



2nd Targeted Workshop for Asia and the Pacific

*Livestock Waste Management in
Large and Medium-scale Farms
and Use of Organic Fertilizers
and Scientific Application*

Gang Qin, The World Bank



IW: LEARN Regional Workshop
Manila, The Philippines
10 – 12 March 2014

GEF Shanghai Agricultural Project

PDO: Demonstrate effective and innovative pollution reduction activities in Shanghai's rural areas in order to reduce the rural and agricultural pollution load (especially nutrients) in the surface water flowing to the East China Sea.



GEF Shanghai Agricultural Project

- Components:
 - Livestock waste management;
 - Wetland demonstration;
 - Agricultural pollution reduction;
 - Project management and replication;
- GEF Grant: US\$4.78 million
- Expected closing date: June 30, 2015



Project Design Overview

- Sector consideration: focusing on most representative sources of agricultural and non-point source pollution;
- Geographical consideration: Shanghai, a coastal city of east China sea
- Governance and ownership;
- Willingness of replication



Livestock Waste Management

- Removal of organic pollutants and nutrients;
- Providing organic fertilizer;
- Bio-gas generation and utilization;



Livestock Waste Management

	Planned	In Practice
Large-scale farm (5,000 cows)	Bio-gas power generation and connecting to the grid	Composting; Bio-gas utilization (small boiler)
Medium-scale farm (1,600 cows)	Composting and liquid fertilizer land application	Composting and liquid fertilizer application; Bio-gas power generation (BOT, non-GEF finance)

Experience and Lessons

- Bio-gas power generation needs professional operator and policy support from the government;
- The market of compost as organic fertilizer is developing with growing food safety concerns and local income increase;
- Government subsidiaries are needed;



Agricultural Pollution Reduction

- Demonstration of use of organic fertilizer: 25-30% reduction of chemical fertilizer in pilot areas;
- Demonstration of the scientific application of agricultural fertilizer
 - High efficiency and low residual chemicals, and
 - Non-chemical technologies



Experience and Lessons

- Water-soluble chemical fertilizer is proven to be more efficient;
- Use of organic fertilizer, non-chemical or low residual pesticides highly relies on government subsidiary (50%+ subsidiary in Shanghai);
- Technical guidance to farmers is essential to avoid over-application or other incorrect practices;



Dissemination and Replication

- Selection of right implementation unit;
- A good example: Shanghai Agricultural Technology Extension and Service Center;
- Workshops and trainings;
- Network information sharing;
- Preparation of a replication strategy;



Dissemination and Replication

- The core of agricultural pollution reduction component has been incorporated into the regional sectorial development plan;
- Wetland technologies are being promoted in the region;
- Bio-gas power generation is hard to implement, unless a professional operator is involved



Conclusion

- Practicality, affordability and government support (policy and subsidiary) are the main drivers behind replication and scale up;
- Providing continuous and stable subsidiary to the low-cost, reliable and easy-to-operate pollution reduction technologies is more than worthwhile;



Questions

- When implementing a small amount of grant GEF project,
 - how do you manage to have government maintaining its ownership?
 - how do you work with a implementing unit whose institutional capacity is weak?

