ECVET Earth Building: upgrading the skills and competence in sustainable humanitarian habitat

María Brown Birabén – AICRL / ESTEPA Association

Abstract: Since the ECVET Earth Building system for the certification of skills in the earth building trades was extended, approved and published in 2015, its consolidation and global spread have not stopped. Either in its Europe of origin, where each country adopts it to a different extent, or in America and Africa, where it is being adapted to very different contexts. Its outcome approach: "if you know how to do it, it doesn't matter how you learned it", is an inspiration beyond Europe for the improvement of technical competence amidst local craftspeople in developing countries, for the development of new training and certification systems, for the design of new units that respond to hitherto invisible techniques, for the completion of less complex, more inclusive entry levels of training, for the translation and certification processes into indigenous languages, expanding its scope.

In short, in very different socio-economic and cultural scenarios, this tool is being used according to different needs, understanding the indisputable link between high quality earth buildings, and the recognition of those who materialise them. In this article, the highlights of the ECVET Earth Building system will be addressed, as un update eight years after having planted its seed, of its journey into predicted and also unpredicted territories -such as the development and humanitarian sectors. Thus encouraging, hopefully, new applications in new latitudes.

Key words: Africa, Latin America, trades certification, social inclusion

1. Introduction. What is ECVET Earth Building?

1.1. ECVET Earth Building highlights

Earth still is the most universal building material: more than half of mankind actually lives, works, studies and prays sheltered by structures very differently conceived, shaped and finished, using the soil under our feet. Traditional or modern, vernacular or monumental, earth's ecological, environmental, cultural, social, economic behaviour and potential is clear for everyone familiar with this material.

The ECVET Earth Building system[1], hereinafter ECVET EB, is a European certification tool which aims to disseminate and strengthen these advantages among those not yet aware, at all levels: actual and probable users, young or experienced masons, architects and engineers, formal and non-formal training institutions, NGOs, humanitarian agencies, stakeholders, governments.

Although a product is manufactured following standards, the excellence of its implementation cannot be guaranteed without competent workers: who will design and build with these products, standardised or not? The need to develop these codes of practice is one of the reasons that prompted the creation of ECVET EB: a tool for evaluating and certifying skills in the earth building trades -each one, an independent unit- at different levels.

A very important feature of ECVET EB is *the learning outcome* approach: this approach shifts the focus from the traditional system emphasising "learning inputs" such as programmes with

[1] For full details please consult https://ecvetearth.hypotheses.org/, and previously published articles (see bibliography)

a fixed duration delivered by certain type of institutions. Instead, in the “learning outcomes” approach the assessed person shows what he/she is able to do: the validation of non-formal and informal learning, thus encouraging lifelong learning, is the highlight of this approach.

The aim of ECVET EB is to promote professional development by allowing individual learning outcomes in earth building to be recorded, presented transparently and in a comparable way, tested and validated independently of the learning environment.

Whether they come from previous training or from experience, the candidates pass a triple written, practical and oral exam, which can be specifically organised or take place in real work conditions, by accredited ECVET EB evaluators.

Regardless of the educational level of the candidates, or the formal or non-formal nature of the institution preparing them, without excluding those coming from experience and needing no previous training. Without forcing a "complete trade" scheme of many mandatory units - excluding those with little time or money- but addressing all the “secrets” of a specific task or technique, which is certified, broadening the professional horizons of the many. A process that can be repeated separately, with new units or higher levels.

In nine independent units ECVET EB address the understanding of earth mixes, product manufacturing, load-bearing construction, rehabilitation and finishing, at levels from apprentice to foreman. Available in eight languages, the units also list the assessment criteria and indicators for each trade and level, ensuring the qualification granted between countries as a prestige value.

1.2. ECVET Units of learning outcomes

ECVET EB is, thus, a system of independent units. Each unit relates to a set of tasks which form an activity specific to earth construction sites. It is defined as the smallest coherent set of knowledge (theoretical), skills (practical) and competence (responsibilities) concerning one of the different fields of earth building activity. These units are assessable, capitalizable and transposable. The 9 units available today cover the main activities of the professional earth building sector. If we target craftspeople on site, levels 1 (beginner), 2 (labourer), 3 (qualified mason), and 4 (team leader mason) address all potential audiences -men and women- with or without experience in earth building.

The units cover the full spectrum of earth building activities: sourcing and processing materials, mix production, building, formwork, repair and conservation, decoration, business management, site supervision. Not all of the earth building techniques and levels have been covered yet, but the system is designed to be upgraded and like all standards, reviewed.

The actual Matrix is composed of nine units:

M - From raw material to earth mix

P - Production of prefabricated elements

B - Building with earth

C - Application of clay plaster

F - Formwork for earth building

R - Repair & conservation in earth building

D - Interior design

O - Decorative techniques

E - Earth building market

Unit	Subunit	EQF Level					Description
		L1	L2	L3	L4	L5	
M		■	■	■	■	■	*From raw material to earth mix*
P				■	■	■	*Production of prefabricated elements*
B	B1 earth Masonry			■	■	■	*Building with earth*
	B2 Cob			■	■	■	
	B3 rammed earth			■	■	■	
C		■	■	■	■		*Application of clay plaster*
F				■	■	■	*Formwork for earth building*
R	R1 building	■	■	■	■	■	*Repair and conservation in earth building*
	R2 clay Plaster	■	■	■	■	■	
D		■	■	■	■		*Interior design*
O		■	■	■	■		*Decorative techniques*
E				■	■	■	*Earth building market*

These Units, as vehicles of new standards of competence, are helping to:

- empower professionals and offer modular qualification;
- further skills training to help job search;
- encourage employment opportunities and mobility;
- guide trainers when defining new content and assessment procedures;
- become an inspiration for certifying bodies when reviewing or creating qualifications

2. Evolution of ECVET EB : Europe and beyond

The value and prestige of ECVET EB certificates is constantly rising after their widespread use in Europe and beyond. Many experiences have been shared since ECVET EB began its diaspora in 2015, showing it is being adapted and adopted also in America and Africa, confirming the certitude some of their European authors had: its application outside the limits of the continent for which it was conceived, as many published articles explain in detail.[2]

This has increased the possibilities for organisations of very different kinds to offer ECVET EB training leading to certification: a growing global community is interested in offering outcome orientated training, and in creating new qualifications inspired in ECVET EB. With the units available online and free for download in many languages, dissemination began in Europe but has become global.

It's true that ECVET EB was conceived in and for Europe, thus responding to the European context and needs: the project aims originally to disseminate the cultural, ecological, technical and aesthetic benefits of modern earth construction by creating professional opportunities - thus also addressing social needs. So how is ECVET EB adapting to the rest of the world involved in earth building –the greatest part of it, beyond Europe indeed?

In this century, wherever a dissemination process begins -Europe in this case- it inevitably becomes global. Anyone interested in learning about ECVET EB can do so: the material is freely available online and understandable throughout the world, since it exists in English, French, Spanish and Portuguese; languages that are spoken or understood globally.

The challenge is not, therefore, to have access to ECVET EB, but to know how to use it, getting the most out of it. For ESTEPA association, original author of the ECVET EB and the only Spanish-speaking certifier in the system, this challenge of showing how to use it beyond Europe was triple and gradual:

- First, since 2014, learn how to show its value in Latin America avoiding misgivings for the mere fact of "being a European system".
- Second, since 2015, have the approval of the rest of European partners to promote the adaptation of the recently completed system in other contexts and continents.
- Third, with the feedback of pilot experiences in America and Africa, since 2018, convince the same European partners to extend the certifications beyond Europe, reaching the countries where earth building is a current practice - achieved in 2021.

Thanks to this internationalisation, today different kinds of institutions decide to join ECVET EB or create new certifications inspired in it. Their goals differ: expanding or improving its

[2] "El proyecto PIRATE: formación profesional y certificación en construcción con tierra, desde Europa al mundo" (Brown; Mas, 2015) p. 622-630
"Provide Instructions and Resources for Assessment and Training in Earthbuilding: The PIRATE project in Europe and beyond" (Brown et al, 2015)
"Mujeres a la obra: género y construcción con tierra en Senegal" (Brown; Ndiaye, 2018) p. 616

training offer, guaranteeing the certification of their apprentices, training their teams: technicians, social and humanitarian workers, managers.

The following sections show this ECVET EB expansion from Spain to America and, with a particular interest to this Symposium, to Africa.

3. ECVET in Spain: ESTEPA and the original system

3.1. ECVET EB among professionals: the spontaneous applicants

Since 2015 until today ESTEPA delivers the "T4T ECVET EB", a training for trainers' programme designed to disseminate the system among institutions and people involved in training, product manufacturing and bioconstruction. Dozens of technicians, masons, small company owners, academics, teachers, trainers, have discovered ECVET EB during these mostly theoretical courses; in Spain, coming from every corner and from abroad -France, UK, Argentina. Beyond Spain, the T4T has been delivered in Argentina (2015, 2022) and in Mexico (2018) promoting new partnerships willing to develop their own needed systems, some already successful as it will be later explained.

In 2018, after complying with all the European requirements, ESTEPA begins delivering ECVET certificates, either training first and then assessing with ECVET, or calling for direct certification to experts. In this last case, open practices are enabled a few days prior to the exam, with materials and tools available; advice is given and doubts about the Units to be assessed are clarified, without delivering any training.

The spontaneous applicants in Spain are usually builders with a small company, trainers, teachers, masons, manufacturers, "muddy" architects. That is to say, people who see in ECVET EB an added value to offer in their professional performance. Some people have come back repeatedly as new certificates are announced, already collecting quite a few of them.

After COVID-19 a new modality emerges: the alliance or partnership with other friend training institutions. In this case, ESTEPA teaches the basic ECVET EB and on-site implementation notions; the friend institution delivers the training; finally, their course is completed by certifying the apprentices who require it. For this growing universe of partners and their apprentices, a triple alternative has been consolidated:

- Apprentices who are trained and obtain one or more ECVET EB certificates after the course
- Apprentices who are trained only, without certification (amateurs)
- Applicants with experience, just coming to be assessed and certified in ECVET EB

Fig. 1. ECVET assessments in Gordoncillo, ESTEPA headquarters, Spain; Units P, C y O Level 3

Greater alternatives thus convene a broader public, enriching and further enhancing the exchange between people with different life and professional trajectories.

Here is the direct testimony of some of these partner institutions:

Homo Faber[3], a reference training centre for traditional trades in the province of León, was a pioneer in venturing into ECVET EB. Convinced of the need to disseminate the traditional earth building *savoir faire*, they have been training professionals and amateurs in different techniques for several years: rammed earth, adobe, plastering. In their words:

Three conditions merged to start an ECVET EB partnership: geographical proximity, strong cooperation with the local government, and a trainer holding several ECVET EB certificates supporting it. We intend to send this message: earth architecture is appreciated and respected throughout Europe, and considered an intangible asset to be transmitted to young people.

Habitaterre[4], a French company dedicated to earth building and training, adds:

ECVET EB and the workshops including it are a vector for professionalisation in earth building, which in turn is a guarantee of the conservation of earth heritage.

Agotzenea - Bioconstrucción en Navarra[5], explain:

We are committed to quality training in the use of natural materials; it is important to us to offer a certification that combines and endorses technical criteria such as ECVET EB. In this way, qualified personnel will allow us to carry out quality works, with earth recovering its value as a building material.

At Taph Taph[6], a Sevillian association, earth transcends actual building and architecture: they work transversally with archaeology, material engineering and historical and cultural heritage. Familiar with ECVET EB after several years participating in European projects, they comment:

We run short workshops for professionals and amateurs; we still lack a certified training for specialists, something we see as a solution to the incipient demand for specialists by companies, but also as a contribution to strengthening the link between manufacturer, distributor and craftsman, and incorporating the traditional culture in the actual trade. Short specialisation courses are essential, which can be assembled into broader, more in-depth degrees. That is why we are interested in incorporating ECVET certifications: its structure of independent units at different levels fits very well our vision.

3.2. Social ECVET EB: SOS Children's Villages

While the partnerships were unfolding between ESTEPA and these groups in the training context, in 2021 a new agent interested in ECVET EB appears: the international NGO SOS Children's Villages, from their headquarters in Tenerife, Canary Islands.

The global mission of SOS Children's Villages is to promote quality of life and sociocultural development in childhood, youth and families, creating conditions for equal opportunities and autonomy. In Tenerife they have created and now run the Eco-farm "La Aldea", involved in innovative training related to graphic design, digital manufacturing and sustainable architecture, with the aim that young people in vulnerable situations can develop personal and social skills linked to professionalism, facilitating their personal growth and their social and labour insertion. Since 2004 they have been providing training leading to professional qualification certificates,

[3] https://homofabercursos.com
[4] https://www.habitaterre.com
[5] https://agotzenea.com
[6] https://taphtaph.org

in the different trades linked to the ecological work of "La Aldea". Regarding earth building training, the director explains when firstly addressing ESTEPA:

It has been gradually evolving since 2011, adding since 2015 the manufacture of CEB-compressed earth blocks, with the aim of opening a new pathway for earth architecture in the Canary Islands as an entrepreneurial, social and integration model. Our dream is to consolidate a bio-construction training centre, enabling professional opportunities in this area, which we firmly believe is in growing expansion. The experience of more than ten years shows us that this training is in itself therapeutic, connecting us to earth: hence the name of our ongoing project, "Barro, mano, corazón - Mud, hand, heart".

We find essential that these trades are certified as the rest. Initially, with CEB production: we have an area, open and covered, prepared and equipped for training, practice and production. We consider applying ECVET EB for the development and certification of our training, through the Spanish representative of the system, ESTEPA association. The objective is the creation of a social economy company, able to attend vulnerable young people and families declared at risk of social exclusion, offering them an opportunity in the field of bio-construction, which is increasingly in demand."

Four ESTEPA visits to "La Aldea" in Tenerife are organised in 2021 and 2022. The first one, a presentation of the facilities and the staff, where the relevance of the partnership is agreed. The second one, an intense ECVET T4T Training for Trainers, with simulated exams included, where not only those involved in future training participate, but also the managers themselves - thereby signifying their interest in understanding the system at all levels.

Afterwards, their technical staff and some alumni are trained using Unit M -the material- as a guide, at level 2, with remote monitoring from ESTEPA. The third visit includes a joint review of the agenda and the provisions made for the practical exam, then all the applicants pass the assessment and receive their ECVET EB certificate successfully -including the trainer herself.

More confident after the first experience of a real ECVET, both for applicants and for local trainers, a month later the turn of Unit C -plastering- level 2, arrives. Again, a 100% success.

Fig. 2. ECVET EB assessments for staff members and vulnerable young people at SOS Children's Villages in Tenerife, after the first joint courses; Units M and C Level 2

The next challenge is to reach level 3, for professionals -which requires at least 2000 hours of practical experience and competence to be strengthened throughout 2023- with the P-production unit: precisely the one at the origin of the partnership. And the list could be as long as SOS Children's Villages envisions their current and future social projects, since the ECVET

EB rules and tools are already mastered and their trainers are gaining experience in its use, in order to successfully certify young people and families.

4. Argentina, a new system: from ECVET EB CT-Q official certificate

Tribute to Ariel González

After having traced the ECVET EB *adopted* as conceived, the system *adapted* to a very different context is briefly presented.[7]

Since the first presentation of ECVET in Argentina in 2014, its echo in Santa Fe province is immediate. UTN National Technological University, with 29 faculties throughout the country, is interested. Ariel González, recognised earth building expert at the Faculty of Engineering, considers testing the system: with a very uneven informal training offer with no guarantees, ECVET EB is considered a model from which many ideas can be taken.

In 2015 and 2017 (González; Brown, 2015), the first ECVET T4T Training for Trainers outside of Spain is provided at the UTN - aimed at builders, professionals, bricklayers, businessmen, etc., serving as a basis for the following steps. Between 2018 and 2021, the UTN sends a professor to Spain to deepen ECVET EB and certify his experience through P-Production Unit at Level 3, professional. The strategy is to have an ECVET diploma "within the structure" of the UTN to involve the university more easily.

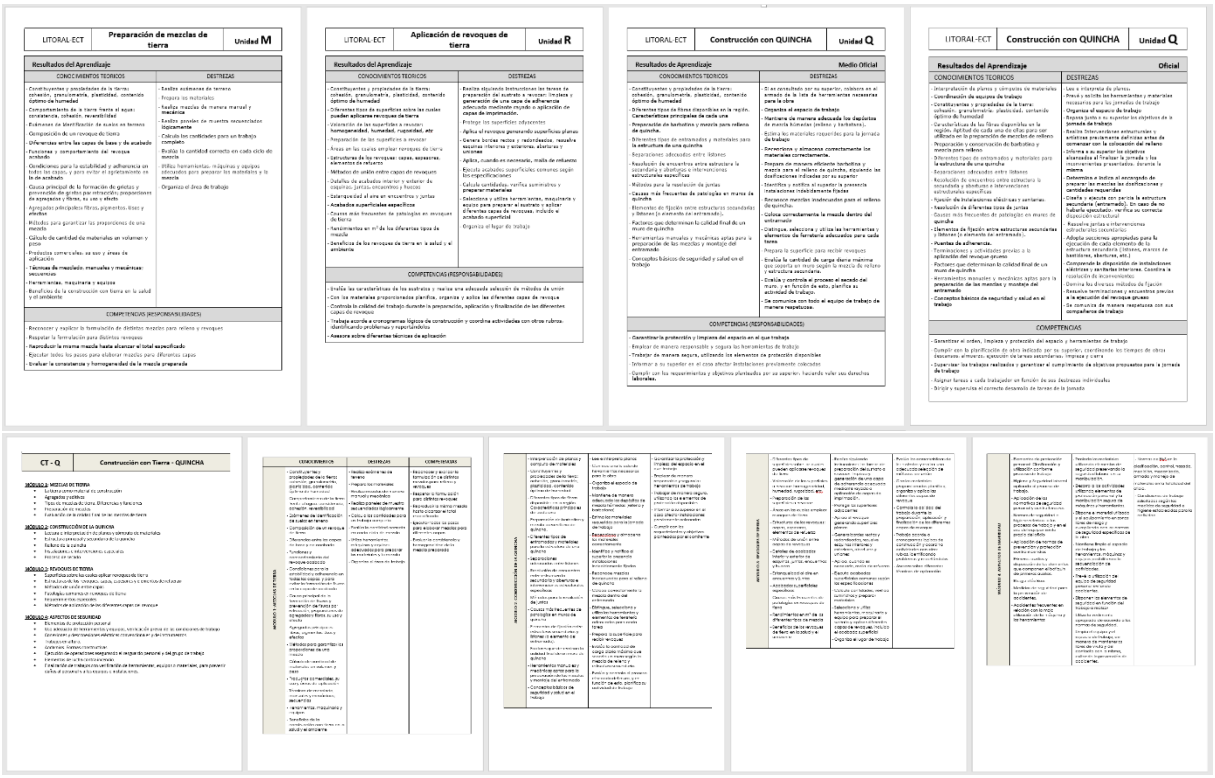

Fig. 3. The four LITORAL-ECT Units conceived at the UTN-Santa Fe, based on ECVET EB, leading to the four modules of the new official trade "CT-Q / Earth building - Quincha" certified by UTN

In June 2022, the final workshop takes place at UTN-Santa Fe, (Brown, 2022), a participatory process rooted in the local context. It is agreed that the regional priority is *quincha*, wattle and

[7] Full details in the article "ECVET, ACVET: rastreando la diáspora de la certificación en oficios de la tierra y sus beneficios" (Brown, 2023) to be presented at the XXI SIACOT Symposium in November 2023, then available at https://redproterra.org/es/memorias-siacot/

daub, a mixed technique where earth is not structural, absent in ECVET EB yet and widespread in the region. The summoned group, very diverse in professions and experience as ECVET demands, writes the drafts of the LITORAL-ECT system of three units. Its output-oriented format (no matter how you learnt it if you can properly do it), cannot deny its "ecvetian" origin although its name and content, as sought, covers the regional needs...

Fig. 4. 2022: LITORAL-ECT working sessions, studying the need of ECVET EB and new contents

Two units are adapted from ECVET EB: Unit M-Mezclas (earth mixes) and Unit R-Revoques (clay plasters). The innovation comes with Unit Q-Quincha (wattle and daub[8]), at mason (ECVET Level 3) and mason's assistant (ECVET Level 2) levels.

This LITORAL-ECT units are internally presented to the UTN, which finally endorses the content, nonetheless requiring "certifying a complete trade" by integrating several units as a whole, and adding a mandatory health and security module. Thus, in April 2023, the new official Trade CT-Q "Earth building - Quincha" is born, recognised by the UTN at two levels. The first assessment takes place in July 2023, open to experts only, without previous training, and all the 9 candidates approve the higher "mason" level .

It is too early to evaluate the impact of this new pioneer system in Argentina; yet ESTEPA, promoting from day one this dissemination beyond Europe, is very proud of this first "son" born abroad.

5. ECVET in Africa: new contents, languages and opportunities

5.1. Senegal, 2016

ECVET EB landed in Africa in 2016, while a CEB building was under construction in the Senegalese island of Mar Lodj. An introductory pilot earth building workshop was proposed, guided by units M (material preparation) and P (block production), at basic levels, with an informal exam with no certificates -they were restricted to Europe by those years. This would allow identifying the difference in dynamics and challenges in such a different context. With an emphasis on gender, its success led to the subsequent implementation of an 18-month gender-oriented wide programme in the nearby Kaolack area, including for the first time CEB and women at the building site. (Brown; Ndiaye, 2018). It also led to the spontaneous adoption of CEB as a new technique in the island of Mar Lodj and far beyond, up to the present.

As seen, the impossibility of certifying outside of Europe acted as a real brake on the expansion of ECVET EB for several years, until the evidence of international interest and capacity to implement the system, added to the growing experience of evaluators "inside Europe", put an end to the restriction in 2021. The agreement of all the European partners is conditioned to

[8] Wattle and daub: traditional widespread wall technique consisting of a network of interwoven sticks and twigs covered with mud or clay

having the same originally accredited ECVET EB evaluators operating everywhere, and not others.

UP: 2014, First team of “femmes bétécières” -CEB women- and the result of their work in Joal-Fadiouth

DOWN: 2016, ECVET EB gender-oriented pilot training, units M and P Level 1, in Mar Lodj

Fig. 5. ECVET EB beginnings in Senegal

5.2. Burundi, 2022

In 2022, a collaboration is established in Burundi with the AICRL, International department of the Luxembourg Red Cross, and the CRB, Burundi Red Cross. Both have spent years involved in programmes aimed at a more sustainable habitat in the context of the return and repatriation of refugees, in the province of Muyinga, and have gained experience building more than 3,000 housing units, during different research and training missions.

In 2019, an SRU-Shelter Research Unit research project included participatory workshops, "From the urgent to the sustainable", highlighting the environmental advantage of unfired earth compared to other available systems (bricks, cement blocks), and focusing the attention on a system still invisible in the region: the CEB, compressed earth block. Thus, with the objective of diversifying the earth building competence of the Red Cross in Muyinga, manual CEB presses were brought with one primary objective: training to ensure a transfer of skills to local personnel, for the sake of achieving experience in CEB production and building (housing and other needs).

Thus, ECVET EB enters the scene. Its experimental introduction is proposed, offering not only the training that the group needs: also completing it with an ECVET EB assessment delivered by the Spanish ECVET EB member, ESTEPA association; allowing the candidates to obtain the same prestigious certificates that their peers obtain in Germany or Argentina.

A very varied level and profile of apprentices is sought in the group, including women: the experience confirms that this is how teams are consolidated, from the engineer to the mason and the brickmaker, who will work better in coordination in the future, by sharing the same "language" and several weeks sharing their time. Considering that experienced semi-literate masons who do not speak French will train with engineers who have little experience with manual work, the choice is to train and certify Unit M at level 2, and cover the rest of the objectives, CEB and earth masonry, without certifying them yet.

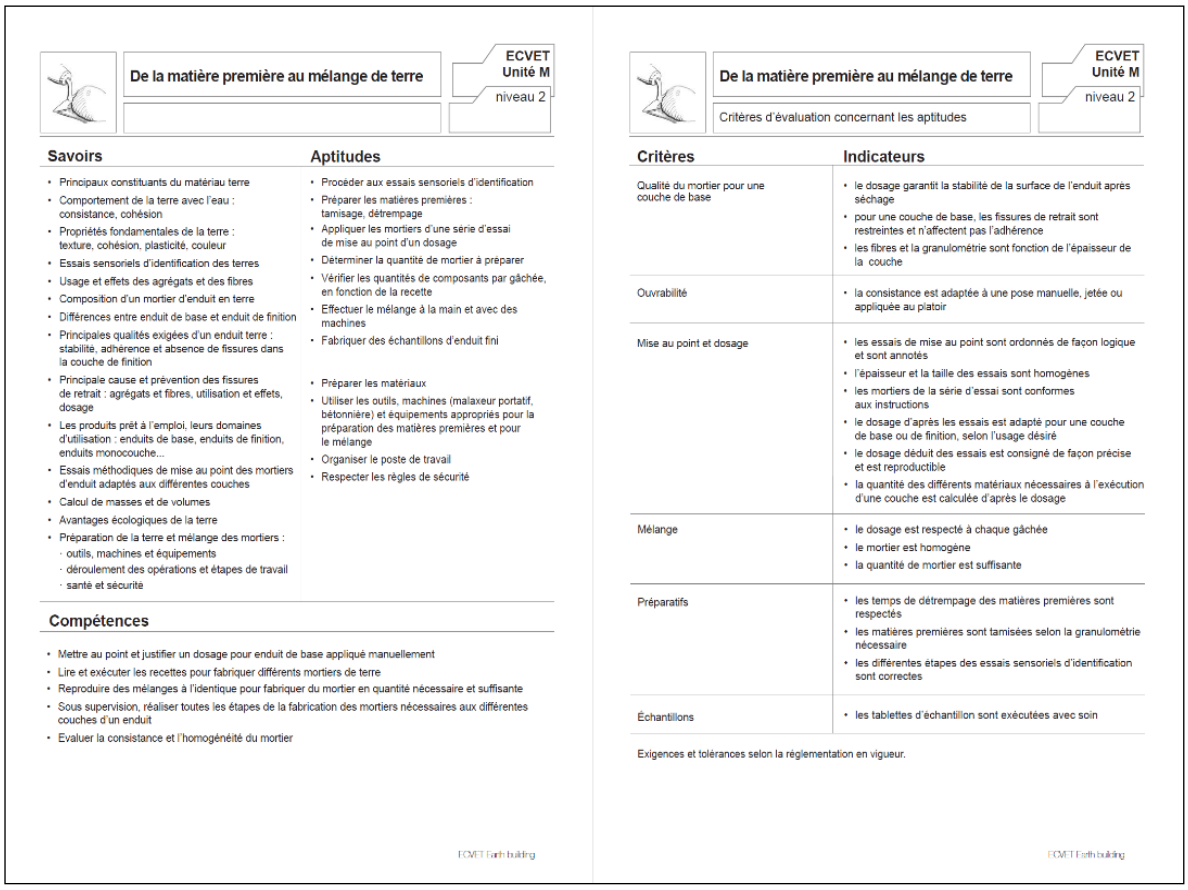

Fig. 6. ECVET EB Unit M - Level 2 in French, used in Africa

The 17-day intensive training including earth materials, CEB and presses, notions of earth masonry, basic marketing strategies, security and logistics, is carried out bilingually in French and Kirundi. Mathematics, elementary physics, geography, are reviewed through practical examples; everything integrates. A brick is *tafaari*, learns the trainer from the 16 applicants (15 men and a woman).

Of course, many of the materials and tools required to train and assess Unit M at level 2 do not exist in Burundi. As the training approaches, they must be replaced with imagination and dialogue, looking for inspiration in hardware stores, stationery shops and local markets.

Two whole days are dedicated to the exam. Two hours for the multiple-choice written test in French and Kirundi, all together; help is offered to those unable to read correctly, yet no-one needs it. But 16 people developing their practical skills cannot be assessed simultaneously by a single person, so small groups are assessed sequentially. The oral test is individual, with translation if necessary. They all agree that “the exam is not easy”, but they all obtain their ECVET EB M-Level 2 certificate!

The testimony of one of the new ECVET technicians reaffirms that the results are as expected:

> “Before, I did not know why bad bricks existed, nor how to guarantee the durability and stability of a built shelter. The ECVET certification that I obtained allows me to place myself among the earth building connoisseurs at an international level. I will be able to earn a living, while assisting communities in need in the field of habitat. Thanks to learning about earth analysis and about the use of CEB presses, I will be able to manufacture resistant blocks preserving the environment, while using existing and accessible natural resources.”

Learn●Earth estepa

ECVET Earth Building

UNITÉ M - De la matière première au mélange de terre
Niveau 2

EXAMEN ÉCRIT
ÉVALUATION des SAVOIRS

Muyinga, Burundi, 12.12.2022

Candidat/e: *Izina*.....

Après répondre, n'oubliez pas de signer toutes les feuilles. Vous avez 120 minutes.
ATTENTION: les questions peuvent avoir 1 ou 2 réponses correctes. PLEIN DE SUCCÈS !

Muhejeje gukora Ikibazo, ntimwibagira gusinya ku mpapuro zose. Ikibazo kimara iminuta 120. ICITONDERWA : Ikibazo kimwe kirashobora kugira inyishu zibiri kandi zose arizo.

1. La terre crue, séchée à l'air et au soleil a été utilisée en construction par l'être humain :
   a) Depuis environ 10.000 ans, pour abriter toutes ses activités
   b) Dès le Moyen Âge, il y a 1.000 ans, en Afrique et en Amérique
   c) Seulement pour des bâtiments religieux et des palaces, dans toutes les cultures

Ivu ritavanze , ryanikiye kuzuba ryatanguye gukoreshwa n'ikiremwa muntu mu kwubaka haciye :
a) Imyaka ibihumbi icumi (10 000) kugira akingire ivyo akora vyose
b) Imyaka igihumbi (1.000) muri Afrika no muri Amerka
c) Ryakoreshwa gusa mukwubaka amasengero ,amahoteli akomeye kw'isi yose.

2. Techniques de construction en terre crue plus fréquentes en Afrique subsaharienne :

- L'adobe et le BTC sont des systèmes avec des centaines d'années	vrai	faux
- Le BTC a été inventé en Europe, vers 1970	vrai	faux
- Le torchis demande un mélange argileux, mais le BTC plus sableux	vrai	faux
- La CINVA-RAM et la TERSTA-RAM sont les seules presses pour BTC	vrai	faux
- La presse CINVA-RAM peut être fabriquée localement et à bon prix	vrai	faux

- Amatafari y'Ivyondo n'amatafari y'Ivu afyatuwe n'imachini yakoreshejwe haciye

Imyaka irenga Ijana n'Iyindi.	*nivyo*	*sivyo*
- Ubuhinga BTC bwatorewe (bwaanguriye) I Burayi	*nivyo*	*sivyo*

Fig. 7. ECVET EB training and exam in Burundi, Unit M Level 2, in French and Kirundi

After the departure of the trainer-evaluator, the CRB hires them almost immediately: a warehouse with offices has to be built without delay and they to use CEB. Two months later, the quality of the finished warehouse and the performance of the brand-new technicians prompt the next step for AIRCL: extending this pilot experience with ECVET EB to all the African countries where it currently works.

5.3. SRU at AICRL: A new focal point for earth building in Africa, 2023

After the success of the first experience with ECVET EB in Burundi and its immediate positive impact -confirmed with the construction of a CEB building from raw soil to key delivery- the SRU Shelter Research Unit at AICRL rounds out an idea that had been brewing for long. A specific position is thus created in early 2023: the Focal point for Earth building, offering diagnosis, advice for technological transition, training and certification, to the national teams of the seven African countries where the AICRL currently works: Burkina Faso, Burundi, Chad, Democratic Republic of Congo, Madagascar, Mali and Niger.

5.3.1. DRC Democratic Republic of Congo

In April 2023 a new experience takes place in Uvira, Democratic Republic of Congo, where 14 candidates are trained and certified: five engineers, five masons, a block maker, three masonry teachers. This time the training is not so focused on CEB as in Burundi -each country has different needs that are previously agreed in common- so it took 10 days instead of 17, yet covering the whole ECVET Unit M Level 2. French and Swahili are the assessment languages.

After the experience in neighbouring Burundi, the logistics involved in the preparation of the training and assessment are much simpler this time.

Fig.8. DRCongo: ECVET EB Unit M Level 2, training and exam

As in Burundi, the new ECVET technicians have put their new knowledge, skills and competence at work immediately. Firstly, improving and extending the new settlers' neighbourhood of Nakyoya, in Uvira, built in adobe for vulnerable families displaced by internal conflicts and climatic catastrophes. Parallelly, they are undertaking the final stages of a new housing project for the same vulnerable public where CEB will be used for the first time, with most of the technical and architectural improvements suggested during the training, incorporated.

Fig. 9. ECVET EB graduates and the immediate application of their training at work, in DRCongo (above) and Burundi (below)

5.3.2. Chad

In July 2023 a first exploratory mission to Chad takes place. With no training involved, this first visit is meant to establish a technical diagnosis concerning:

- the existing traditional earth building *savoir faire*, particularly with adobe, widely extended,
- the previous response in terms of local shelter solutions, given by the AICRL + CRT Chad Red Cross during the previous programmes, all using fired bricks,
- the availability and sustainability, in its wide meaning, of natural materials (earth and fibers),
- the attitude of local population, reluctant to the use of unfired bricks, facing the potential introduction of new and more sustainable techniques, as CEB

After two weeks working together, both AICRL and CRT agree in the importance of a future tailored training for masons and some targeted beneficiaries, with an accent in CEB; most probably levelling the outputs already obtained in other countries, through an ECVET EB certificate, in 2024.

5.3.3. Mali

In September 2023 Mali's turn arrives. In this particular case, the required needs concentrate on an urban project in its capital, Bamako, actually in its third phase: "Banconi neighbourhood reinforces its resilience reducing climate change hazards".

Among other points, this project seeks the implementation of more suitable and sustainable housing systems, also ensuring the efficiency, quality and relevance of the current and potential earth building techniques in the neighbourhood. The required intervention consists in:

- visit the results of the recently completed "Improved *banco* masonry" training module,
- design a complementary training program adapted to that pilot house,
- deliver the content of that program to the 29 local masons already trained.

Once the first stage is completed and with clear conclusions available, the proposed training strategy is presented and approved by the local teams of AICRL + CRM Mali Red Cross:

- split the enormous group in two, in order to reach a maximum of 15 trainees in the practical, essential sessions of the training,
- train each group every second day, totalising three different sessions for each one in six days,
- focus on the points found as the weakest during the site visits and previous technical exchanges: earth building techniques with an accent on "banco" (adobe) and CEB, clay mixes, correct nomenclature for transversal understanding beyond the Sahel region, improved masonry notions.

With the ECVET EB unit M Level 2 always as a guide, almost half of its learning outcomes -once excluding plasters- is achieved, in theoretical and practical sessions.

As a collective reply the trainees, 29 masons and six CRM volunteers -two of them women- show enthusiastic and willing to continue, in the near future, deepening in the knowledge, skills and competence required to complete their "earthen expertise" - hence, equalling their ECVET certified colleagues in Burundi, DRCongo and, soon, Chad.

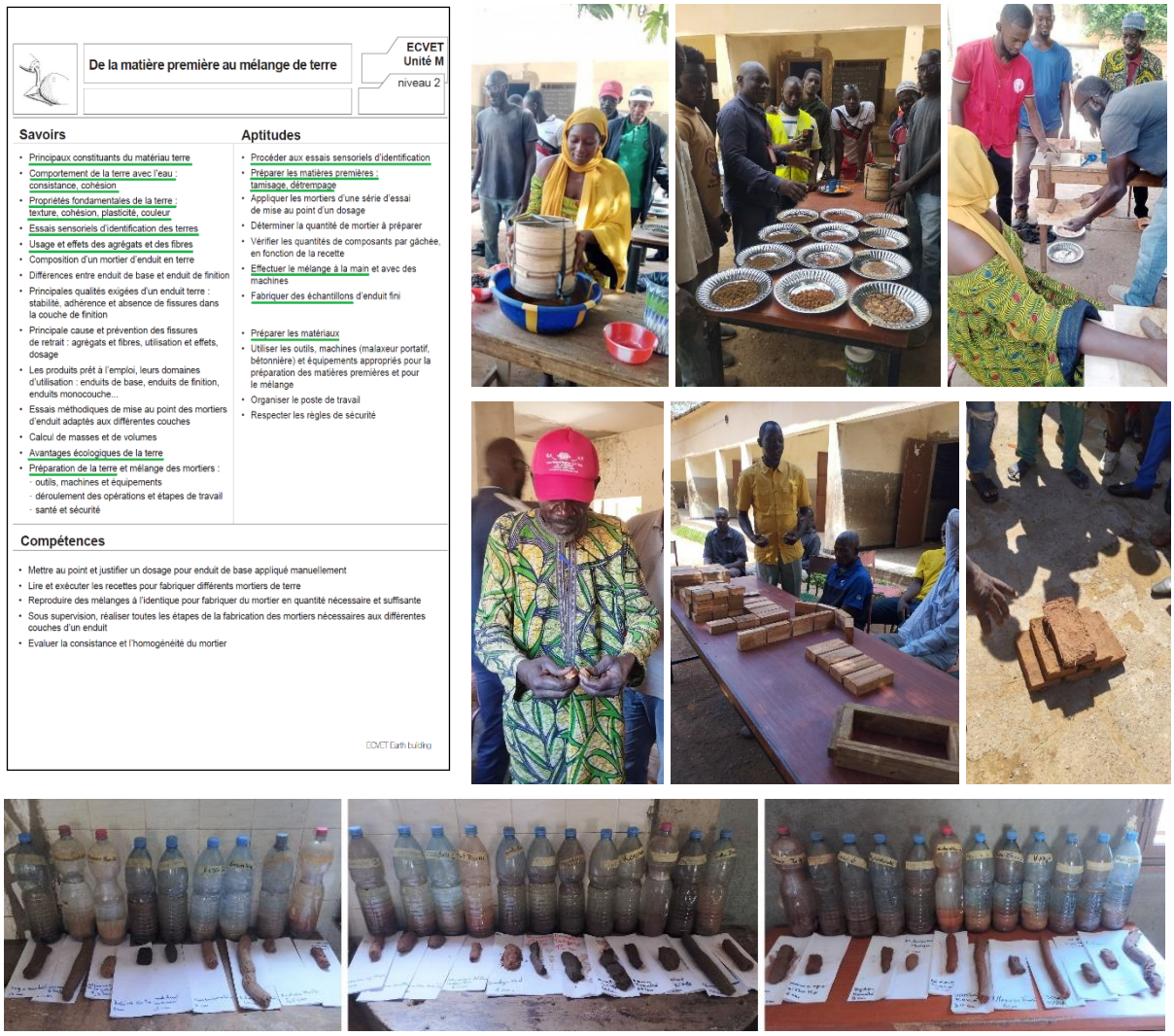

Fig. 9. First stage of the split, partial ECVET EB training; at Banconi neighbourhood in Bamako

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After the closure of these lines, many different and distant countries still have to be visited, lots of new challenges will be appearing and the exchange will become larger, deeper and richer within the community of AICRL. By March 2024, wider results will allow to ponder the true impact of this commitment to ECVET EB in Africa, and the steps to follow.

Conclusions

After proposing the flexibility, social inclusiveness and "globality" of ECVET EB, the selection of applied examples presented here has sought to highlight these dimensions, beyond the technical details of its structure and operation.

Both this article and many previous ones involving the Spanish ECVET EB partner ESTEPA, appeal to the direct testimony of the institutions and people already "adopting and adapting" ECVET EB, as the best dissemination mechanism. No one better to motivate other organisations, other countries, than those who are already experiencing the strengths and weaknesses of this gradual implementation, from its very diverse contexts: What is ECVET EB bringing to America and Africa? Which aspects of its potential impacts does each prioritise and why: the validation of technical training for higher quality works, the gradual professionalisation of those already involved in these trades, their social and official recognition?

Or the flexibility of possible training itineraries responding to the interests of each person, the expansion of job prospects for vulnerable groups?

The intention, once again, is none other than to continue walking hand in hand with new alliances and partnerships, some already glimpsed, others unsuspected, for the sake of a growing recognition of excellence in the earth building trades and their practitioners.

When ECVET EB took its final shape and became public in 2015, we creators have declared something still vali, even reinforced nowadays: that even if the system was designed to improve earth building practice within Europe…

…"we partners will be happy to accompany any organisation interested in adopting these certifications, courses or exams. If 'the rest of the world' knocks on our doors, we will open!"

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