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FAO'S TOOL FOR AGROECOLOGY PERFORMANCE OWC 2020 Paper Submission - Science Forum

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EVALUATION (TAPE): A MULTI-DIMENSIONAL ASSESSMENT TOOL FOR THE PERFORMANCE OF AGROECOLOGY FOR BETTER DECISION MAKING IN THE TRANSITION TO SUSTAINABLE FOOD SYSTEMS

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Abstract: Agroecology is fast gaining interest worldwide among a wide range of actors as a holistic response to the multiple and interrelated challenges facing food systems – not least of which include continued poverty and hunger in the context of degrading natural resources and climate change. While there is increasing evidence on the positive impacts of agroecology, results remain fragmented because of heterogeneous methods and data as well as differing scales, locations and timeframes. In 2018, FAO was requested by its governing bodies to develop metrics, tools and protocols to evaluate the contribution of agroecology to the transformation of sustainable agriculture and food systems. To respond to this request, FAO, with the help of multiple partners, has developed a global analytical framework for the multidimensional assessment of the performance of agroecology: the Tool for Agroecology Performance Evaluation (TAPE) (FAO 2019), which aims to:

- Inform policy makers, development institutions, and other stakeholders by creating references to the multidimensional performance of agroecology and its potential to contribute to multiple SDGs;
- Build knowledge and empower producers through the collective process of producing and sharing data and evidence based on their own practices;
- Support agroecological transition processes

This session will explore the TAPE tool and its utilization with an aim to link the assessment of agroecology to better decision making in order to foster the transition to sustainable food systems.

Introduction: Agroecology is fast gaining interest worldwide among a wide range of actors as a holistic response to the multiple and interrelated challenges facing food systems – not least of which include continued poverty and hunger in the context of degrading natural resources and climate change (FAO, 2018a). While there is increasing evidence on the positive impacts of agroecology, results remain fragmented because of heterogeneous methods and data as well as

differing scales, locations and timeframes. Recently, efforts to assess sustainability in agriculture have resulted in the development of a number of frameworks, focusing on different dimensions of sustainability or different regions of the world, targeting mostly scientists and extension workers.

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Material and methods: To respond to this request from its governing bodies and need from the broader sustainable agriculture community to create evidence, FAO, with the help of multiple partners, has developed a global analytical framework for the multidimensional assessment of the performance of agroecology: the Tool for Agroecology Performance Evaluation (TAPE) (FAO, 2019), which aims to:

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TAPE follows a stepwise approach, based on two core steps (1 and 2) complemented by a preliminary description of context and systems (step 0) at the territorial level and a final analysis and participatory interpretation of results (step 3). The first core step is a tool for characterizing the level of transition to agroecology of productive systems based on FAO's 10 Elements of Agroecology[2] (FAO 2018b). This step is called Characterization of Agroecological Transition (CAET). The tool can be used as a self-assessment by producers or as guided exercise by technicians, NGO workers, scientists or government agents. TAPE can be used to assess all types of production systems and agricultural sub-sectors: crop and livestock production, aquaculture and fisheries and forestry. It is also fully adaptable to local contexts and languages.

The results of this first step can be visualized in a spider diagram (Figure 1) that can support self- and peer-reflection and inform discussion on how to advance in the agroecological transition of the evaluated system. While no prescriptive threshold is defined, systems with high scores across all 10 elements are considered well advanced in the agroecological transition. The second step consists of a short list of 10 core criteria of performance needed to evaluate the multi-dimensional performance of the systems assessed in Step 1. The core criteria are listed through 5 key dimensions strictly related to the Sustainable Development Goals[3], namely:

[1] http://www.fao.org/3/ca7407en/CA7407EN.pdf
[2] http://www.fao.org/agroecology/knowledge/10-elements/en/
[3] https://sustainabledevelopment.un.org/?menu=1300

- Governance
- Economy
- Health & Nutrition
- Society & Culture
- Environment & Climate change

These five key dimensions are considered strategic to frame the results of the assessment and communicate them in order to inform policy processes. The last step concerns the participatory analysis of the results in order to highlight strengths and weaknesses of the system assessed. It should be conducted in a participatory way with the interested producers and community/territory and its leaders in order to support them in their process of transition to agroecology and improved resilience and sustainability of their productive systems. TAPE is designed to be relevant to all contexts, agroecological zones and production systems (including organic production systems) but simple enough to be obtained with one interview during a field visit in a short amount of time and with few resources invested. The tool captures information in a particular place, at a particular time, and at a distinct scalar component utilizing participatory community processes and a household/farm survey that includes disaggregated components as well as a farm walk.

The actual operationalization of the analytical framework leverages a public on-line data collection tool, KoBo Toolbox. This free and open-source platform can be accessed via any browser or device, and offers both online and offline functionality along with geolocation.

Results: The TAPE tool is the result of a process of collaboration across many different domains and with many different stakeholders. The process began in January, 2018, with a stocktaking exercise to identify existing analytical frameworks and tools already in existence. Then, a survey was sent to ~400 stakeholders to further refine existing tools and strengths/weaknesses of the tools. An expert workshop was held in October 2018 for two days to decide on key principles that the analytical framework should incorporate and a draft analytical framework was completed and shared in March 2019. After numerous rounds of consultation and revision, the tool was officially launched in July, 2019.

The tool is being piloted across multiple territories and countries and is building a global harmonized database on the performance of agroecology. To date, TAPE has been introduced via regional workshops in Asia Pacific and Latin America, bringing together representatives from various countries in the regions, including FAO staff, ministry counterparts, NGOs, producers' organizations, and academia. TAPE is being piloted in 2020 in different regions of the world including Asia, Africa, the Caribbean, Central Asia, and Latin America. Preliminary feedback on the use of the tool has been positive, especially regarding the software interface. Feedback from recent data collection piloting in a field setting in Cambodia was extremely positive, suggesting that the software is easy to use, adaptable to local contexts, and powerful. Additional feedback was that the provision of instant feedback to farmers and communities by using the offline-capable KoBo Toolbox helped to facilitate a shift towards participatory appraisal approaches and data-driven problem solving and decision-making, which is a key component of agroecology.

Output formats from preliminary tests include a spider diagram for representing the CAET (Figure 1). In this example, taken from Takeo Province in Cambodia on a mixed rice-chicken smallholder family farm, one can see that the farm performs quite high for the elements of cultural and food traditions, efficiency, circular and solidarity economy, and

responsible governance, but quite low on the elements of recycling and synergies. Taken as a comprehensive view of agroecological transition, this can provide a shapshot of how this farm performs at a particular point in time and also provides a starting place to discuss and support how the low elements can be improved, as part of a circular learning and support process.

A similar approach for the CAET can be used to compare various farm systems (Figure 2). For instance, in figure 2, one can see the differences in performance of different farms in the same community in Cambodia. This step and visual representation of the transition process can be a very powerful tool for producers as well as those working with and supporting them in the transition to agroecology or more sustainable and productive agricultural and food systems.

For step 2, the complexity of 10 core criteria of performance has been simplified into table format (Table 1). In this example, taken from Cambodia, shows the performance of the same family farm in Figure 1. Using a simple traffic light approach, similarly to the indicators for the UN Sustainable Development Goals, one can quickly and easily see how the farm performs across various proxies for sustainability indicators. In this example, the farm scores well for the criteria of land tenure, productivity per hectare, pesticide use, dietary diversity, women's empowerment, and soil health. However, the farm performs poorly for productivity per person, and agricultural biodiversity. Linkages between the CAET (Step 1), core criteria (Step 2) and the enabling/disabling environment recorded in Step 0 can then begin to be seen and utilized to help inform the sustainable transition.

Table 1: Core Criteria of Performance for a Mixed Rice-Chicken Smallholder Family Farm in Cambodia.

	Core Criteria	*Mixed Rice-Chicken Smallholder Family Farm*
1	*Land tenure [Men]*	Has a formal document with his name on it.
	Land tenure [Women]	Has a formal document with her name on it.
2	*Productivity (per person) - in USD*	**$1164** < national average value of production per person ($3694)
	Productivity (per hectare) - in USD	**$4658** > national average value of production per hectare ($1588)
3	*Income per person - in USD*	**$505.03** < median income from farm activities ($1281.9) and > national poverty line ($339)
4	*Added value per person - in USD*	**$505.03** < 1.2 x national agricultural GDP per worker ($560) and > 0.8 national agricultural GDP per worker ($374)
5	*Pesticides*	No chemical nor organic pesticides used. Ecological management of pests.
6	*Dietary diversity*	7
7	*Women's empowerment*	81%
8	*Youth employment and emigration*	*(N/A) - No young members in the household*
9	*Agricultural biodiversity (Gini-Simpson index)*	49.4
10	*Soil health*	3.9

Discussion: This session will explore the TAPE tool and its utilization with an aim to link the assessment of agroecology to better decision making in order to foster the transition to sustainable food systems, including organic systems. It is the

authors' hope that members of the organic community can see the potential of collaborating in the testing, refinement, and utilization of the tool in order to continue to create evidence for the performance of agroecology in order to better guide policy makers. This guidance will ultimately help lead to create an enabling environment for sustainable food and agriculture systems to flourish.

References:

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Disclosure of Interest: None Declared

Keywords: agroecology, assessment, multi-stakeholder approach, sustainable agriculture, Toolkits

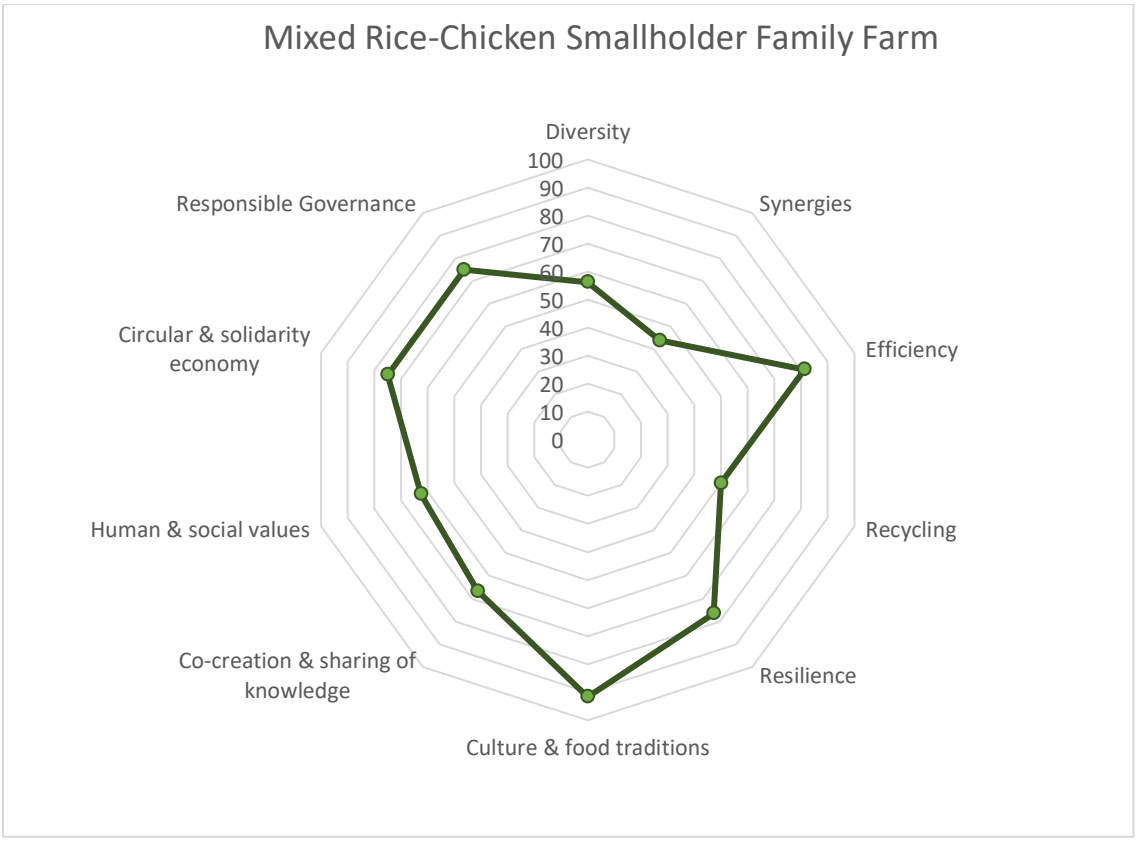

Figure 1: Characterization of Agroecological Transition (CAET) Scores for a Mixed Rice-Chicken Smallholder Family Farm in Cambodia.

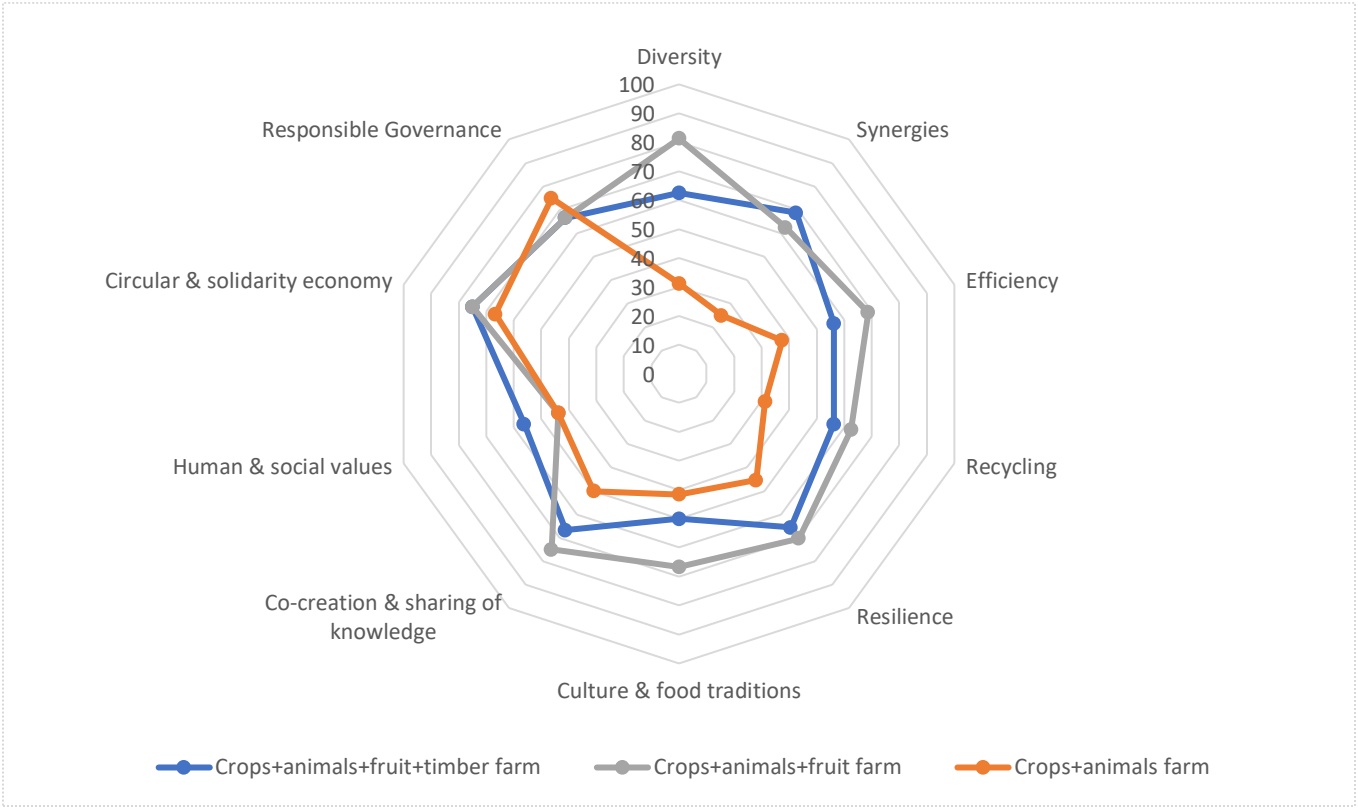

Figure 2: Characterization of Agroecological Transition (CAET) Scores for three different farm types in the same community in Cambodia.