

EGU21-11086

<https://doi.org/10.5194/egusphere-egu21-11086>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Human in nature: two cases on social factors nested in the implementation of Nature-based Solutions

Wei Weng^{1,2}, Luís Costa², Matthias Lüdeke², Delphine Zemp³, Sue-Ching Jou⁴, Fernando Jaramillo^{1,5}, and Mei-Yi Liu⁴

¹Department of Physical Geography, Stockholm University, Stockholm, Sweden (wei.weng@natgeo.su.se)

²Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany

³Biodiversity, Macroecology and Biogeography, University of Goettingen, 37077, Göttingen, Germany

⁴Department of Geography, National Taiwan University, Taipei, Taiwan

⁵Stockholm Resilience Centre, Stockholm University, Stockholm, Sweden

Nature-based Solutions (NbS), inspired or supported by nature, aim to address societal challenges in a fast-changing environment via an integrated and sustainable approach. Effective implementation of such intervention certainly requires compliance with specific societal configurations in different geographies. Here two cases of NbS to hydrological disaster risks are used to demonstrate the relevance of social barriers and opportunities for the full function of NbS.

Firstly, we introduce a novel large-scale NbS designed for reducing water scarcity in the Bolivian city of Santa Cruz de la Sierra. In this case, strategic reforestation was planned to bring rainfall to a downwind city taking advantage of atmospheric moisture pathways. In the process of co-designing reforestation sites, experiences from failed reforestation projects have improved the site selection originally based solely on the scientific evidence of the moisture pathways. Social barriers to implementation include underground economic activities and pressures for local food production. The latter factor also implies a trade-off between the fulfilments of different sustainable development goals.

Secondly, a case of landscape-scale NbS that aims to mitigate flood risk from typhoons in Taiwan will be discussed. It consists of a flood diversion framework that directs excess runoff to local farmlands following Typhoon storms. The concept of payment for ecosystem services has been employed to increase the willingness of farmers and landowners to participate in this framework. Institution of compensation for agricultural loss established from previous meteorological disasters has paved the way for implementation. A combination of subsidies and agricultural loss compensation has offered an opportunity for the new intervention to take place in the rice-cropping landscape, while the effect of this ongoing framework will be further documented.

These two cases show that the inertia from existing policy/institutional schemes and the lessons from past unsuccessful experiences provide an opportunity to identify and overcome social barriers to the implementation of innovative NbS.

