Socio-ecological Context Typology to Support Targeting and Upscaling of Sustainable Land Management Practices in Diverse Global Dryland

Quang Bao Le
CGIAR Research Program on Dryland Systems, c/o International Center for Agricultural Research in Dry Areas (ICARDA), q.le@cgiar.org

Chandrashekhar Biradar
International Center for Agricultural Research in Dry Areas (ICARDA), c.birada@cgiar.org

Richard Thomas
CGIAR Research Program on Dryland Systems, c/o International Center for Agricultural Research in Dry Areas (ICARDA), r.thomas@cgiar.org

Claudio Zucca
International Center for Agricultural Research in Dry Areas (ICARDA), c.zucca@cgiar.org

Enrico Bonaiuti
CGIAR Research Program on Dryland Systems, c/o International Center for Agricultural Research in Dry Areas (ICARDA), e.bonaiuti@cgiar.org

Follow this and additional works at: https://scholarsarchive.byu.edu/iemssconference

Le, Quang Bao; Biradar, Chandrashekhar; Thomas, Richard; Zucca, Claudio; and Bonaiuti, Enrico, "Socio-ecological Context Typology to Support Targeting and Upscaling of Sustainable Land Management Practices in Diverse Global Dryland" (2016). International Congress on Environmental Modelling and Software. 45.
https://scholarsarchive.byu.edu/iemssconference/2016/Stream-A/45

This Event is brought to you for free and open access by the Civil and Environmental Engineering at BYU ScholarsArchive. It has been accepted for inclusion in International Congress on Environmental Modelling and Software by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen amatangelo@byu.edu.
Socio-ecological Context Typology to Support Targeting and Upscaling of Sustainable Land Management Practices in Diverse Global Dryland

Quang Bao Le¹, Chandrashekhar Biradar⁵, Richard Thomas¹, Claudio Zucca², Enrico Bonaiuti¹
¹CGIAR Research Program on Dryland Systems, c/o International Center for Agricultural Research in Dry Areas (ICARDA) (q.le@cgiar.org; r.thomas@cgiar.org; e.bonaiuti@cgiar.org)
⁵International Center for Agricultural Research in Dry Areas (ICARDA) (c.birada@cgiar.org; c.zucca@cgiar.org)

Abstract: It is widely recognized that sustainable land management practices (SLM) are much needed for improving land-based livelihoods of 2.5 billion people living in the dry areas across the globe. Adoption and effectiveness of SLM depend on specific contexts. The high contextual diversity over global drylands makes (1) uniform blanket policies promoting SLM less effective and (2) the synthesis and upscaling of site-based successful lessons difficult. We propose the functional context type (FCT) approach to overcome these challenges by grouping common biophysical, economic and social drivers of land use adoption and change into distinct context types that shape SLM adoption and resulting primary productivity and efficiencies. The drivers selected for analysis were based on a literature review. We identified and mapped context types using spatial cluster analysis with global data. The functionality of the derived context types were evaluated by unbalanced ANOVA that measured and tested the differences in primary productivity and rain use efficiency among the context types. The testing of the types’ function regarding SLM adoption will be the subject of follow-up studies at regional or national scale, where adoption data are available. Our initial result demonstrates the potential of the FCT approach to further our understanding of the role of socio-ecological contexts in SLM, and management of the contextual diversity. The results can be used by SLM-oriented projects/programs and citizen scientists to improve their targeting. For example given limited resource and aims, we can know approximately where efforts should be focused by managing, or coping with what drivers. The result can also be used as an extrapolation domain: given SLM outcomes in a number of project sites, we can identify where similar intervention options have a potential of success based on contextual similarity.

Keywords: context, driver, dryland, socio-ecological, SLM, functional context type.