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Session	3
Title of presentation	Agriculture Biodiversity and Ecosystem Services: environmental health and human health
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Abstract

Current agricultural intensification practices are the biggest threat to sustainability and a major force behind breaching multiple planetary boundaries (Steffen et al., 2015). Agriculture contributes to between 19 and 29% of total GHG emissions (US EPA 2011, Vermeulen et al. 2012), uses of 69% of freshwater resources (AQUASTAT 2014), and 34% of the terrestrial, ice-free surface of the planet accounting for 31% of wild biodiversity loss (Ramankutty et al. 2008). It is the primary driver for the substantial breach of the planetary boundary for phosphorous, and nitrogen (Carpenter and Bennett 2011, Steffen et al. 2015). The foods we produce from these systems struggle to nourish a growing global population where nearly 2 billion suffer from nutrient deficiencies, and another 2 billion suffer from obesity.

In as much as agricultural practices are important parts of the problem, they are likely to be our best bet for novel solutions addressing both human and environmental health. Increasing and improved use of agricultural biodiversity has the capacity provide both food and nutritional security, providing the ingredients of healthy, culturally sensitive, and enjoyable meals. Mounting evidence suggests that producing food for diversified diets is often complementary with improving agriculture's sustainability record. Agricultural biodiversity provides the core ecosystem services that underpin sustainable agricultural intensification: pollination, pest control, and sustainably stored and sourced soil nutrients. Finally, as the planet's largest ecosystem, sustainable intensification of agricultural ecosystems has the capacity to provide multiple ecosystem services converting agriculture from a net source, to net sink of green house gases; reigning in planetary boundaries on phosphorus, nitrogen, and water; and creating a safe space for wild biodiversity .

Achieving agricultural biodiversity's potential however, requires stronger support of the research and development community, better articulation of biodiversity's contribution to multiple sustainable development goals, and improved indicators and indices that facilitate impact and progress both environmental and human well-being targets.

Key considerations

- Agricultural and food system are currently broken.
- Agriculture has to be part of the solution to Agriculture.
- Agricultural biodiversity and ecosystem services are a big part of that solution.

Key discussion points and conclusions

- We must improve the recognized value (measures and metrics) of agricultural biodiversity and its contribution to sustainability.

- Farmer efforts as stewards of food, nutritional and environmental security must be recognized and rewarded

Key question/s that you would pose at the roundtable discussions

- The Aichi targets, while aspirational, lack specific measurable outcomes and impacts – what outcomes and impacts should we be articulating in support of biodiversity and the services it provides?
- For which Sustainable Development Goals is there clear and established evidence of biodiversity's contribution to achieving the target.