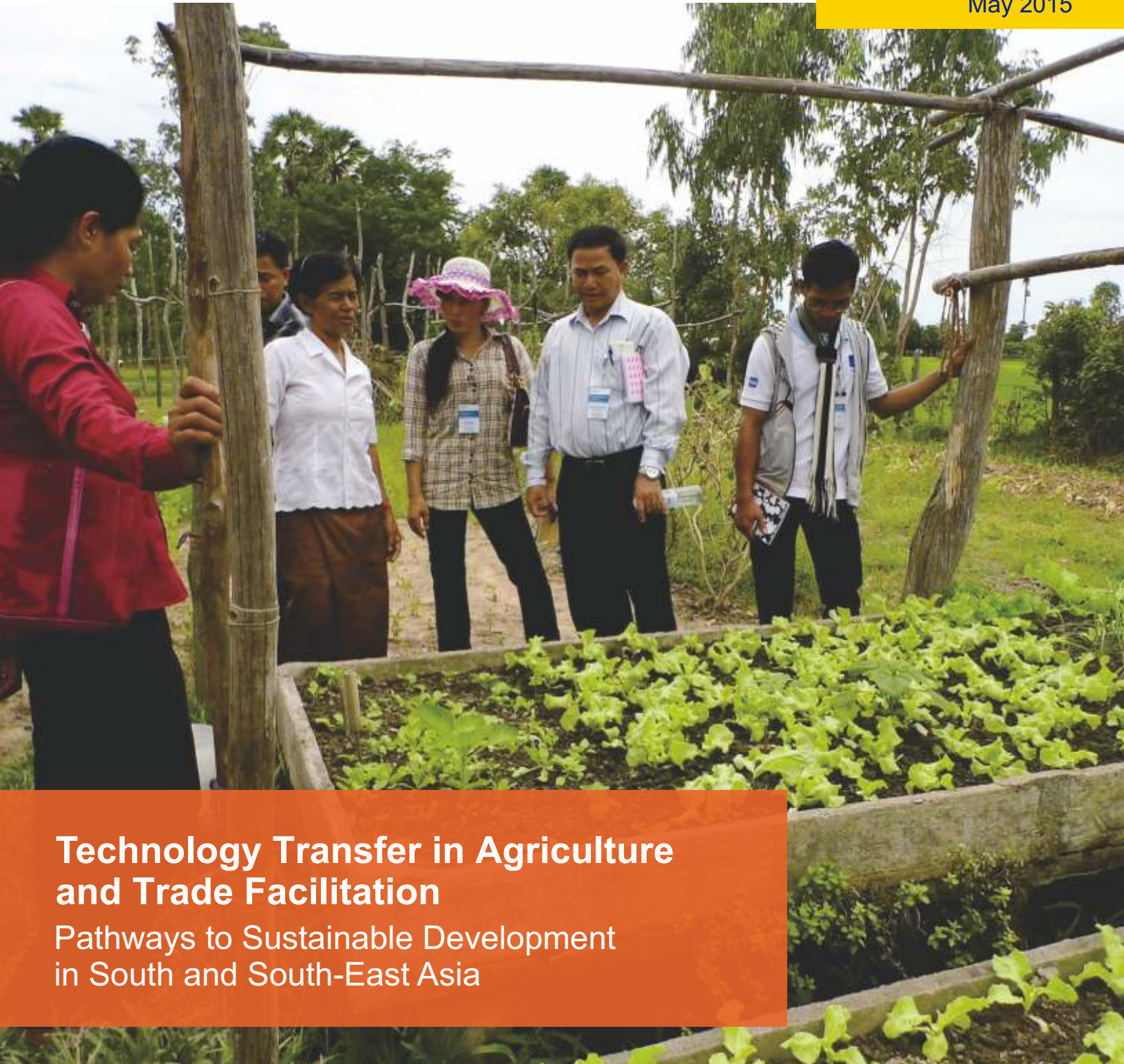


May 2015



Technology Transfer in Agriculture and Trade Facilitation

Pathways to Sustainable Development
in South and South-East Asia

SATNET Asia – A network that makes a difference

The Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Market Linkages in South and South-East Asia (SATNET Asia) is a three-year project funded by the European Union (EU). It is the second component of the EU's four-year 22 million euro regional programme entitled 'Technology Transfer for Food Security in Asia' (TTFSA), designed to transfer appropriate technologies to Asia's poorest, smallholder farmers.

Since its establishment in 2012, SATNET Asia has evolved into a vibrant multi-stakeholder network of change agents working to improve the food security, nutrition and livelihoods of the poorest and most vulnerable people in South and South-East Asia. With 46 associate organizations and over 1,700 stakeholders receiving and sharing information on network activities, SATNET Asia facilitates South-South dialogue and intraregional learning on sustainable agriculture technologies and trade facilitation through a variety of networking and communication activities, collaborative research and capacity-building programmes.

Key facts about SATNET Asia

Duration: 2012-2015

Project cost: EUR 2,748,289.24

Funding: European Union (EU)

Implementing agencies:

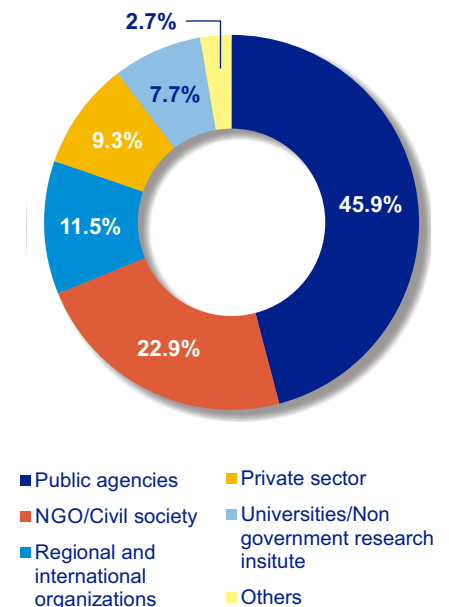
- Centre for Alleviation of Poverty through Sustainable Agriculture (CAPSA) of the Economic and Social Commission for Asia and the Pacific (ESCAP), Indonesia;
- Asian and Pacific Centre for Transfer of Technology (APCTT) of ESCAP, India;
- Trade and Investment Division of ESCAP, Thailand;
- AVRDC – The World Vegetable Center, Thailand;
- Food Security Center of the University of Hohenheim, Germany.

Target countries: Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Lao People's Democratic Republic (PDR), Myanmar, Nepal and Pakistan.

Direct project participants: Change agents along domestic and regional value chains, national agricultural scientists, extension workers and policymakers.

Final beneficiaries: Value chain actors – poor and vulnerable small farmers, agricultural intermediaries, retailers, importers and exporters in target countries.

Representation of SATNET stakeholders



SATNET field visits inspired two EU-funded projects in Cambodia to share experiences in water management and food production

When SATNET first started in 2012, the teams of the EU-funded projects under the TTFSA programme – 'Annâdya Project – Promoting appropriate technology for smallholders to increase food security among indigenous peoples' implemented by Université Libre de Bruxelles (ULB) and 'Project to Secure water to secure food and nutrition' implemented by French Red Cross (FRC) in Cambodia and Lao PDR, had not even met. But when SATNET brought them together, they were inspired to organize exchange visits to learn from each other and capitalize on each other's experience.

The FRC team shared experience on water technologies and water system management, home gardening, livestock raising as well as community-based organizations. FRC's collective borehole and water distribution networks for watering vegetable crops particularly appealed to Annâdya, since its active engagement in pond digging. As an outcome of this fruitful visit, Annâdya has tested the borehole water system developed by FRC, as part of the water supply activities the project has implemented in Ratanakiri.

South-South networking to speed up adaptation of agricultural technologies

Though face-to-face interactions are important for networks to grow, social media tools have proven important in SATNET to maintain links and forge knowledge partnership between stakeholders. The sharing of latest news, articles and photos from activities, often led to conversations that built relationships as followers or members told their friends and colleagues, who consequently informed others. In addition, SATNET's online discussion platform on LinkedIn as well as SurveyMonkey provided a simple and cost-effective way to solicit inputs on technical issues, and assess capacity development needs from stakeholders across the region.

SATNET Social Media tools

Facebook 395 'Likes', 182 articles viewed by 10,968 persons.

Twitter 166 tweets, 73 followers

Blog 83 stories.

LinkedIn 164 members, 9 discussions

The SATNET Asia website has been a critical tool to share information and news from the Network. Monthly visits to the website have grown from over 270 in 2012 to 735 visits per month in 2015. The SATNET Asia website has been revamped to facilitate access to information and has incorporated a discussion platform called the SATNET Social Hub that allows registered users to ask questions and share technical files and photos with one another.

"It is very useful to share experiences from the region. In Bhutan, we are learning more from other advanced countries, which helps us cut down resources as we can apply many ideas directly."

— Yeshey, Bhutan

Technologies that make a difference for farmers, environment and the society

In collaboration with Network participants, the Food Security Center, University of Hohenheim, Germany led the development of an analytical framework to assess the sustainability of agriculture technologies, based on a composite indicator that includes environmental, economic, societal, and technological facets of sustainability. The framework was tested and refined through the collection of information on agriculture technologies provided by Network participants as well as literature reviews and online sources. It can be used as a tool to enable stakeholders better evaluate and apply sustainable technologies.

The collection of technologies has particularly focussed on those which have been shown to promote sustainable livelihood options for small-scale farmers, especially for poor and vulnerable groups. These technologies rely little (if at all) on external inputs, make use of natural biological processes for the benefit of the users, do not produce waste material that pollutes the environment, and require little capital, especially on limited land, to be implemented. SATNET's technology database contains these technology options (see examples in the box) and offers a valuable knowledge base to clients to promote agricultural innovation. Detailed field studies of five best bet technologies were also compiled.

"I now make calculations before a project and apply appropriate techniques to get optimum results from a technology for longer time."

— Muhammad Naveed Tareen, Pakistan

Examples of technology fact sheets

(available in English, Bangla, Hindi and Khmer)

- Vegetable pool
- Integrated rice-duck farming
- Mobile cricket raising units
- Floating vegetable garden
- Tomato grafting
- Domestic yam production
- Leasehold riverbed vegetable farming
- Integrated pest management for eggplant fruit and shoot borer
- Sand-based mini-hatcheries for chickens and ducks
- Vermitechnology
- Broomgrass farming
- Crotalaria is effective against nematode damage of chili in South-East Asia
- Urine-diverting dry toilet (UDDT)

<http://www.satnetasia.org/database/>



Business process analysis and consultations to identify measures for facilitating trade in food and agro products

Agriculture contributes between 14 and 36 per cent to Gross Domestic Product in countries participating in SATNET. Agricultural supply chains employ millions of people and the demand for high-value food products is growing. Improved intraregional trade in agricultural and food products through trade facilitating measures can make an important contribution to ensuring food and nutritional security.

The Trade and Investment Division (TID) of ESCAP conducted five diagnostic studies in Bangladesh, Cambodia, Lao PDR, Myanmar and Nepal to provide in-depth analysis of the underlying constraints in trade. The studies offer recommendations on ways to make trade processes more efficient and reduce direct and indirect costs to benefit all stakeholders.

Key recommendations for facilitating export and import of agrifood products in South and South-East Asia

- Improve coordination and cooperation amongst government ministries and departments involved in the export and import of agro and food products.
- Reduce documentary requirements for obtaining certificates.
- Better implement existing policies.
- Introduce electronic documentation.
- Improve transport and logistics infrastructure.
- Introduce risk-based management of consignments where mandatory scanning of perishable goods is waived.

Investment in capacity and skill development

Effective sharing of knowledge through regional networks and capacity building of relevant national stakeholders is crucial for ensuring the success of technology transfer initiatives and was at the core of SATNET. The project implemented 55 training programmes at the national and regional levels that directly trained over 1,400 participants, out of whom 26 per cent were women, to enable them to transfer knowledge and skills to smallholder farmers and small-scale entrepreneurs in the region.

The trainings targeted different types of change agents along the value chain, including i) lead farmers and representatives of farmers organizations; ii) mid-level government and civil society actors engaged in the transfer of knowledge to small holder farmers; and iii) high-level government and civil society representatives involved in policy making.

SATNET capacity development

- In-country R4D training: 337 people trained in 6 countries of South Asia and 183 in 4 countries of South-East Asia.
- Trade facilitation training: 171 people trained in 6 countries.
- Regional trainings: 91 people in South Asia and 95 people in South-East Asia.
- Intraregional field visits for smallholder representatives: 113 participants from the region.
- Workshop on good practices in trade facilitation: 50 participants.
- High-level policy dialogues: 235 participants.

1. Research for Development (R4D) and process-oriented training

In total, 36 in-country and 10 regional training programmes were organized for 905 mid-level government and civil society representatives on a variety of R4D and process-oriented topics.

The **R4D trainings** aimed to enhance technical capacities of the participants in the areas of climate-resilient agriculture farming systems, Integrated Pest Management (IPM) including biological control of pests, vegetable genebank management and seed production systems, as well as post-harvest technologies and marketing systems.

Training on **agricultural trade facilitation** focussed on electronic traceability and market access for which strong demand was found to exist amongst stakeholders.

Process-oriented training supported the development of capacities to conduct cost-benefit analyses, identify sustainable agriculture technologies, learn innovative extension methods, and improve written communication and proposal development skills.

The training materials compiled for SATNET Asia capacity-building programmes provided a basis for the development of four training manuals, two of which have been translated into Bangla, Hindi and Khmer for wider outreach. The manuals aim to deliver good practices in farming, post-harvest, trade and marketing to small farmers and small-scale entrepreneurs, and improve knowledge transfer processes to speed up innovation in agriculture.

SATNET training manuals

- Integrated pest management
- Post-harvest, trade and marketing
- Project development and management for sustainable agriculture
- Writeshops on translating research findings into knowledge accessible and understandable to farmers

“I have established an IPM laboratory, equipped with insect rearing facilities, and applied identification and artificial culture of natural enemies.”

— Kashinath Chiluwal, Nepal

“This writeshop has taught trainees to change and modify a complicated research paper into a simple and understandable report.”

— Sigit Sapto Wibowo, Indonesia

“I improved my leadership skills and farmer field school methodology.”

— Aung Soe, Myanmar

SATNET training facilitates banana trade between India and the Islamic Republic of Iran

When Mr. K.P. Manikandan, the Manager of 'Farm Fresh Banana', a farmer federation in Theni, Tamil Nadu, India, signed up for the SATNET training on 'Electronic Traceability and Market Access for Agricultural Trade Facilitation', he had no idea that the meeting would change his entire business and make a difference for people in Theni District and abroad.

In addition to gaining new knowledge, Mr. Manikandan also used the training as an opportunity to develop business contacts. He learned that Iran, which buys nearly 40,000 containers of Grand Naine bananas from South-East and East Asia every year, was interested in increasing imports given the growing demand for this nutritious fruit in the country.

Following a market study, which indicated big benefits in exporting bananas to Iran, the company presented information on its production system to the Iranian Consulate General in Hyderabad, India. An Iranian delegation to Theni



came to assess the banana production system and infrastructure, and met farmers.

The connections made at the SATNET training have led to bananas from Theni District in Tamil Nadu, India, being exported to the Islamic Republic of Iran, which will benefit many small banana growers in the district. The year-round export of Grand Naine banana will ensure them a steady monthly income.

2. Intraregional field visits for smallholder value chain actors

SATNET's five intraregional field visits for smallholder value chain actors provided a unique opportunity to share innovative agricultural technologies among SATNET Associates. The visits exposed 113 smallholder representatives, 20 per cent of whom were women, to good practices and technologies for sustainable agriculture, allowing them to see the efficacy of these practices, interact with local champions, and thus support the dissemination and adoption of these practices in their own communities. The tours that took place in Cambodia, Nepal, India and Thailand, focused on crop production technologies, IPM, post-harvest management and marketing, and climate resilience.

“It's really useful to improve our knowledge, particularly related to vegetable cultivation... Some activity will be applied shortly in the next season in our organization.”

— Kustiwa Sudrajat
Adinata, Indonesia



Observing off-season lemon cultivation
(July 2014, Thailand)



Farmer Field School session
(September 2014, India)

3. High-level policy dialogues

To ensure that the outcomes of SATNET Asia research and capacity-building activities reached mid- to high-level policymakers, a series of high-level policy dialogues were organized to raise awareness on the key issues to facilitate knowledge transfer in agriculture. The three high-level meetings looked at various aspects, including addressing needs of small farmers through technology transfer, ensuring impact on food and nutrition security, assessing the role of the private sector and civil society in strengthening research-extension linkages, and analysing technology transfer in context of the overall post-2015 Sustainable Development Agenda which requires integration of the economic, environmental and social dimensions. To prioritize food security and sustainable agriculture while addressing the needs of smallholders and other vulnerable populations, steps were identified that are required to develop and strengthen agricultural technology transfer at national and regional levels.

SATNET has also compiled policy briefs based on outcomes of research activities conducted by the Network, to guide key decision makers from local to international levels in making informed policy choices that can improve food security and reduce poverty for small farmers in the region while preserving the environment.

SATNET policy briefs

- Integrated pest management in the Asia-Pacific region
- Post-harvest management for sustainable agriculture
- Assessment of sustainable agriculture technologies
- Food and nutrition security: Evolution of concept and way forward
- Harnessing the opportunities of technology transfer for sustainable development
- Evaluating capacity-building and development programmes
- Facilitating export and import of agrifood products in South and South-East Asia
- Agricultural research-extension linkages in Asia and the Pacific
- Home and community gardens in South-East Asia
- Networking for agricultural development

<http://www.satnetasia.org/publications>

Future outlook

Social capital and knowledge networks such as SATNET Asia are recognized as having an important role by speeding up the transfer of knowledge and innovation for sustainable development. Participation of stakeholders in the knowledge exchange process is crucial as it increases the sense of ownership of the shared knowledge, and improves trust and cooperation of those who are connected across institutional and national boundaries.

A final evaluation of the SATNET Asia project concluded that the Network has worked effectively and reached its expected results. It provided value for money as it was relevant to regional and national priorities. The Network strengthened existing collaboration with project partners and Associates, and succeeded in developing new partnerships, especially with projects of the first component of TTSA. Efforts were made to address women's needs through the project by incorporating the gender perspective in the analytical framework for assessing the sustainability of agriculture technologies and by enhancing the participation of women in capacity development events. Efforts were also made to include the environmental sustainability aspect in the project through the selected best practices.



Seeking feedback on knowledge use and application of the training participants, Knowledge Attitude Practice Surveys (KAP) were implemented by the project 6-12 months after end of a training. The results showed that 80 per cent of all respondents to the 25 follow-up KAP surveys analysed so far (316 respondents) indicated that they had applied at least half of the new knowledge in practice and 88 per cent had shared their new knowledge with others.

With respect to sustainability of the Network, SATNET Asia has been instrumental in setting up the Asia Pacific Agricultural Extension and Outreach Network – APAEON. Announced in December 2013 as an outcome of one of the SATNET policy dialogues, and hosted by the Food and Agriculture Organization of the United Nations in Bangkok, the Network will be an important platform to sustain the momentum created by SATNET Asia.

SATNET Asia has been part of CAPSA's core mandate to enhance regional coordination and networking to successfully scale up and scale out research findings that can support policy design and implementation in the areas of sustainable agriculture and rural development. As such, coordination and facilitation of the Network, promotion of multi-stakeholder interactions and learning, as well as the maintenance of the SATNET Asia Portal, will continue to help speed up agricultural innovation to achieve a real impact on food security in the Asia-Pacific region.

Recommendations of the evaluation for the future of SATNET Asia

1. The project should be supported for a further period of three years to build upon the momentum generated.
2. The information about best practices and training manuals ought to be made more accessible to a broader audience.
3. Efforts should be made to expand the Network geographically and increase the number of information recipients.
4. Future activities should focus on a broad validation of the identified best practices and additional technologies.
5. A sustained effort should be made to provide relevant capacity-building opportunities.
6. Sustained efforts should be made to specifically address gender issues.
7. The mode of operation for a connection between 'trade' and 'agriculture' for the benefit of smallholder producers and domestic consumers should be reconsidered in the future.

www.satnetasia.org

SATNET Asia

CAPSA-ESCAP

Jl. Merdeka 145

Bogor 16111, INDONESIA

P: +62 251 8343277, 8356813

F: +62 251 8336290

E: satnet@satnetasia.org

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