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## Mapping knowledge for managing aquatic food systems: The case of community fish refuges in Cambodia

CARLA BALDIVIESO<sup>1</sup>, MICHELLE CHEVELEV-BONATTI<sup>2</sup>, SANJIV DA SILVA<sup>3</sup>, DUBOIS MARK<sup>3</sup>,  
STEFAN SIEBER<sup>2,1</sup>

<sup>1</sup>*Humboldt-Universität zu Berlin, Thae-Institute of Agricultural and Horticultural Sci., Germany*

<sup>2</sup>*Leibniz Centre for Agricultural Landscape Research (ZALF), Sustainable Land Use in Developing Countries, Germany*

<sup>3</sup>*International Water Management Institute, Laos*

### Abstract

Mapping complex knowledge systems allows us to support initiatives that contribute to collective action around sustainable food systems. In Cambodia, aquatic food systems are embedded in the rice paddy landscape; thus, rice-field fisheries play a significant role. Community Fish Refuges (CFRs), are natural or human-made ponds that hold water throughout the year and provide a dry season sanctuary for fish. However, CFRs are not only contributing to the maintenance of fish stocks but are an integrated agricultural system that provides water for animals and household consumption and supports aquatic biodiversity. For our research, we selected four cases from the CFR project conducted by WorldFish - Cambodia in the period 2016 – 2021 in the Kampong Thom Province. These cases were identified by the local NGO team as successful project implementers. We applied causal loop diagrams (CLD) as a participatory tool through focus groups discussion with representatives of rural villages. Our aim was to make explicit the knowledge systems and processes related to this particular aquatic food system, deriving insights about its role in the CFRs management. The methodological approach is based on three phases: a) exploratory studies, b) casual loops workshops b) workshops of data validation, conducted between June-December, 2022. We identified the effectiveness of CLDs for visualizing knowledge systems and resource management. We observed that the participants have a bricoloured knowledge, rooted on generationally transmitted traditions but greatly influenced by external actors. We visualized that their knowledge systems are based on the daily practice of the use of CFRs and formal processes of training. However, such formal knowledge is linked to local groups with greater access to power ties and; therefore, larger facilities to be part of rural extension processes. In turn, the knowledge exchange processes with other villagers are seen from an informative and top-down approach. These local power groups execute appropriate actions for the ecological sustainability of the project. However, CFRs could benefit from processes in which there is a dialogue with a greater plurality of voices. These dialogical processes within the village do not appear to be locally available; this, could be linked to existing social differentiation structures and cultures of power. Therefore, our discussion ties together local learning, power structures and cultures, and the role of externals.

**Keywords:** Aquatic food systems, Cambodia, causal loop diagrams

**Contact Address:** Carla Baldivieso, Humboldt-Universität zu Berlin, Thae-Institute of Agricultural and Horticultural Sci., Oranienstrasse 116, 10969 Berlin, Germany, e-mail: carla.baldivieso.s@gmail.com