Indigenous knowledge integration for large-scale siting of sand dams in Angolan drylands

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**Keywords.** Water harvesting, best siting, sand dams, participatory approach, Angola

**Abstract.** Sand dams are simple and effective structures built across ephemeral riverbeds in arid/semi-arid regions to harvest water within sand pores and increase water availability and quality for rural communities. The complex morphological, hydrological, social and economic conditions that make sand dams a beneficial tool for climate change adaptation are largely influenced by the siting phase. Proper location of a sand dam can reduce community’s travel time to water points, reduce water conflicts and increase food security through expansion of irrigated agriculture. On the other hand, a misplacement of sand dams can, at worst, increase disparities in water access and increase local conflicts. To approach a viable siting of sand dams, most projects are developed and delivered with the community through a bottom-up approach. However, in case of large-scale project, remote sensing and biophysical analysis are the dominant approach, leaving out the precious indigenous knowledge and eventually affecting both the actual location selection and the benefits to local communities. In this paper, we propose a large-scale participatory methodology to sand dams siting, which draws on mixed-methods connecting the conventional top-down biophysical analysis with bottom-up participatory research. The generic approach developed for sand dams siting in Namibe can be adapted to other dryland regions to foster the integration of scientific and local knowledge for water harvesting expansion and success.