

Hydropower Solutions

H **Y** **P** **O** **S** **O**



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857851.

THE HYPOSO PROJECT

Ingo Ball

HYPOSO Project Coordinator

WIP Renewable Energies

Small hydropower in Africa and Latin America

28 November 2019, Salzburg, Austria

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Outline

- General information
- Objectives
- Structure & Work packages
- Impact



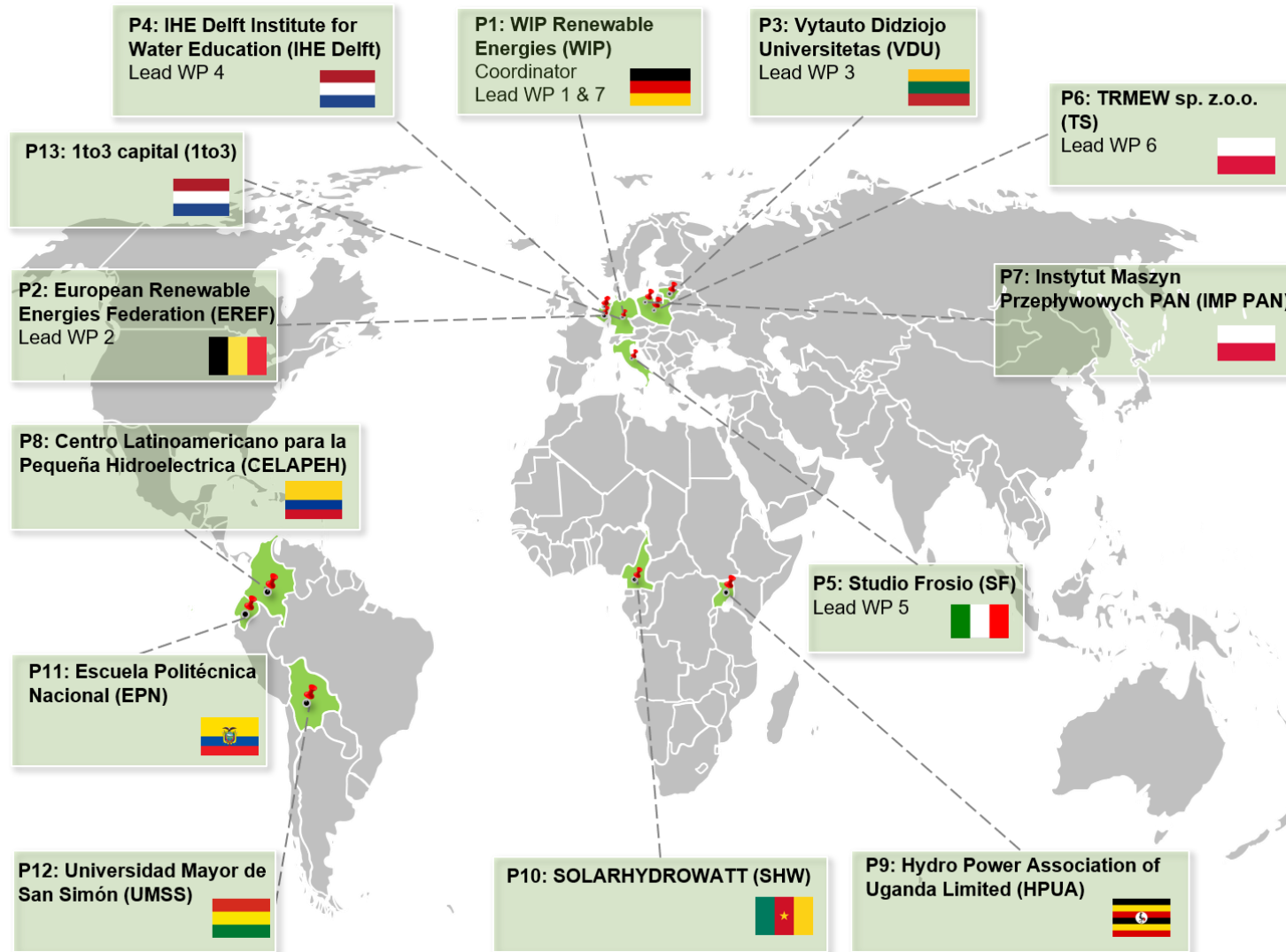
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General information

- Project acronym: **HYPOSO**
- Project title: **Hydropower solutions for developing and emerging countries**
- Grant Agreement (GA) No: **857851**
- Starting date of the project: **1 September 2019**
- Duration: **36 months**
- Participants: **13 – 4 research organisations – 11 enterprises (4 SME)**
- Countries: **Belgium, Bolivia, Cameroon, Colombia, Ecuador, Germany, Italy, Lithuania, the Netherlands, Poland, Uganda**





Project Overview

Overall Objectives:

- Support the European hydropower industry
- Stimulate the energy transition in developing and emerging countries



Project Overview

- Support the European hydropower industry by providing tools to best facilitate and consult selected target regions in Africa and Latin America with their know-how and expertise and enable more technology export for European companies.



Project Overview

- Stimulate the energy transition in developing and emerging countries

by the market uptake support that shall lead to win-win situations and focus on sustainable and locally adapted solutions.

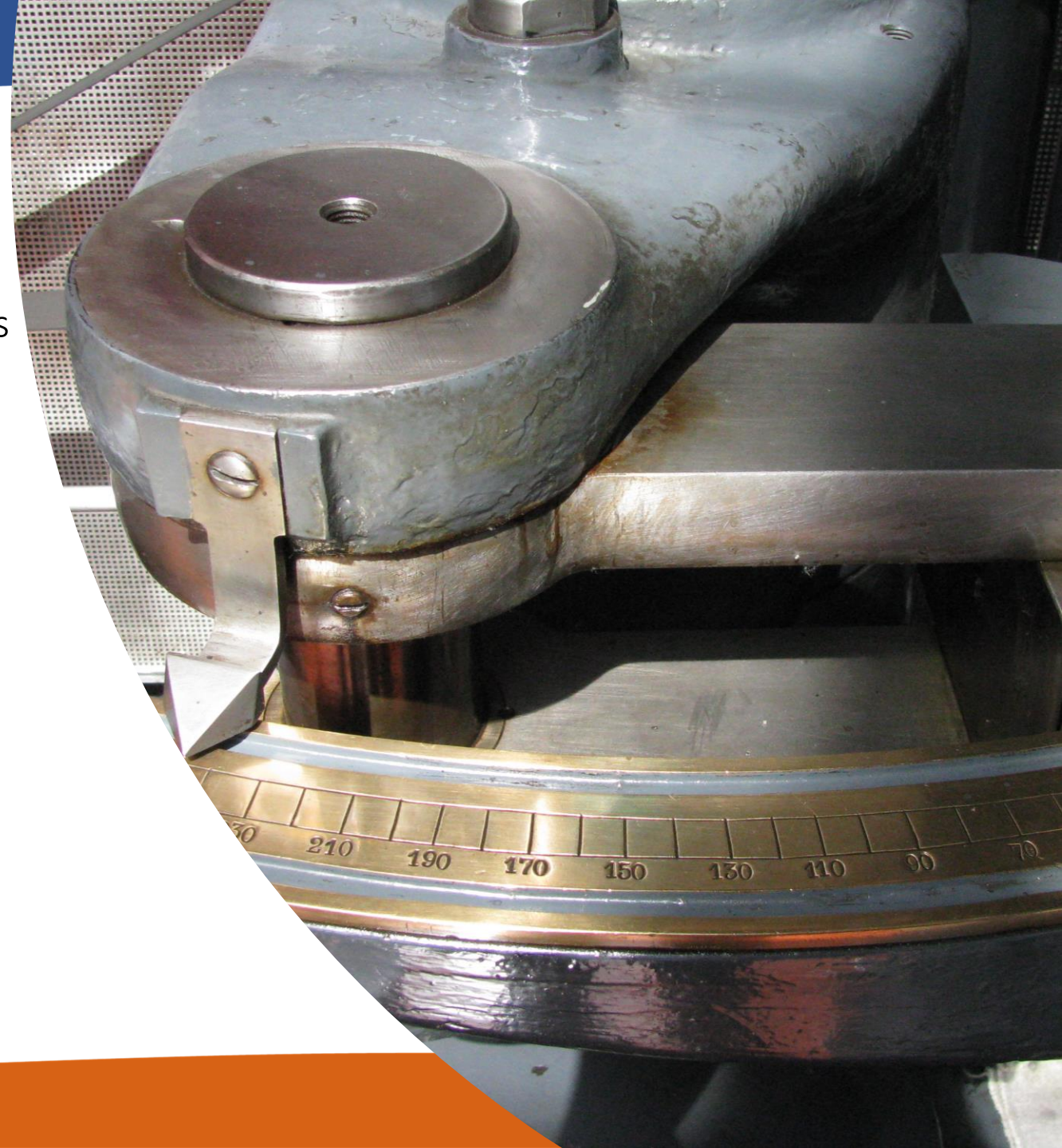


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Objectives

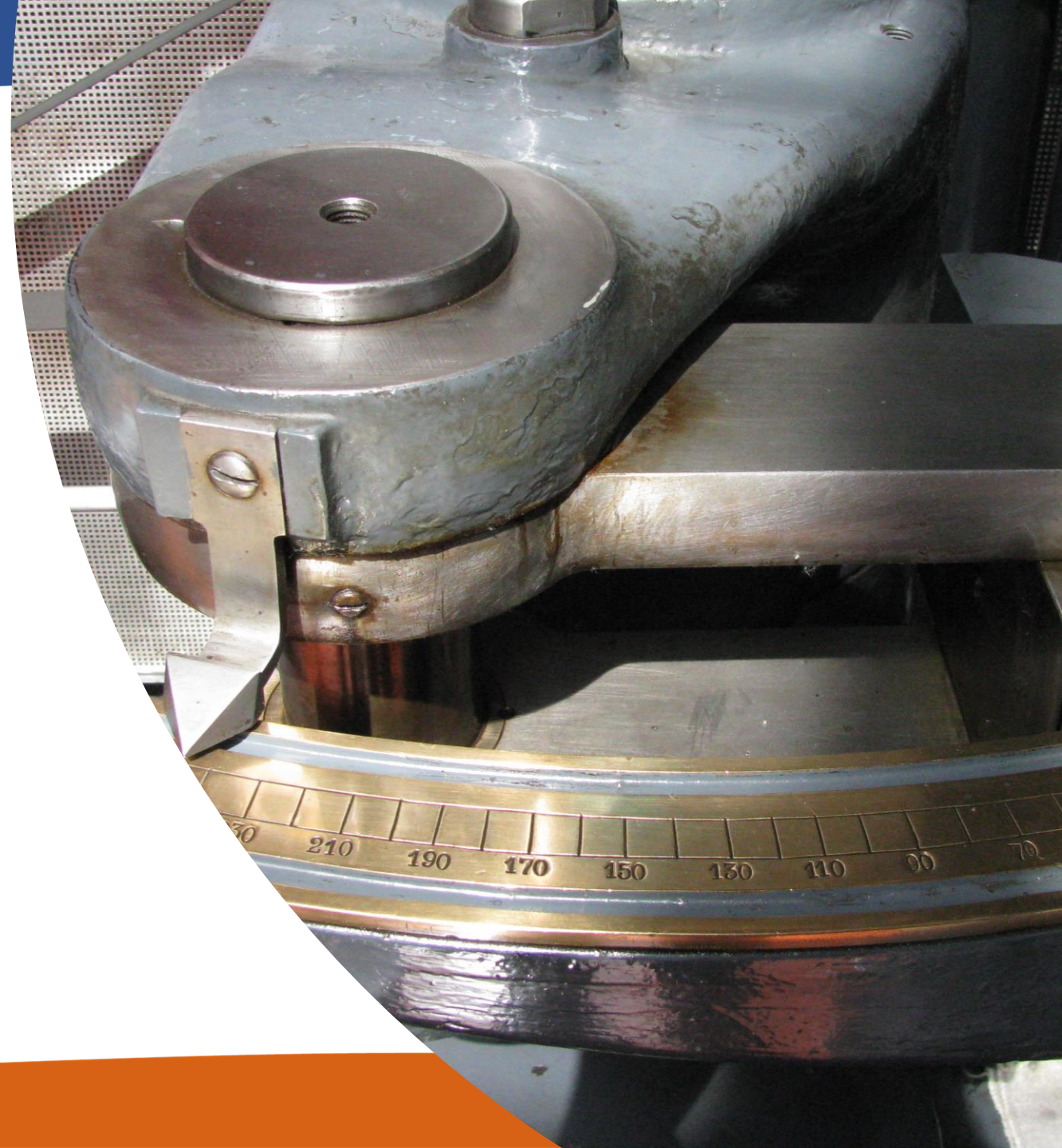
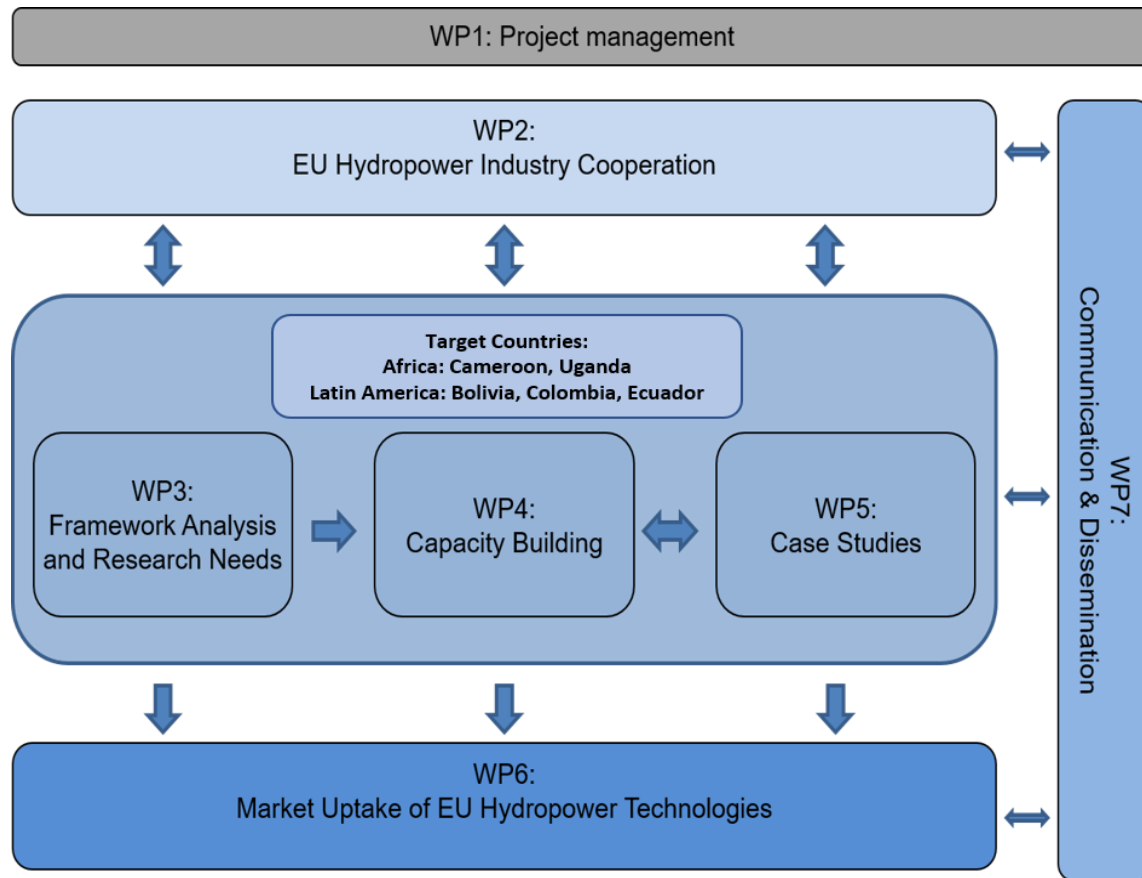
- **Mapping** (EU hydropower industry, hydropower sites and stakeholders in target countries)
- **Framework analysis** of target countries
- **Capacity building** activities
- **15 Case studies** (5 MoU)
- **Online platform** (providing sector information, enabling contacts)
- **b2b Workshops** (in Colombia, Uganda and the Netherlands)
- **Study tour** in Europe



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Structure



Work packages

Work package 1 (WIP, Germany)

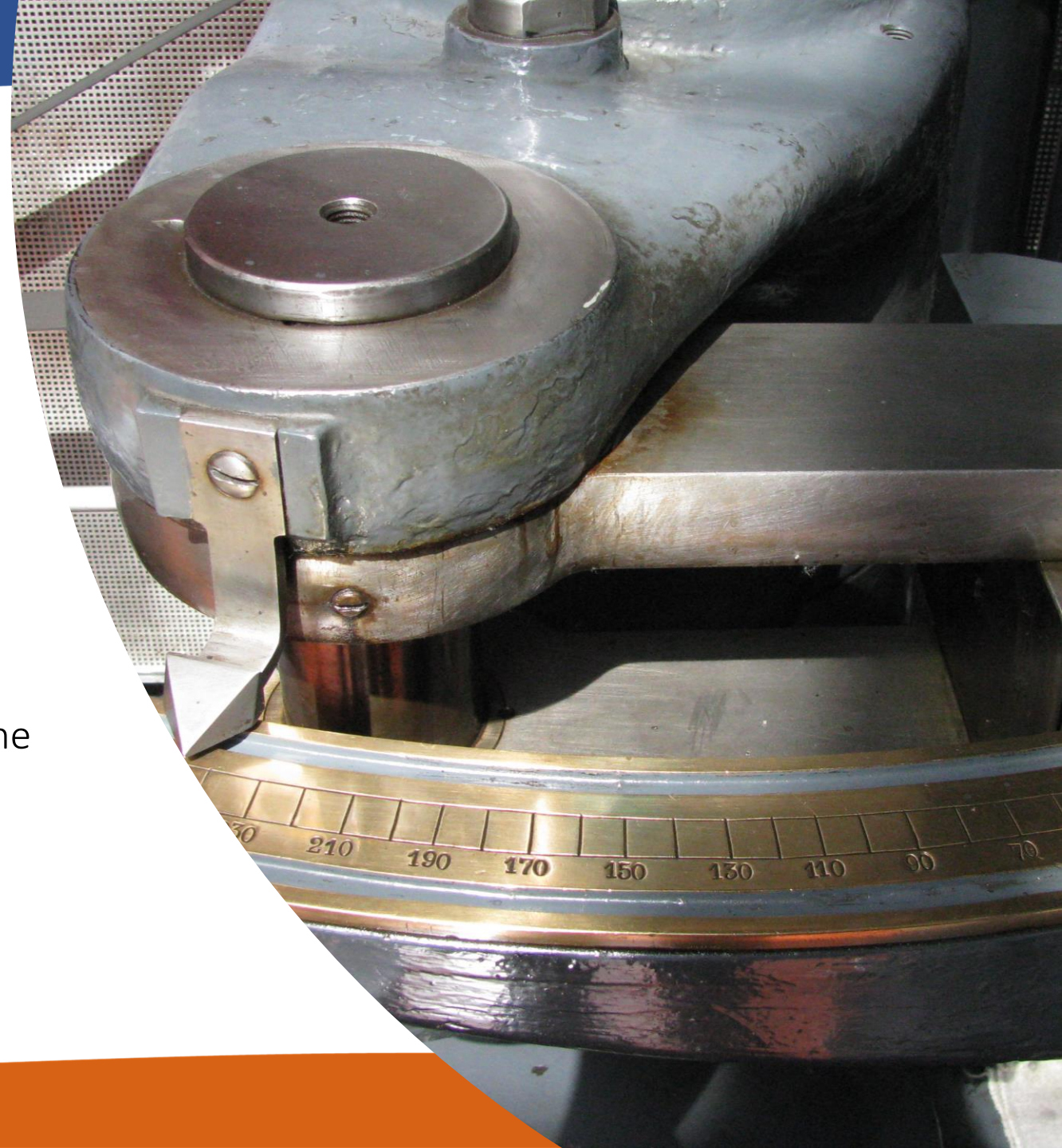
Project coordination

Work package 2 (EREF, Belgium)

- **Mapping** (EU hydropower industry)

EREF started already mapping the EU hydropower industry and will stay in contact with the European stakeholders to elaborate a comprehensive picture of the sector

- **Handbooks** (about the EU hydropower industry in English, French and Spanish)



Work packages

Work package 3 (VDU, Lithuania)

- **Mapping** (> 2,000 hydropower sites and stakeholders in target countries)
 - Bolivia 475 sites
 - Cameroon 500 sites
 - Colombia 500 sites
 - Ecuador 475 sites
 - Uganda 475 sites
- **Framework analysis** of target countries

Analysis of political, legal, financial and educational framework as well as financing opportunities



Work packages

Work package 4 (IHE Delft, Netherlands)

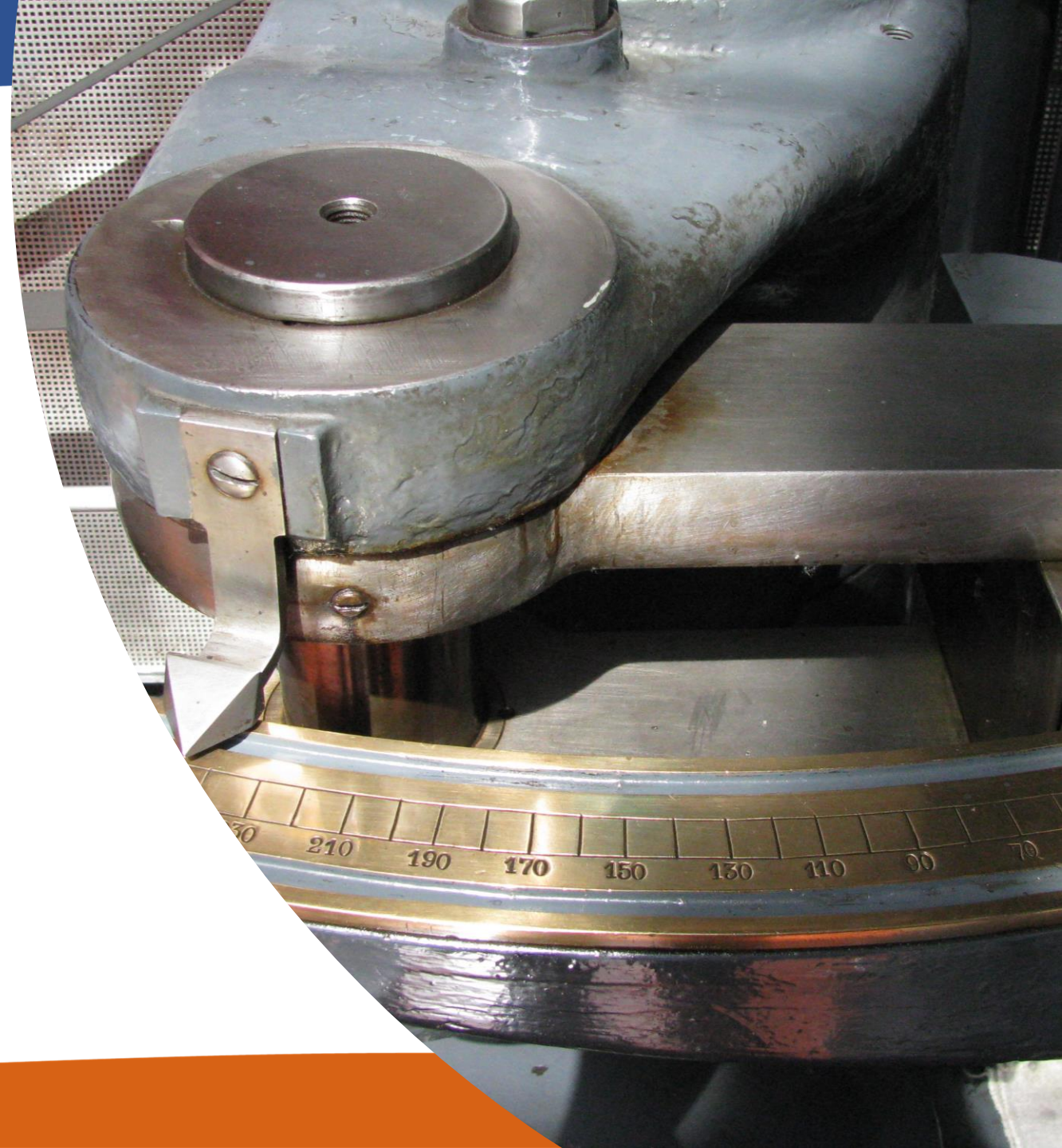
- **Capacity building** activities

IHE Delft will carry out capacity building trainings in 4 target countries:

Bolivia & Ecuador

Cameroon & Uganda

Development of a sustainable hydropower professional pool with comprehensive knowledge about the hydropower sector



Work packages

Work package 5 (Studio Frosio, Italy)

Project developers' workshops for case studies in all target countries

Bolivia, Colombia, Ecuador

Cameroon, Uganda

- **15 Case studies** (5 MoU)

3 case studies per target country

Financial experts (1to3, Netherlands) elaborate financing schemes for bigger participation

Case studies will be **replicable** for further use in future



Work packages

Work package 6 (TRMEW, Poland) and 7 (WIP, Germany)

- 5 Framework Conditions Workshops

Bolivia, Colombia, Ecuador

Cameroon, Uganda

- **b2b Workshops** to bring together stakeholders in target countries with the EU industry

Colombia – Uganda - Netherlands

- **Study tour** in Europe, bringing the **stakeholders** to the EU industry
- **Online platform: www.hyposo.eu**

(providing sector information, enabling contacts)



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Impact in numbers

Country	Bolivia	Cameroon	Colombia	Ecuador	Uganda	Total	
Potential of Small Hydropower (SHP) ⁶	Total [MW]	50	615	25,000	383	210	26,258
	Remaining %	57	>99	>98	>75	>90	
Defined capacity limit of SHP [P] ⁶	0.5 to 30 MW	< 10 MW	< 20 MW	10 - 20 MW	< 10 MW		
Cost per installed kW (approximate) ⁷	2,000 -3,500 US \$/kW						
Goal for installed MW per target country as consequence of HYPOSO (only SHP)	5	10	50	20	5	90	
Million tons of CO _{2eq} emissions avoided (total) [0.072 CO _{2eq} reduction/1 MW]	0.36	0.72	3.6	1.44	0.36	6.48	
Amount of additional EU investment in target countries through project activities, million US \$ (roughly 50% of installed cost)	8	15	75	30	8	136	



Impact in target countries



BOLIVIA



increase rural electrification (73%)

➤ HP experts

local jobs

COLOMBIA



increase share of RE (10% coal)

➤ HP experts

local jobs

ECUADOR



increase share of RE (37% oil)

➤ HP experts

local jobs

CAMEROON



increase electrification rate (urban: 57% rural: 22%)

➤ HP experts

local jobs

UGANDA



increase electrification rate (urban: 71% rural: 8%)

➤ HP experts

local jobs

Impact - additional

to

- **facilitating local jobs and wealth creation** (by engaging local communities and authorities into the project activities)
- **will lead to additional sustainable development** *in line with UN targets and EU programmes*

HYPOSO aims at

- becoming part of the **historical peace process in Colombia** (HYPOSO project partner CELAPEH is promoting the project “Small hydropower for Peace”)





Get involved

- Connect with stakeholders in the EU & the HYPOSO target countries via the HYPOSO website
- Receive updates about the project via newsletters





Hydropower Solutions

HYPOSO

Thank you!

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Impact

By engaging local communities and authorities into the project activities, **HYPOSO facilitates local jobs and wealth creation**. This will lead to additional sustainable development *in line with UN targets (e.g. Sustainable Development Goal 7 on affordable, reliable, sustainable and modern energy) and EU programmes such as Electrifi* (a flexible financial facility aiming at support investments that increase and/or improve access to modern, affordable and sustainable energy services. See more: <http://electrifi.eu/>).

Moreover, HYPOSO plans to be part of the **historical peace process in Colombia**. Within the Framework of Peace Agreement implementation, which includes an ambitious agro-industrial development in remote rural areas affected by the guerrilla war, project partner **CELAPEH is promoting the project “Small hydropower for Peace”**. Background for this project is, that the agro-industrial development basically consists of a large number of communitarian agro-industrial projects, which obviously require energy that nowadays is not available. Hydropower is an abundant renewable energy source in such areas and can be an important part of the process.

