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ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

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Contribution of Thailand

to the CSTD 2016-17 priority theme on ‘The role of science, technology and innovation in  
ensuring food security by 2030’

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## **Food Security**

(A draft statement for intervention in CSTD Inter-sessional Panel 2016-2017)

Thank you, Mr. Chair,

Distinguished Delegates,

Ladies and Gentlemen,

On behalf of the Government of Thailand, I would like to share a few remarks on the role of science, technology and innovation in ensuring food security by 2030.

1. By the year 2015, Thailand had achieved most MDG and MDG+ targets. The country was lauded by FAO for achieving both MDG 1 and WFS<sup>1</sup> goal of reducing by half the absolute number of undernourished people<sup>2</sup>
2. Thailand is committed to achieving SDGs, joining the global development effort towards sustainable growth and shared prosperity. We are determined to achieve food security and improved nutrition and promote sustainable agriculture in accordance with SDG 2 and create partnerships for sustainable development in the global community in accordance with SDG 17.
3. Achieving food security and improved nutrition as well as promoting sustainable agriculture requires concerted efforts by multiple stakeholders within the country along with cooperation with international partners. The task seems to be daunting given the prevalence of mainstream conventional agriculture that is characterized by mono-cropping, **overused of synthetic fertilizers, and harmful pesticides** to improve yield without much concern for long-term health and environmental impacts.
4. His Majesty King Bhumibol Adulyadej, the late King of Thailand, had foreseen this problem when he proposed the new theory of integrated farming based on the philosophy of “sufficiency economy”, which emphasized moderation, knowledge, and reasonableness. The theory suggests integrated farming as a form of alternative agriculture for smallholder farmers, **particularly those in remote and marginalized areas to concentrate on their own health and nutrition first before embarking upon producing produces for monetary gain. By reasonableness and moderation with knowledge, these small holders are advice to first use their small holdings to grow what they can consumes and thus improve their food security and livelihoods, then moderately improve their productivity and earn form the surplus. This is a true security based development with an added-on benefit in helping to protect the environment** In practicing integrated farming, **small** farmers are suggested that they divide

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<sup>1</sup> World Food Summit, 1996. The WFS goal was set in 1996, when 180 nations met at FAO headquarters to discuss ways to end hunger.

<sup>2</sup> 38 countries meet anti-hunger targets for 2015, <http://www.fao.org/news/story/en/item/177728/icode/>

land area into 4 parts containing a reservoir, rice fields, an area for growing other field crops, vegetables and fruit trees, and an area for residence and livestock keeping.<sup>3</sup>

5. HM King Bhumibol initiated many Royal Recommended Projects, which are “sufficiency economy” community-based development projects that focus on environmentally sound technologies for small-scale agriculture and on the improvement of livelihoods. Royal Development Study Centers serve as the sites for research, development and demonstration of integrated farming, agro-ecological production, and other sustainable development approaches. The centers are open for nearby communities and the public to learn about different techniques to manage small farms, reverse soil erosion, improve soil fertility, maintain ecosystems, and produce biofuels for farm machinery and vehicles—thus helping communities to achieve resiliency and self-immunity to economic and ecological changes including climate change.
6. Apart from the royal development projects, universities and research institutions have paid increasing attention to sustainable development, particularly food security.
  - a. Thailand Research Fund, a major funding agency, has granted more than 800 research projects on foods since 1994<sup>4</sup>. The research projects cover all four dimensions of food security aiming to create sustainable food systems and address key food security challenges. A large number of projects are area-based and community-focused to build human capacity for agricultural innovation at grassroots level. The approach of local community engagement is in accordance with the “sufficiency economy” philosophy that stresses “building strength from within.” (ระเบิดจากข้างใน)<sup>5</sup>
  - b. The National Science and Technology Development Agency (NSTDA), the country’s largest research institution, has a research cluster on agriculture and food in which small farmers are one of the target groups. On this front, NSTDA developed rice varieties that are pest-resistant, saline-resistant, flood-resistant and adaptable to climate change, transferred high-quality grain production technology to farmers, developed and transferred agricultural equipment and

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<sup>3</sup> Sufficiency Economy Philosophy: Thailand’s Path towards Sustainable Development Goals โดย กต.

<sup>4</sup> สำนักงานกองทุนสนับสนุนการวิจัย [http://elibrary.trf.or.th/search\\_issue.asp?issue=SRI&search=Food](http://elibrary.trf.or.th/search_issue.asp?issue=SRI&search=Food)

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สำนักงานคณะกรรมการพิเศษเพื่อประสานงานโครงการอันเนื่องมาจากพระราชดำริ <http://www.rdpb.go.th/RDPB/front/king.a.spx>

machine production technology for higher efficiency and lower planting and harvesting costs, and developed smart farm technologies to monitor rice disease and pest outbreaks and enable food traceability. NSTDA also developed community rice **milling equipment** for cooperatives of smallholder farmers in order for them to produce higher value goods (milled rice rather than having to sell lower value ... to **large** commercial rice mills and middle men) which help them to **moderately build up communitive strength for further development.**<sup>6</sup>

- c. The Hydro and Agro Informatics Institute (HAI) has developed integrated community water management system and transferred the technology to more than 600 villages nationwide. These projects have had direct impacts on the empowerment of smallholder farmers in rural communities, allowing more effective production planning and effectively increase agricultural productivity and incomes of the villagers.<sup>7</sup>
- d. **Universities have set up “social lab” as a community based interactive space for learning and exchanging of knowledge between locals, students and academia. This space offers a much-needed opportunity for accessing knowledge and technology by local farmers and for the understanding of specific context affecting development by students and academia. Social labs have helped in identifying needed research and interactive “labs” for adapting and localizing technology as well as for extension work.**

- 7. **To improve climate change resilience, *technology needs assessments***<sup>8</sup> (TNA) for *climate change adaptation and mitigation* was coordinated **(in 2012)** by the National Science Technology and Innovation Policy Office with support for UNEP and Global Environment Facility as well as other domestic partners. Experts and stakeholders from agricultural sector concluded that these adaptation technologies should be given high priority: forecasting and early warning systems (37%), crop improvement technology (31%), and precision farming technology (17%). Among these, crop improvement for climate resilience using marker assisted selection technique has been developed in the country for quite some time **(such as the rice varieties improved by NSTDA)** and is ready to use as well as transfer to other countries in a south-south cooperation manner. The technology need assessment was followed

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<sup>6</sup> สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ <http://www.nstda.or.th/eng/index.php/research/foods-and-agriculture>

<sup>7</sup> สถาบันสารสนเทศทรัพยากรน้ำและการเกษตร และ UNCTAD STIP Review for Thailand

<sup>8</sup> Thailand Technology Needs Assessments Report for Climate Change Adaptation, 2012 โดย สวทช.

by the development of a **technology action plan on technology development** and a **technology action plan on technology transfer and extension** focusing on the development of an agricultural innovation system of smallholder farmers through capacity building and improving infrastructure for local scientific and technical services (2015)

8. Besides resilience to changes, another challenge to food security in Thailand is on ensuring sufficient nutrition to all people at all ages, in particular the pregnant mother and preschool age, to prevent malnutrition that affects brain development in early childhood and also for very differing causes, to prevent obesity and non-communicable diseases (NCDs) in adults. Socio-economic changes resulting from industrialization have left mothers busy at work with less time to breast feed their children. It was reported<sup>9</sup> that 50% of children aged 0-6 months were either exclusively formula-fed or formula-fed together with breast-fed. Given a higher rate of adolescent pregnancy, the issue of mother and child nutrition is even more important. It was recommended that science and technology play role in developing formula and diet for pregnant mothers, breast feeding mothers, infants, and toddlers, developing breast milk nutrition preservation technology and innovation, developing functional foods for adults and the aging population, etc. Some food and nutrition research could potentially be commercialized as innovative products.
9. The Thai Government has placed an importance to economic transformation towards an innovation-driven high-income economy. Food is one of the industrial sectors in which science, technology and innovation play role in upgrading and sustaining future growth and job creation. It launched Food Innopolis project last year to provide world-class facilities for food producers to conduct research, development and innovation collaboratively with researchers and scientists from nearby research centers and universities. The first phase of Food Innopolis, located at Thailand Science Park, is positioned to be a global food innovation hub fully equipped with qualified human resources and facilities to support food producers of all scales, be it local, regional, or global. It also provide privileges and incentives to attract investment. Through Food Innopolis, we hope that Thai food industry will upgrade its technological capabilities to innovate safe and nutritious food which meets dietary needs and preferences of all people. Food Innopolis also serves as a facility for improving the quality and value-added of food products

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<sup>9</sup> The Institute of Nutrition, Mahidol University, 2012

from rural villages, effectively enhancing sustainable agriculture and food security in rural areas and decreasing rural-urban inequality.<sup>10</sup>

10. As a responsible global citizen, Thailand has been an active partner for sustainable development as we all have equal but differentiated responsibilities to hand over a world shifted towards sustainability for successive generations. As Thailand has experienced some success with eradicating hunger and is working towards ensuring food and nutrition security for all, we stand ready to share our development experience and engage in the exchange of science and technology for development that will act as an enabler for global sustainability.<sup>11</sup>

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<sup>10</sup> Food Innopolis – About Us (web page) <http://foodinnopolis.or.th/#>

<sup>11</sup> Sufficiency Economy Philosophy: Thailand's Path towards Sustainable Development Goals โดย กต.