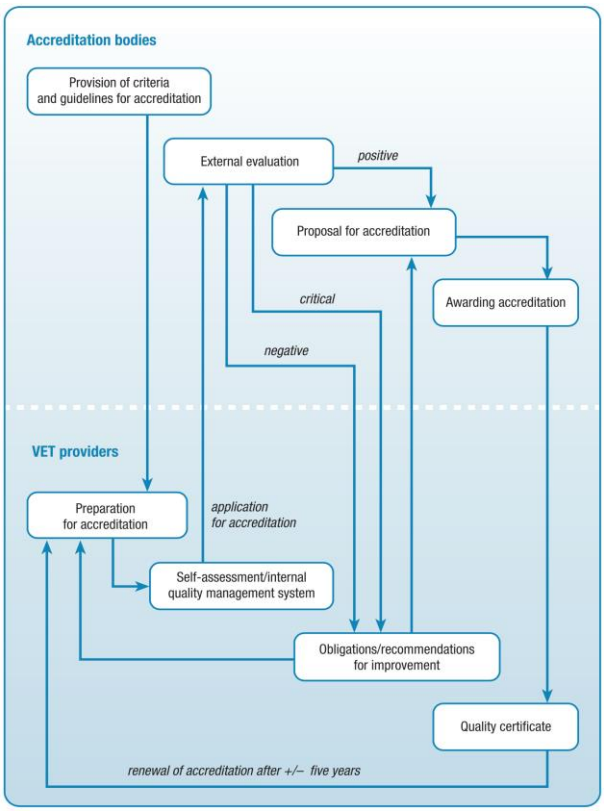
At a worldwide level, even if there's no VET policy competence at an international level, there's more and more tools and methods to ensure VET quality and transparency of qualifications. For example, the WRL (Unesco, 2019) is a new tool in development supported by UNESCO with the objective to Translate any outcomes-based qualification, credential, entry requirements, job specification or framework level into an internationally recognised form of description which you can use in deciding on or negotiating recognition or progression arrangements.

Quality assurance and Accreditation Systems

Quality-assurance systems provide a means by which to minimize the risks inherent in national and regional vocational education and training systems (Gunnings, 2010). Risks are mainly related to specification of the knowledge and skills to be acquired by learners and to the quality of teaching and assessment services offered by VET providers.

Accreditation is often needed to ensure quality in many national VET systems. The accreditation body sets the criteria and standards, and also provide guidelines that should be met by the VET provider to achieve positive external assessment. The criteria and standards for accreditation will vary widely from countries or depending on the specific field of training. Generally, the self-assessment reports are written by VET providers that's reviewed by the external body of VET experts in the field of training. The decision of the evaluating body includes advice and recommendations on necessary changes. Following a positive evaluation and proposal for accreditation, the VET provider will be awarded its accreditation and receive a quality certificate. A quality certificate is never issued for an unlimited period of time, normally around five years. Fig. 1, shows the accreditation process.

Figure 3. The accreditation process in Europe



Quality and Vocation Qualification

Another component of VET quality improvement is the process of qualification recognition. In Europe, the adoption of the European Qualifications Framework (EQF) in 2008 played a particularly important role, triggering the establishment of comprehensive, learning outcomes-based national qualifications frameworks (NQFs) in all European countries (Cedefop, 2018).

Vocational Qualification presents a great challenge in VET because it concerns the recognition of mastery of the skills required to occupy a job. This recognition may be carried out on an individual basis, with an assessment procedure to verify that the candidate possesses knowledge, expertise and interpersonal skills necessary for the occupation The assessment be carried out at the end of a vocational training course or as part of a validation-of-experience procedure. Qualification may be recognized or not by the delivery of vocational certification (diploma or another vocational certificate). In different countries vocational certifications are referenced in the National Vocational Certification Register. Qualification may also be recognised collectively with a collective agreement in a particular vocational occupational sector. This form of recognition has social value, applying to all the companies within a given sector and, in some cases, across other sectors.

For example, in France, the recognition of vocational qualification corresponds to the Creation in 2002 of the National Register of vocational and professional qualifications (Répertoire national des certifications professionnelles (RNCP). In

particular, it has made it possible to create the VAE process (validation des acquis de l'expérience) that make it possible to validate a diploma with a professional experience. Recently the notion of 'units/blocks of competencies' was introduced. It's an identified part of a vocational qualification', defined as a homogeneous and coherent set of competencies contributing to carrying out a professional activity autonomously, and which can be assessed and validated. The process that permits to verify that a person has mastered a body of vocational skills and knowledge, as well as the result of the verification, is called "vocational certification". The act of certification is an assessment of the person's competence to do a given job. The result is the diploma, certificate or other vocational qualification obtained. So, in this quality process, diplomas and certificates permit to testify that a person is capable of exercising a specific occupation with a given level of responsibility and autonomy. They constitute an assurance that the holder possesses the required knowledge and skills.

Quality and Qualification of Teacher and Trainers.

In reference to EQF, Europe make special attention to Teachers and Trainers' professional development (1) to ensure technical and pedagogical skills; (2) to ensure their capacity to responds to emerging needs above all basic, digital and entrepreneurial skills. In particular, The Bruges communiqué (2010) had invited European Member States to invest in and improve initial and continuing training for VET teachers and trainers by offering flexible training provisions enabling them to: acquire the right set of competences; take up broader and more complex training-related tasks; deal with the increasing heterogeneity of learners; use new learning methods; make the most of new technologies.

While VET teacher and trainer professional development has been on the EU education policy agenda for many years, it has not been sufficiently visible in national policies. So, the Riga conclusions (2015) have put renewed emphasis on the issue, calling for systematic approaches to and opportunities for initial and continuing professional development (CPD) of VET teachers, trainers, and mentors. Cooperation and partnerships among stakeholders are seen as a way to support this.

Recently Europe points more and more to the key role of trainers (tutors, instructors, mentors) in companies that ensure high-quality work-based learning and the link between education and real working life.

In SUNSPACE project, this it is a way of recognising the figure and skills of the Smart Farm Trainer.

3 Measuring effectiveness of Smart Farm Training Program

This section presents four theoretical models for measuring the effectiveness of agricultural training.

3.1 Logical Framework Approach

The Logical Framework Approach (LFA) is a methodology used to support objectives-oriented project planning and management. LFA tools used for designing, monitoring and evaluating international development projects, which is also known as Goal Oriented Project Planning (GOPP) or Objective Oriented Project Planning (OOPP). LAF basically a four-by-four matrix, known as the Logical Framework Matrix (Logframe), which consists of four columns (i.e. project description, objectively verifiable indicators of achievement, sources and means of verification, and assumptions) and four rows (i.e. goal, purpose, outputs and activities) that summarise the key elements of project plan. The Logframe is used when planning, implementing, and evaluating specific projects and programs within an action plan. LFA guides the systematic and logical analysis of the key interrelated elements that constitute a well-designed project (The World Bank 2000: https://www.worldbank.org).

3.2 Results Framework Model

The Results Framework (RF) is planning, communications, and management tool that is basically a graphic representation to provide a strategy to achieve project objectives. The RF includes the Assistance Objective (AO) and Intermediate Results (IRs) that is first introduced by USAID (https://www.usaid.gov) in the mid-1990s for monitoring USAID programs. The RF shows how the achievement of lower-level objectives (IRs) leads to the achievement of the next higher order of objectives. The RF commonly uses the following five terminologies: (1) input, (2) activity, (3) output, (4) outcome, and (5) impact which is shown in Fig. 3.

Figure 3. Terminologies used in Result Framework.

3.3 Kirkpatrick Model

The Kirkpatrick Model is a four-level training evaluation model for analysing and evaluating the results of training and educational programs. It's very useful model to find the impact of training program that how well the trainees learned to change their future. The four levels in Kirkpatrick Model are: (Level 1) Reaction, (Level 2) Learning, (Level 3) Behaviour and (Level 4) Results. Table: 1, presents the Kirkpatrick Model.

Table 1. The Kirkpatrick Model.

Level 1	**Reaction**	**Finds the trainees' reactions and satisfaction, e.g., measuring how engaged they ware, how actively they contributed, and how they reacted to the training helps etc. This level measures the degree that trainees find the training favourable, engaging and relevant to their jobs.**
Level 2	Learning	It's the process of measuring what the trainees have and haven't learned. This level measures the degree to which trainees acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training.
Level 3	Behaviour	This level helps us to understand how well trainees apply the training, and measures the degree that trainees apply what they learned during training when they are back on their job.
Level 4	Results	At this level, we analyse and measures the final results of the training program. It's very costly and time-consuming process. The challenge is to identify which outcomes, benefits, or final results are linked to the training program, and find the effective way to measure these outcomes in long run.

3.4 Countenance Model

The Countenance Model, also known as Stake Evaluation Model, is introduced by Robert Stake in 1967 used to evaluate higher education programmes or an environmental professional development course [13]. This model aims to capture the complexity of an educational innovation and finds the effectiveness of a training program by examining both quantitative and qualitative data. The Countenance Model takes into account the following four training evaluation methods: (1) context evaluation, (2) input evaluation, (3) process evaluation and (4) product evaluation. Stake's Countenance Model distinguishes between antecedents (those conditions existing prior to teaching and learning), transactions (engagements that make up the process of training), and outcomes (the measurements of the impact of instruction).

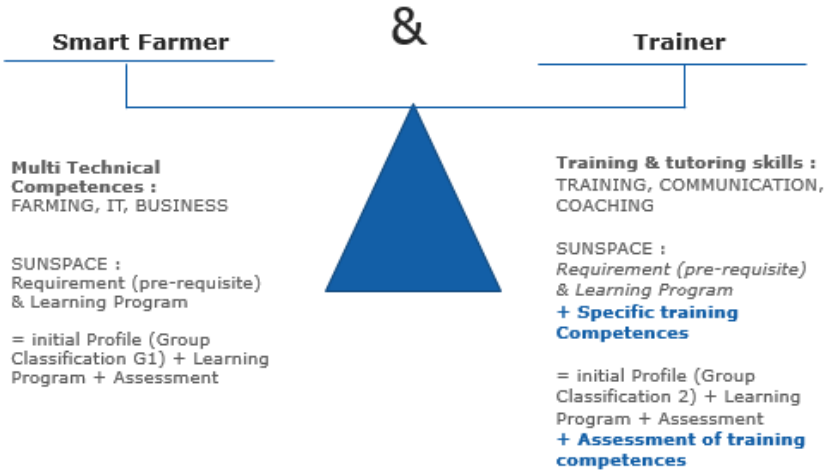
4 Toward a Smart Farmer Trainer Vocational Qualification?

One of the objectives of this section is to analyse how to recognize the vocational qualification of the Smart Farmer Trainer that will be in charge of training future Smart Farmers. The first problem is that the Smart Farmer trainer is a new figure to characterize and the second is to identify quality requirements to assume this role. As mentioned before, a vocational qualification challenge is the recognition of mastery of skills required to exercise a trade or occupy a job.

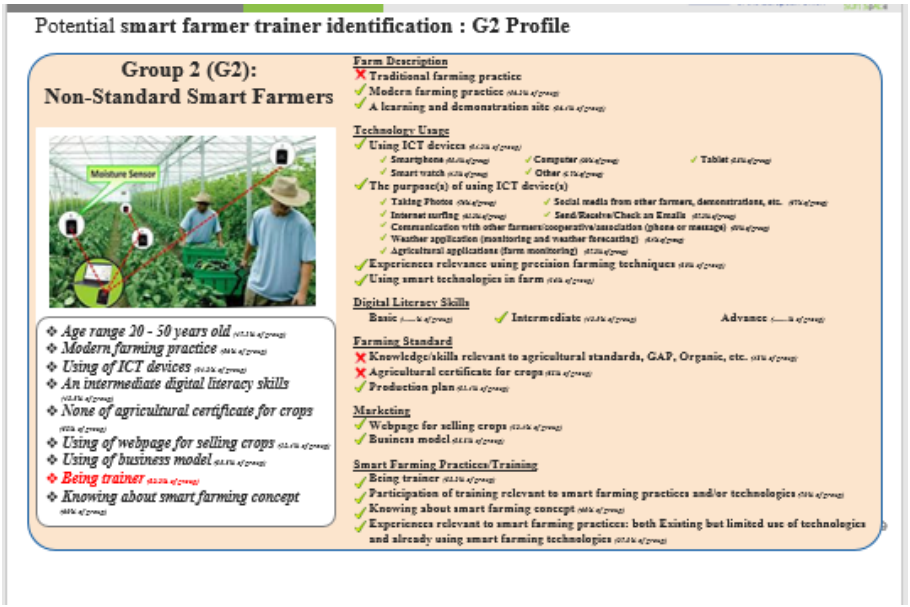
SUNSpACe proposes an appropriate adaptive learning approach to develop the farmer's capacity to implement Smart Farms. The Training Program addresses both "train-the-trainer", and "train-the-farmer". For each pilot, the Training Program trains a smart Farm trainer (20/PCs) and certify the Smart Farmer Trainer's capacity to train and coach farmer (5 farmer/smart farmer). With this "cascade" approach, knowledge transfer will be fast and efficient and the number of trained farmers crosses quickly.

The Smart Farmer Trainer needs to master two types of skills: (1) technical skills of being a smart farmer and (2) transversal training and coaching tutoring competencies. So, as a smart farmer, he develops multi-technical competencies (farming, IT, and Business that are the heart of the SUNSpACe learning program). As a trainer, he demonstrates the capacity to transfer competencies and knowledge to others, which implies skills concerning training (like evaluating), coaching (assist, motivate, help) but also communication.

Figure 4. The Smart Farmer Trainer : a new figure to characterize



In Pilots Smart Farmer Trainer correspond to the G2 profile (below)

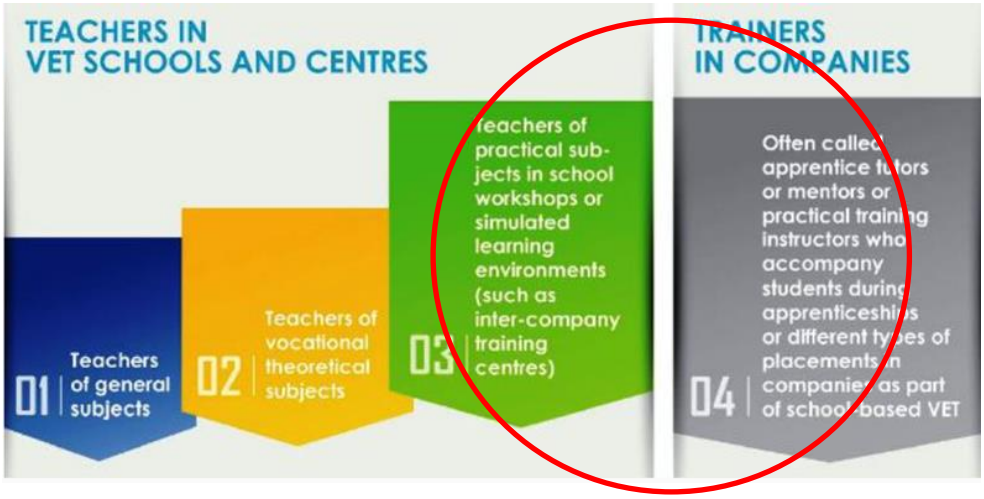


The challenge is not only to ensure the capacity of this G2 to train but also to certify them. Important role that has a specific role in Sunspace that multiplies the capacity to train in a cascade process. It corresponds to an appropriated way of training farm population in partner countries, but also specific figure to value and an adapted qualification to determine. The main problem is that qualification of trainers is not really standardised in assurance quality for VET.

In reference to EQF, Teachers and Trainers represent a very wide variety of situations in the world and in Europe. So, there is no unified approach across EU countries to defining a trainer in VET or in-company trainer. In each country, they have different titles for professionals working, different type of qualification, different level of

qualification, different rights and professional regulations. Despite this, there is approximately 4 types of teacher and trainers in VET.

Figure 5 Teachers and Trainers In European VET



In reference to this figure, Smart farmer Trainer would not be teachers of general and vocational subjects. His role is between: teachers of practical subjects in school workshops& Trainers in companies.

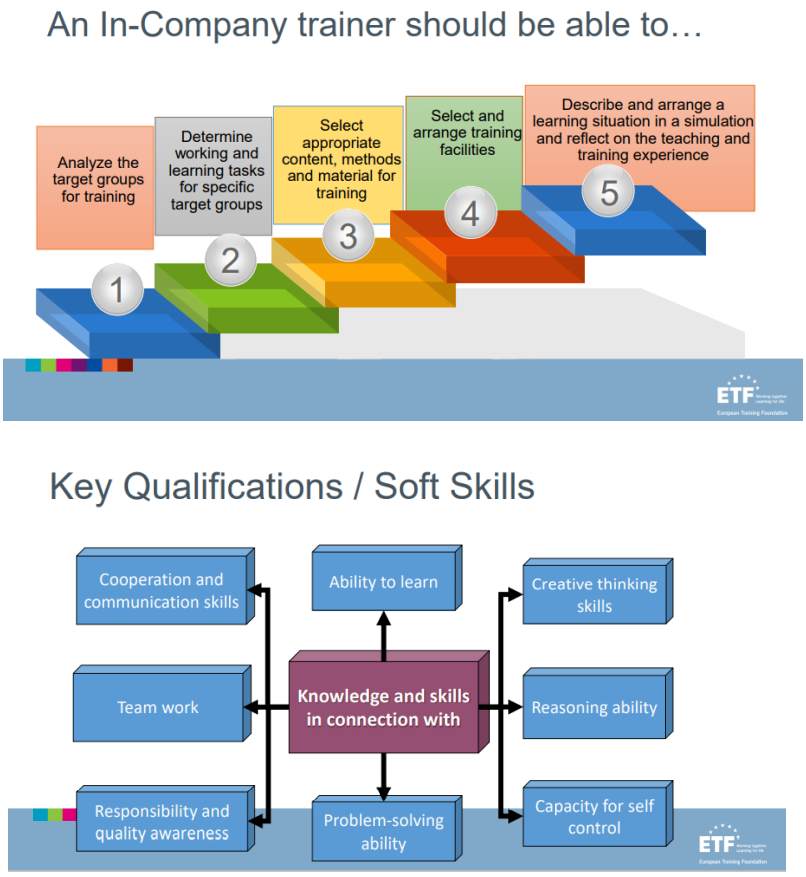
In reference to SUNSpACe Partners, the Smart Farmer Trainer is close to Trainers un companies, with specificities: (1) a community approach: the Smart Farm Trainer would be able to gain trust of farmers, (2) he is a type of tutor or “mentor” with an important role of motivation, (3) a “cascade” model: to grow up rapidly and (4) a “couteau Suisse”: Adapted to different profile of farmers with basic competence prerequisites (Linguistic, socio-cultural and economic) and ability to adapt.

So, we need to certify two mains specific trainers’ skills: (1) Pedagogical competences and (2) Tutor/mentor specific skills.

The main Pedagogical skills are numerous. We can list:

- Know Trainers roles and learning environment
- Identify the training needs of trainees
- Define or Decline learning objectives
- Provide or use learning support
- Know learning styles of trainees
- Training delivery and pedagogical (or coaching) methods
- Ability to handle individuals and groups
- Use of evaluation and assessment methods.

Figure 6: Main Trainers skills



Source: European Training Foundation (2018), In-Company Trainers

In some countries, there exist pedagogical certification. But some of them represent an important volume of training hours not adapted to the project

Figure 7: Pedagogical Competences Certificate (Portugal)

Source : Discover your talent ! European Vocational Skills Week, 2016

The main tutorial skills are also numerous and less known. We can list:

- transfer of expertise to trainees.

- being a model, an advisor, a reference in behavior to guide the trainee

- Give positive and constructive feedback to the trainee.

The tutor of the company will be the person in charge that will guarantee that the conditions and requisites of the Dual learning are met. So, the Tutor is either a good professional, and either able to teach, to assess and to support. Some works concerning LLL and dual systems underline the personal qualities necessary to assume this function (figure 8) like “sensitivity towards the training activity”, “able to motivate students”, “being empathetic”, “able to handle interpersonal relationships”, “able to treat gender and cultural differences” etc.

Figure 8: Characteristics of the Company tutor

Characteristics of the Company tutor		
Patient	Receptive	Open minded
Non trouble profile	Empathic	Wilfull
Motivated	Responsible	With authority
Poilty	Neat	Calm
Exigent	Disposed	Communicator
Team worker	Social skills	Willing to teach and to learn
To know how to delegate	Open minded	Involved in the company
Proffesional expert	Pedagogical skills	Listener

Source: « Methodological guide company tutor », Dual-T Erasmus+, Dual-T (dual-t.com), p.17

The qualification of company Trainers and Tutors at European level is not stabilized, but exist some certification that we give an example below.

Example of company (dual) tutor certification in Germany: Ausbildung der Ausbilder – AdA / AEVO Qualification. This certification is applied to trainers in commercial enterprises, agriculture, home economics, the mountains and the civil service. The AdA course contents is of general pedagogical / methodical character and thus in principle applicable to German standard dual vocational education in every profession. The AdA qualification requirement is based on German statutory law (Ausbildereignungsverordnung – AEVO). In the German vocational education system, there is 2 levels of AdA qualification courses: a Basic and a Comprehensive Version (“Basisversion” and “Vollversion”).

Figure 8. Content of Ausbildung der Ausbilder – AdA

Learning Field 1: Evaluation of Training Requirements Objective: Trainers are able to evaluate the training requirements for successful vocational training. Learning Field 2: Preparation of Training and Participation in Selecting Students and Apprentices Objective: Trainers are able to prepare the vocational training considering organizational and legal aspects. Learning Field 3: Conduct of Training Objective: Trainers are able to stimulate independently activity-based learning of apprentices and students on specific work and operational processes. Learning Field 4: Completion of Training Objective: The trainer has the professional and pedagogical qualification to guide the apprentices and students towards a successful completion of their training / apprenticeship and to inform them about possible future career paths.

Example of company (dual) tutor certification in France.

Example of Standard for In-Company Trainers in ASEAN Countries

Figure 9: ASEAN In-CT Standardhttps://www.sea-vet.net/images/seb/e-library/doc_file/857/20200921asean-in-ct-standard-implementationthailandfinal.pdf

Subject	Hours
Background to the Act on the Department of Skill Development	2
Conducting training in the dual education system	2
Monitoring training in the dual education system	2
Designing a training plan	8
Conducting training	9
Evaluating training	5
Assessment	2
Total	30

Table 2: Outline of OVEC's 30-hour 'Train the trainer in the workplace' course

Figure 10: TPQI Qualification for In company trainer

ASEAN In-CT Standard		TPQI's occupational standard for in-company trainers
Module 1: Analysing work tasks and defining learning requirements	Level 3	Trainee analysis
Module 2: Planning and preparing training		Planning and preparing training
Module 3: Conducting training		Conducting on-the-job training
Module 4: Evaluation and further development of training		Evaluation and further development of training
Module 1: Analysing work tasks and defining learning requirements	Level 4	Identifying training needs
Module 2: Planning and preparing training		Developing training courses
		Developing training materials
		Selecting appropriate training materials
		Selecting most appropriate training methods
		Planning and preparing a lesson plan
Module 3: Conducting training		Conducting in-class training
Module 4: Evaluation and further development of training		Evaluation and further development of training

Table 4: Comparison of TQPI's occupational standard for in-company trainers with the ASEAN In-CT Standard

5 Quality Certification for Smart Farmers in Partners countries

In this section, we first present an overview of existing Training Program in Smart farming, and second, we.

Building QA approach in SUNSpACe

The objective of this part is to consider quality in Thailand, Nepal and Bhutan. This objective is to present the process of accreditation and some elements concerning the Smart Farm Trainers.

By using EQVET approach, we may consider to construct a QA in partners countries. To build the Quality system, 4 steps are necessary.

Stage 1: Planning. Set up clear, appropriate and measurable goals and objectives in terms of policies, procedures, tasks and human resources.

Stage 2: Implementation. Establish procedures to ensure the achievement of goals and objectives.

Stage 3: Evaluation. Design mechanisms for the evaluation of achievements and outcomes by collecting and processing data in order to make informed assessments.

Stage 4: Review. Develop procedures in order to achieve the targeted outcomes and / or new objectives.

Vocational Qualification for Smart Farmer Trainer

By using the European vocational certification example, we propose to assess Smart Farmer Trainer Skills to train and tutor, based on a selection of these pedagogical & tutorial competences:

- Identify the training needs of trainees
- Define or Decline learning objectives
- Provide or Use learning support, resources and Learning Platforms
- Deliver training and some pedagogical methods
- Ability to handle individuals and groups
- Use of evaluation and assessment methods
- Use of work situations to develop learning
- Guide trainee's reflection on their work and learning activities.
- Evaluate learning outcomes in the work situation

Accreditation and Quality system in Thailand, Nepal and Bhutan

Thailand (CMU)

Thailand Professional Qualification Institute (TPQI) is a public organization that certify professional qualification and professional standards is ordered to develop manpower. This objective is to develop workforce with professional qualifications system, support professional bodies to set occupational standards, and accredit certification bodies. The goal of TPQI is to develop workforce according to skills demands and economic trends that will raise human capital capabilities in the era of ASEAN Economic Community. TPQI develops and implements professional qualifications system and occupational standards in line with Thailand 4.0 model to enhance competency of at least 310,000 in the workforce by 2021. TPQI emphasizing in the integration of cooperation between private and public sectors for propelling the qualitative occupational Standards and professional qualification as an authentic information centre that could be accredited admittedly with the expertise and lucidity in the international.

What are the criteria we need to enhance our KPM or informal evaluation or train module to recognise the **"SMART FARMER TRAINER"**

Nepal (KEC and AEC)

The council for Technical Education and Vocational Training (CTEVT) is a national autonomous body for the development of human resources for Nepal. Under CTEVT, there is **National Skill Testing Board (NSTB**) to develop National Occupational Skill Standards.

The Council for Technical Education and Vocational Training, Nepal (CTEVT) (http://ctevt.org.np) constituted in 1989 (2045 BS) is a national autonomous apex body of the Technical and Vocational Education and Training (TVET) sector committed to the production of technical and skillful human resources required to the nation.

CTEVT is mainly involved in policy formulation, quality control, preparation of competency-based curriculum, developing skill standards of various occupations and testing the skills of the people, conducting various research studies and training needs assessment, etc. The vision of CTEVT is to skill Nepal for people's prosperity, and the mission is to develop a competent workforce for national and international market needs.

Under CTEVT, there is National Skill Testing Board (NSTB)/Nepal Vocational Qualifications System (NVQS) (http://www.nstb.org.np) to develop National Occupational Skill Standards. NSTB is an authorized institution having wide experience and mandate for national-level skill testing and certification. It was established in 1983 as an autonomous body named Skill Testing Authority (STA) with an aim of providing the job seekers, skilled and semi-skilled individuals with recognized certificates on specific skills. Later in 1989, it was placed under the umbrella of CTEVT as the Skill-Testing Division. Since then, it has been functioning as the secretariat of the National Skill Testing Board (NSTB). NSTB operates its activities under the management of CTEVT and is fully equipped with an increasing degree of autonomy with strong leadership and professional standing in the skill testing and certification process. To date, NSTB has developed National Occupational Skill Standards/Profiles in 237 different occupations, 108000crafts persons are skill tested and 72730 are certified.

What are the criteria we need to enhance our KPM or informal evaluation or train module to recognise the **"SMART FARMER TRAINER"**

5.1 Bhutan (RUB)

Bhutan Accreditation Council is an autonomous body having overall authority on accreditation, quality assurance, and interpreting and recognizing the qualifications. **Bhutan Qualification Framework** is a quality assurance body for tertiary education system.

The Bhutan Accreditation Council (BAC) is an autonomous body having overall authority on accreditation, quality assurance, and interpreting and recognizing qualifications that will ensure an international level of tertiary education standards. The Quality Assurance and Accreditation Division (QAAD), Department of Adult and Higher Education serves as the Secretariat of the Bhutan Accreditation Council. BAC uses the Guidelines for the Recognition of Qualifications to validate the qualifications. The guidelines have been developed using the UNESCO Toolkit in order to facilitate global recognition. BAC mainly validate the qualifications for the purpose of employment public, corporate and private sectors. Bhutan Qualifications Framework is a quality assurance body that assists the education ministry to enhance the quality of higher education and build Bhutan as a knowledge-based society. Bhutan Qualifications Framework acts as an instrument to recognize all education, training, the intensity of courses, and programs for the tertiary education system.

What are the criteria we need to enhance our KPM or informal evaluation of training module to recognise the **"SMART FARM TRAINER"**

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