

SDG 2: Zero Hunger

Challenging the Hegemony of Monoculture Agriculture for Forests and People

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The Global Food System

- Producing more food than ever before in human history
- Yet vast inequities in the food system = food sovereignty
- A dietary shift: primarily plant based, complex carbohydrates, low in fats → commodity crops high in fats and oils, meats and refined carbohydrates



Environmental Impacts

- Agriculture expansion is responsible for 40% of permanent forest loss worldwide (Curtis et al., 2018)
- Up to 70% of the world's freshwater is appropriated to nourish crops and livestock (Ray et al., 2018)
- Soil erosion currently exceeds soil formation (Amundesen et al., 2015)
- Agriculture accounts for approximately one-third of greenhouse gas emissions (Springmann et al. 2018)
- Heavy reliance on fossil fuels



Has it been worth it?



- Nearly two billion of our global population are over-nourished, while the same number remain under-nourished (HLPE 2017)
- One-third of all food produced is wasted post-harvest or post-purchase (FAO 2011)
- Focus on food energy (i.e. calorie production), *not* nutrition
- The result? A polarized food system failing both people and the environment

SDG 2: Zero Hunger

Target	Indicator(s)
2.1 End hunger and ensure access by all people to safe, nutritious and sufficient food, especially vulnerable populations	2.1.1 Prevalence of undernourishment 2.1.2 Prevalence of moderate or severe food insecurity
2.2 End all forms of malnutrition	2.2.1 Prevalence of stunting among children under 5 years of age 2.2.2 Prevalence of malnutrition among children under 5 years of age
2.3 Double the agricultural productivity and incomes of small-scale food producers	2.3.1 Volume of production per labour unit 2.3.2 Average income of small-scale food producers
2.4 Ensure sustainable food production systems and implement resilient agricultural practices	2.4.1 Proportion of agricultural area under productive and sustainable agriculture
2.5 Maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species	2.5.1 Number of plant and animal genetic resources for food and agriculture secured 2.5.2 Proportion of local breeds classified as being at risk, not at risk or at unknown level of risk of extinction

Source: IAFG-SDGs 2016.

Forests and Targets 2.1 Access to safe & nutritious food and 2.2 End malnutrition

Direct Contribution

- Harvest of bushmeat, wild fruits, and other forest-sourced foods rich in micronutrients (for subsistence and safety net)
- Swidden Agriculture

Indirect Contribution

- Forest ecosystem services that support food production (i.e. water regulation, soil protection, nutrient circulation, pest control, pollination, carbon-cycle regulation)
- Forest generated income to purchase food items from markets and inputs needed for agricultural production
- Fodder for livestock
- Wood for energy/cooking

Forests and Target 2.5 Genetic diversity

- Three-quarters of the varietal genetic diversity of agricultural crops has been lost over the last century alone (Khoury et al. 2016)
- Today, 12 plant crops and 14 animal species provide 98% of world's dietary needs
- Less biodiversity in food and agriculture = vulnerable food supply
- An investment in conserving forest biodiversity is an investment in future food security that is genetically diverse, nutritious and resilient (Sunderland, 2011)



Forests and Target 2.3 Investing in smallholder producers

- Smallholder systems are estimated to produce between 30% (Ricciardi et al. 2018) and 70–80% (FAO 2014) of the world's food
- Produce a wide variety of products, providing resilience against economic and environmental shocks
- Currently little to no government support available to most smallholders – lack of subsidies
- Smallholder farmers (particularly women) near forests present a unique opportunity to conserve forest ecosystems through integrated land use



Forests and Target 2.4 Sustainable production systems & resilient practices

Integrated land uses

E.g. Agroforestry, landscape mosaics

- *Benefits include high carbon value, biodiversity conservation, maintenance of ecosystem services, greater resilience to economic and environmental shocks sustainable livelihoods*



Challenges and Opportunities

- Change is needed along the entire supply chain (producer → consumer)
- Policies needed to support changes in behaviour and production (i.e. linking agricultural policy with health, education, & trade policies that promote human and planetary health)
- Rights and access (issues of land tenure, incentives to invest and manage land) = right to food!
- Challenges longstanding institutional structures and social norms



Takeaways



- Targets 2.1–2.5 underscore the reciprocity between forests and SDG 2
- Achieving SDG 2 is contingent on recoupling nature and agriculture. Forests can and should be integrated into agriculture rather than being viewed as being ‘in the way’ of production.
- A shift from sectorial management to integrated landscape approaches is needed

Thank you!

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