



Hydropower solutions for developing and emerging countries

D4.4

Overall capacity building strategy for the 4 target countries



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1 Introduction

HYPOSO is a multi-approach project to tackle several objectives; identification and mapping of the European hydropower industry, hydropower stakeholders in the HYPOSO target countries, education of new hydropower experts through capacity building activities and bringing together relevant actors from the EU hydropower sector with stakeholders in the target countries. Interaction with stakeholders is, therefore, an integral part of the activities, like workshops, capacity-building activities and interviews with national/local stakeholders are envisaged in all target countries which are outside the European Union, namely workshops in Bolivia, Colombia and Ecuador in Latin America, and Cameroon and Uganda in Africa. Additionally, capacity-building courses will be carried out in Bolivia and Ecuador, and in Cameroon and Uganda.

2 Information about the Deliverable

This deliverable D4.4 is an outcome of Task 4.5 “Development of overall capacity building strategy” (Task leader: IHE Delft, Partners: Frosio Next, VDU, IMP PAN, TRMEW, 1to3, CELAPEH, HPAU, SHW, EPN, UMSS).

WP4 focuses on capacity building intending to strengthen key stakeholders in target countries in strategic development, design, implementation, operation and maintenance of sustainable hydropower and research needs in the field of hydropower.

Based on the results of the scoping process in the target countries, the needs in education and research in the field of small hydropower have been identified. The recognized prerequisites have been integrated into the short course plan. The short course includes all phases of the small hydropower life cycle; planning, design, construction, operation, maintenance, but also environmental and social impact and financing.

The capacity building has been organised as one week course in each of the target countries, except Colombia, together for the participants from the same continent (i.e., from Cameroon and Uganda for Africa, and from Bolivia and Ecuador for South America). The teaching efficiency and intensity have been increased by pre- and post-course activities. These additional activities allowed a stronger and deeper understanding of the topics and improved capacity-building quality. All of the activities during the course have been recorded and are a part of the Knowledge and Capacity Development (KCD) systems. The KCD system was used by the participants but will also be used by additional persons interested in hydropower after finishing the project.

3 Summary of courses and feedback on the courses

The definition of the course with two separate weeks in two different countries was an optimal course organisation referenced to the costs and also transferred knowledge. Selection of the

course topics and needs have been set together with the target countries and was best accepted by the participants.

The system of two-time one-week courses within the different countries was seen as an added value in learning (time to consolidate the knowledge) but also in contacts between the participants and also the contact to lecturers. The course setup with two weeks course has been seen as a very effective teaching module.

The course organisation and implementation were a full success on both continents. The course in Africa was organized during the COVID-19 restrictions and travel limitations, but the local partners could solve the local constraints (computer and internet access, problems of individual following of the course, COVID-19 restrictions, etc.) and with the help of all involved persons the best possible solution for both parts in Uganda and in Cameroon has been found.

As a result of the COVID-19 restrictions the courses had to be organised differently in Africa and in South America. Both methods, online learning and face-face training could thus be tested. The face-to-face course has been better evaluated than the online course, but online courses have an advantage that could be used in the future to deepen knowledge and educate the new staff. Therefore the online course modality will be used as the only possible solution in the future course implementation.

Course organisation with preparation, course lecturing and post assignments increases the teaching load and improves learning efficiency. Such organisation increases teaching efficiency, the participants get familiar with the topics during the preparation and can absorb better additional information and knowledge and also get additional clarifications during the course. After the course, the participants can test their knowledge of the topics and additionally support their professional development.

Of course, contact between the participants and the lecturers from European hydropower organisations (universities, and companies) was also established. The contact possibilities to European hydropower suppliers has also been addressed during the course, considering the Hydropower supplier databank of HYPOSO and also pamphlets and information distributed by lectures.

Full transparency of the course and availability of the material increases the course's value and applicability in the future. The course material is available and will remain available after finishing the project on the IHE learning platform. This setup will allow participants to access and deepen their knowledge in the future. The selected modality of the course material accessibility for other (new) colleagues and also other countries allows permanent use of the platform. The availability of the platform also allows continuous contact with existing stakeholders but also with potential new interested stakeholders This gives the possibility to tie the hydropower interested people to European knowledge, technologies and suppliers.

The discussion with the course participants and also project partners from the target countries shows a strong need for the continuous further development of the participants by further courses/events and also refreshments. This has been seen as an important task for the future and for the strong and intense connections between Europe and the target countries and

continents. Further projects in this direction will be one of the possibilities for such intensified connections.

4 Capacity building strategy

4.1 Output from performed capacity building courses

The study plan for the short course was based on the needs defined by the target countries and considering the experience of the consortium in teaching hydropower topics. The results of the scoping made by the local partners defining the topics that are of interest and needs in the countries. Based on the scoping the program of the course has been prepared and described in Delivery 4.2. based on the plan the course materials have been prepared and the courses have been organised. The first course was, because of COVID-19, organised as fully online lectures in Uganda and as a hybrid session in Cameroon. During the South American courses most of the lecturers were present and the course was performed as face-to face.

Both courses have been seen as a big success and the comments about the courses have been seen as very positive and no negative critics have been given. The comments collected during the first course in Africa have been implemented during the course in South America and represent an improvement in the course quality.

Generally, the course comments (individual, group and also done through the questionnaire) was discussed in detail in Deliverable D4.3. All sides mentioned that the course material has to remain available for the participants also after the project end. The course material availability allows the participants to refresh their knowledge and deepen their knowledge in case of special problems encountered during the work on practical hydropower projects. Additionally, the course participants and target country coordinators advised that the material stays available and also accessible after finishing the project. This topic has also been discussed during the last project meetings, and the solution has been elaborated.

4.2 Overall capacity building strategy

Based on the results of the discussions with all partners, especially with target countries and lecturers the following has been concluded:

- Access to the teaching material after the end of the project has been seen as a big request from the target countries to the project
- All lecturers agreed to allow access to the material after the course and all lecture material (videos, presentations, other written materials and also recorded lectures) could be used after finishing of the project, no copyright requirements.

The project Knowledge and Capacity Development (KCD) systems have been organized on the IHE platform Open Course Ware (OCW). The OCW is a Moodle-based platform developed and running on IHE servers. The OCW is a platform for courses that are designed for participants outside of IHE. The platform allows access to selected courses to all registered participants. The registration could be done manually by IHE or automatically if the access data is available to the participant.

Based on the decision made during the project meetings the course will stay on the IHE platform and will be available during the next years. The availability of the course material could be extended without any problems.

The selection of participants has been discussed and the following registration procedure has been defined:

- To reduce the manual work on the registration the participant registration will use the automatic inscription procedure of the platform. This means that the potential participant gets the registration link and can register himself/herself on the platform. To perform the registration the participant also needs the course password. With the successful registration, the participant will receive a welcome mail with the link to the site and the login details (Email address is used as username and temporary password) specified in the welcome email. By the first login, the temporary password must be replaced.
- The link to the course registration is given to all consortium members and especially the target country coordinators. They have the possibility to select the participants and control access to the course platform.
- With this definition the course participants are limited to the target countries in Africa and South America.
- Participants from other countries are also invited, but at the moment the pre-selection is limited to the persons with the access code. There is an intention to promote the course in other countries and project partners will circulate the course information at hydropower events and at hydropower-interested organisations, such as small hydropower country or regional associations.

The developed system allows controlled access to the developed capacity development material and also gives the possibility for contacts with the participants.