Project information for the BMZ funded research project

"*Research and capacity-building for inter-sectorial private sector engagement for soil rehabilitation*"

1. Research and development issues

Many farmers in developing countries need to enhance their crop production and are keen to use organic fertilizer. Whereas millions of tons of organic solid waste and human excreta from settlements as well as manures from livestock are generated every day, most is disposed and results in environmental hazards instead of returning its valuable nutrients and organic compounds to soils and for agricultural production. To strategically address these issues, IWMI initiated various research projects that explore how to successfully recycle organic waste including fecal sludge through co-composting. First activities started in Ghana to produce fortified excreta pellets called *Fortifer.* Main target was to develop a marketable organic fertilizer for local farmers and to enhance fertilizer efficiency and affordability. Producing dried pellets ensures volume reduction of fertilizer of up to 70% of initial volume, and hence by far reduces handling and transport costs. Furthermore, the pellets have been designed to release nutrients at a steady pace, thus reducing potential nutrient losses after application. Besides, the reuse of organic waste significantly lessens waste disposal and related environmental impacts. In 2014, IWMI up-scaled the Fortifer strategy from Ghana to Sri Lanka including follow up research in the South Asia region. This initiative was proposed for funding to the German Ministry for Economic Cooperation and Development (BMZ), whereas project funding was granted by BMZ in November 2015.

In the meantime, the Sri Lankan government initiated more than 100 municipal compost plants nationwide (Pilisaru project) and is promoting organic fertilizer as a healthier and sustainable alternative to synthetic fertilizers. This also addresses soil deterioration reported from various regions of the country, especially for organic matter depletion, increasing soil acidity and lack of phosphates. IWMI responded to these demands and established several research stations with selected municipalities (Kurunegala, Balangoda, Negombo) and at the governmental research center Makandura of the Ministry of Agriculture to test options for co-composting and pelletizing.

2. Objectives of research project

This research project has been encouraged by several Sri Lankan authorities, e.g. to support RRR development, waste management and the sustainability of the Sri Lankan compost sector, and to provide knowledge and curriculum development for business students, entrepreneurs and practioner's. The project moves RRR research experiences and knowledge further along the impact pathway and will assist to close critical knowledge gaps for regionally relevant technology transfer. Main goal of the new project is to develop curricula for innovative technologies and investment models that transfer organic waste into organic fertilizer for different soils, crops and climates in South Asia. Targeted outputs are (i) technical guidelines for public and private sector on producing safe fecal sludge-based fertilizer pellets; (ii) verification of the local soil-crop responses to different pellet qualities and quantities; (iii) an analysis of the investment climate for RRR options in selected countries in South Asia, and (iv) the development of curricula for students and practitioners interested in waste valorization business models and their enabling conditions.

The ultimate **beneficiaries** of the project will be farmers who would be provided with alternative organic fertilizers. Especially in Sri Lanka and India, there is a strong Governmental call against agro-chemicals and for using organic soil inputs. With the return of composted organic waste and nutrients the ability of the soil to provide essential ecosystem services will increase. Improved incentives for cost recovery in the waste and sanitation sector could catalyze better and more comprehensive waste management instead of common illegal dumping. This would also contribute to reduce water pollution for the benefit of a much larger population, especially women and children who are among the most exposed household members suffering from poor sanitation.