

Sustainable Agricultural Mechanization Strategies (SAMS) in the Asia-Pacific Region

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Dr. Rosa Rolle is an Agricultural Industries Officer in the Rural Infrastructure and Agro-Industries Division of the Food and Agriculture Organization. Since joining FAO in 1995, she has worked internationally in the areas of food processing, coconut water preservation, post-harvest systems development and food packaging. Rosa is currently actively involved with the development, design and implementation of training programs on horticultural chain management in Asia and in Africa. Prior to joining FAO, Dr. Rosa Rolle conducted post-doctoral work at the University of Florida, Gainesville, Florida, USA and worked as a consultant to the Government of the Commonwealth of Dominica. Dr. Rosa Rolle holds MSc and Ph.D degrees in food science and a Higher National Diploma in applied chemistry. In 2003, she was recognized as an outstanding international alumnus of the Ohio State University's College of Food, Agriculture and Environmental Sciences.

Asia and the Pacific Region is facing the challenges to the food supply and environment, including 1) population growth coupled with rising living standards; 2) increasing urbanization, a declining rural labor force and increasing feminization of agriculture; 3) ageing farming population; 4) growing scarcity of fresh water resources, 4) resource degradation and loss of biodiversity; 5) increasing energy costs and declining farm incomes; 6) climate change; 7) high levels of post-harvest losses, and so on.

The challenges listed above means there is a need to meet growing food demands, to respond to impacts of demographic change in rural areas, use natural resources in a more sustainable way, increase energy efficiency, innovate to enhance resilience, and implement post-harvest loss reduction strategies.

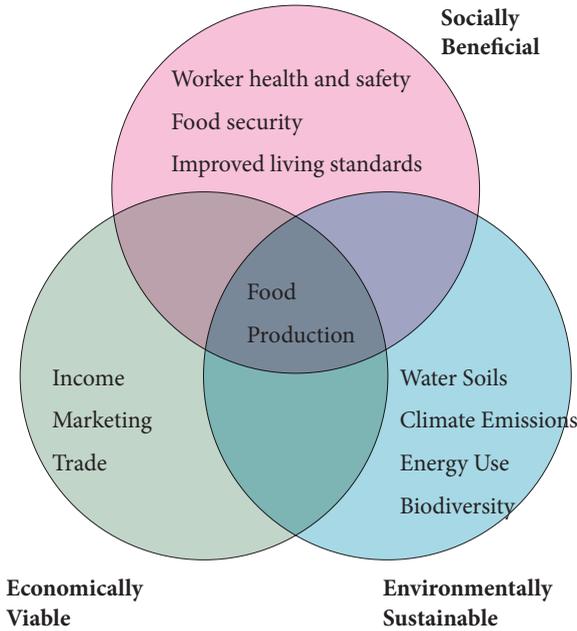
The challenges also highlight the need to focus

on the development of sustainable agricultural production systems that maintain optimal production without jeopardizing production factors. Sustainable Agricultural Mechanization (SAM) can contribute to sustainable agricultural production.

SAM can contribute to environmental sustainability by increasing energy efficiency, reducing carbon and gas emissions, through application with practices that avoid accelerating erosion and soil degradation, and through including measures to conserve soil fertility.

SAM can enhance financial performance of farms/producers by increasing trade and market opportunities, and contribute to social benefit by improving food security, reducing the drudgery associated with agricultural work, and better worker health and safety.

The desired benefits and impacts of SAM are showed in the following diagram:

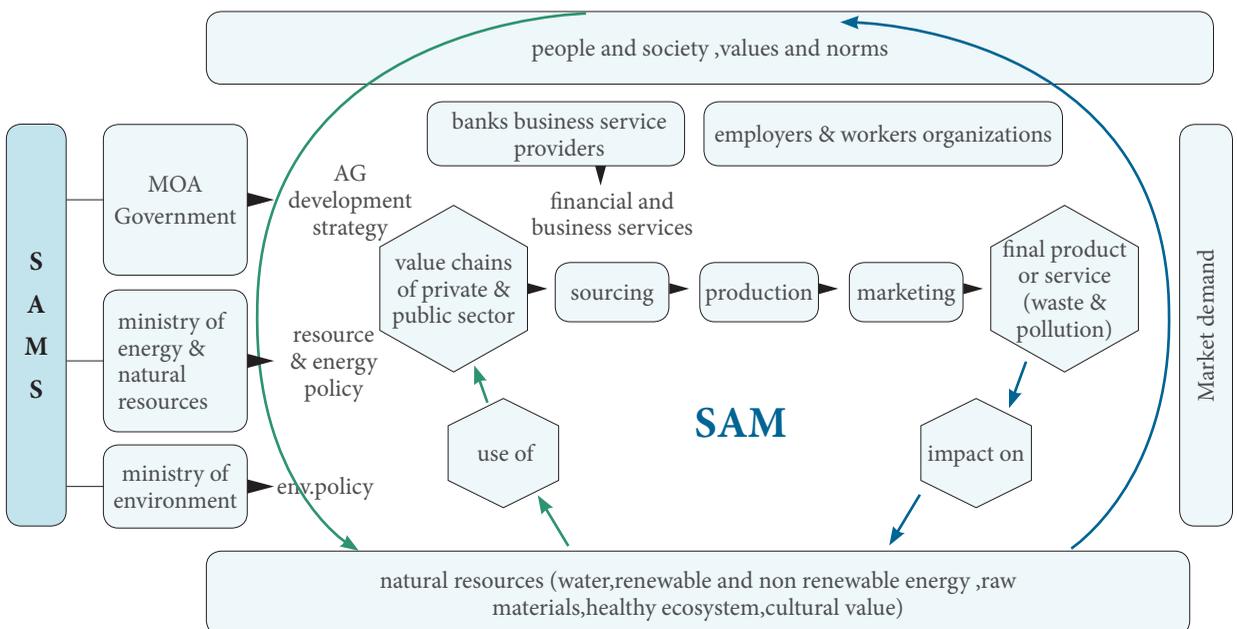


Desired Benefit and Impacts of SAM

Sustainable Agricultural Mechanization Strategy (SAMS) is a planning strategy that contributes to agricultural sustainability, while meeting food self sufficiency, generating economic development and inclusive growth as well as social benefit. SAMS is part of the enabling environment for the development of sustainable production systems and for the effective use of SAM. It can serve as a foundation to create a policy, institutional and market environment, that gives farmers the choice of farm power suited to their needs, while creating linkages among stakeholders.

SAMS is a joint initiative of CSAM and FAO launched in December 2011. The goal of SAMS for Asia and the Pacific is to address food security, poverty alleviation and environmental sustainability through sustainable intensification of agriculture, by creating an enabling environment.

SAMS constitutes an element of the enabling environment to promote sustainability



Source: adapted from donor committee on enterprise development, 2012

The factors that enable the formulation of SAMS include: relative importance of agriculture in the national economy, access to/availability of communication infrastructure, sufficient political commitment and will, adequate financial and human resources, recognition of the need for change by stakeholders – farmers, public and private sector, NGOs, financial institutions. Other enablers for SAMS formulation are competitive marketing and agricultural support services, systems and/or infrastructure for soil and water conservation, efficient agricultural, energy and environmental policies, information networks and training systems, public and/or private sector applied research systems adapted to local conditions.

Five Strategic Pillars were designated of SAMS for Asia and the Pacific, which are: Pillar 1 - Surveys, assessments and analyses of the current status of agricultural mechanization; Pillar 2 - Enabling policies and institutions for SAMS development; Pillar 3 - Human capacity development; Pillar 4 - Financial support to enhance investment in SAMS; and Pillar 5 – Advocacy (and awareness raising) on SAMS. CSAM and FAO will seek to utilize both South-South and North-South collaboration for CAMS implementation.

At the Sustainable Agricultural Mechanization Strategies Roundtable co-organized by CSAM and FAO on 8-9 December 2011, in Bangkok, Thailand, country representatives highlighted their priorities with regard to SAMS as the following Table:

Table 1 Priorities of Countries with Regard to SAMS

Countries	Priorities
Philippines	Comprehensive national program for sams
Srilanke	Standardization of agricultural machinery standards for sams
Malaysia	Providing access to appropriate equipment to farmers
India	Optimize capitalization of agricultural machinery use,develop and promote agricultural machinery that is resource and energy efficient and conserve natural resources
Indonesia	Increasing the availability of agricultural mechanization technology to farmer stakeholders
Bangladesh	Strengthened capacity of agricultural mechanization technology on the supply side of amt
Nepal	SAMS
Vietnam	Applying appropriate machinery and equipment for agricultural production
Mongolia	Improve planning and implementation coordination of government agricultural mechanization (sams)
Thailand	Promote standardization of local agricultural mechanization
Myanmar	Training and education for farmers select suitable farm machinery for different types of soil

Pillar 1 of SAMS has been finalized in 2012, and the outcome document – Framework for Policy and Strategy Formulation is under preparation by FAO. Upon completion of the Pillar 1 outcome document, a Policy Level Workshop is scheduled in the first quarter of 2014 to outline the options and recommendations, discuss the actions forward, and solicit government input and support. The progress up to date of SAMS is illustrated as below:

