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The Resilience Assessment Framework: a common indicator for land management?

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At the Rio+20 conference in June 2013, the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC) reinforced their mutual interests in building linkages between biodiversity conservation, sustainable land management, and climate change mitigation and adaptation. The UNCCD sees building resilience of agro-ecosystems as a common interest that could strengthen linkages between the conventions and deliver synergies in progressing goals of each of the conventions. Furthermore, enhancing resilience of productive agro-ecosystems is fundamental to food security and sustainable development, and thus aligns with the Sustainable Development Goals (SDGs). The Global Environment Facility (GEF) shares the interest of the conventions in building resilience in agro-ecosystems. Indicators of resilience are required for monitoring progress in these endeavors, application of a common indicator between the UNCCD, UNFCCC and CBD as a measure of both land-based adaptation and ecosystem resilience, could strengthen links between the conventions and increase attention to the broad benefits of improved land management.

Consequently, the Scientific and Technical Advisory Panel (STAP) to the GEF commissioned the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to produce a report reviewing the conceptual basis for resilience, and proposing an indicator approach that could meet the needs of the Conventions and the GEF for an indicator of agro-ecosystem resilience and land-based adaption.

The paper presents a synthesis of scientific understanding of resilience in agro-ecosystems, reviews indicators that have been proposed, and, having concluded that none of the extant indicator approaches adequately assesses resilience of agro-ecosystems, proposes a new approach to the assessment of resilience. Recognizing that no single indicator of resilience is applicable to all agro-ecosystems, and that involvement of stakeholders is critical to discerning the critical variables to be assessed, the proposed framework uses an iterative participatory approach to characterise the system, considering also interactions across and within scales; identify the controlling variables, and assess proximity to thresholds, and adaptive capacity.

The framework consists of four elements: Element A: System description; Element B Assessing the system; Element C Adaptive governance and management; Element D Participatory process. Element D is intended as a cross-cutting element, applying across Elements A to C, although Elements A and B can be applied as a desktop activity in a preliminary assessment. The results of the assessment are synthesised in "Resilience action indicators", that summarise the state of the system with respect to the need to adapt or transform.

The presentation will summarise the framework and the responses of expert reviewers who identified strengths of the approach, and challenges for implementation, particularly at program and national scales. The presentation will emphasise the conceptual basis for the approach, and the role of scientists in testing, refining and operationalizing the approach.