

3. NEW RESEARCH

As part of Phase I in TEEBAgriFood, a number of feeder studies were commissioned in order to begin building the scientific evidence base for the main reports. Research consortia were selected on the basis that their proposal was aligned with the overall project vision (i.e. making impacts and externalities visible) and yet, due to timing or data restrictions, certain research gaps became evident.

Moreover, in light of the development of the valuation framework that has been designed since then, based on insights gained from the feeder studies, the overarching frame of analysis has become more explicit and better understood, for example regarding the need to assess health externalities as well as off-farm processing, distribution and consumption.

The following document provides a summary of three research proposals that are being considered to commission in order to further build the evidence base for TEEBAgriFood, particularly as Phase II gets underway with the writing of the ‘Scientific and Economic Foundations’ report. These include:

- Rice
- Health
- Mixed systems

It should be mentioned that the proposals described below are only a subset of the full research agenda that will be considered for Phase II. The focus of additional research will largely depend upon the way that the reports are structured, and the meeting in Paris will contribute to this decision..

I. DEEPENING THE RICE STUDY

At the TEEB Advisory Board / TEEBAgriFood Steering Committee meeting in Paris in December 2015, members agreed that the valuation framework needed to be tested and populated in order to serve as proof of concept. The rice study, determined to be the most comprehensive in terms of impacts and ecosystem services assessed, was selected to be taken forward.

A research proposal, submitted in August 2015 by Barbara Herren (formerly FAO and coordinator of the rice study) and Harpinder Sandhu (Flinders University), sketched out a potential second phase that would expand “*in two directions: (A) the quantitative data as collected in five case study countries should be expanded to two major rice producing countries: India and Indonesia, and (B) the methodology of integrating both biophysical data and valuation data to reflect positive externalities and the building of ecological infrastructure should be elaborated and applied to the rice data collected so far, using both a one-dimensional bottom-up monetary approach, and a multi-dimensional non-monetary approach.*

However, in light of recent discussions regarding the need to *deepen* (i.e. look at more ecosystem services, such as cultural, and beyond farm gate), this proposal is being revised to better integrate the framework dimension and ‘fill the gaps’.

Study Leader Alexander Mueller has stressed the need to go beyond the traditional scope of agricultural research, which relies very often on results from controlled experiments and thus do not reflect reality on the farm, and instead consider some degree of primary research.

Next steps: Barbara Herren is coordinating a revised proposal for an additional study on rice, to include further ecosystem service valuation (Harpinder Sandhu) and cultural ecosystem services (Lucas Garibaldi).

II. ASSESSING HEALTH IMPACTS AND EXTERNALITIES ACROSS ALL PRODUCTION SYSTEMS

Health is perhaps the most fundamental gap in current TEEB AgriFood analysis, as it is hardly touched upon in the feeder studies (a partial assessment of the health impacts of pollution has been carried out in the rice study) and historically has never featured prominently on the TEEB agenda. However, in an agriculture and food context, and in populating the valuation framework, it cannot be overlooked due to the size and scale of (positive and negative) impacts and externalities from agricultural production.

There is a need to discuss health impacts across the entire eco-agri-food systems complex *irrespective of sector* as part of ‘Foundations’, while there is similarly a need to ensure that any future work on sectors (such as rice) will also include a sub-section/element of the project that looks at health.

To this end, though independently commissioned by the Global Alliance for the Future of Food, a call for evidence was issued in December 2015 for a scoping study on health impacts and externalities from agriculture, which could be aligned to the valuation framework.

The TEEB Office has also initiated links with several leading health experts (the Brussels workshop provided extremely valuable input), both in academia and in WHO, to provide inputs to the reports.

Next steps: The Global Alliance will share the successful proposal with the TEEB team to explore potential synergies, while a proposal from WHO will be submitted to the TEEB team by end April 2016.

III. ASSESSING MIXED SYSTEMS

The aspiration to assess mixed systems stems largely from the primary focus of the feeder studies on single sectors/commodities, which do not adequately account for the significant role of mixed systems in agriculture (especially for poor and small-scale farmers) and largely ignore interactions between systems.

In the existing feeder studies, the following have already address mixed systems to a certain extent:

- **Agroforestry:** all three case studies (cocoa in Ghana, coffee in Ethiopia and Ngitili in Tanzania) are examples of mixed systems

- **Rice:** rice-fish farming is described generally in the narrative report, and is touched upon in the case studies of the Philippines and Cambodia
- **Inland fisheries:** rice-fish farming is described more generally in Part 1 ('Context'), and is touched upon in the case study of the Lower Mekong Basin

However, it is clear that analysis of mixed systems is insufficient. Patrick Holden (Sustainable Food Trust) argues that mixed/integrated systems should be assessed in a more comprehensive way, and should concentrate on “those [systems] which include livestock and arable production, where the rotation is used as an integral element of soil fertility building for the arable crop, often based on pastures which are grazed by ruminants”.

By way of example, Harpinder Sandhu (Flinders University) has been contracted to assess four mixed farming systems in the US, which could feature in or feed into TEEBAgriFood analysis.

At the TEEBAgriFood Steering Committee teleconference in February 2016, members identified two challenges to consider: (i) defining mixed systems as anything other than monocultures, which is subject to a wide range of heterogeneity, and (ii) whether the scale of analysis should be farm-, landscape- or country-level. Study Leader Alexander Mueller also proposed focusing more on agroecological systems that have more closed nutrient cycles and less dependence on external inputs. Special Adviser Pavan Sukhdev stressed the importance of analyzing the value addition from assessing mixed farming systems.

Next steps: The follow issues remain unresolved:

1. Determining an appropriate spatial scale for assessment, e.g. is a focused study for one farm appropriate for TEEBAgriFood, as it is a global study? To what extent can results be generalized?
2. If we assume that all systems (bar monocultures) are mixed systems, then we have a very heterogeneous set of farm systems. How do we select across these?

The TEEB Office requires a steer on (1) and (2) before we can proceed with developing research options.