



Food and Agriculture Organization
of the United Nations

FAO's work on Pesticide Risk Reduction, Integrated Pest Management and Sustainable Intensification of Crop Production in the Asia and Pacific region



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FAO and SDGs





1 billion...

... hungry

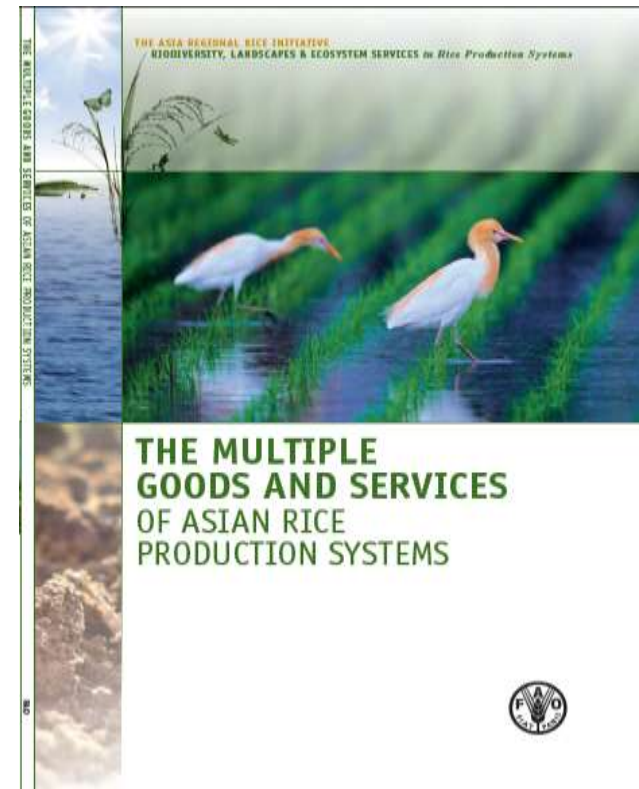
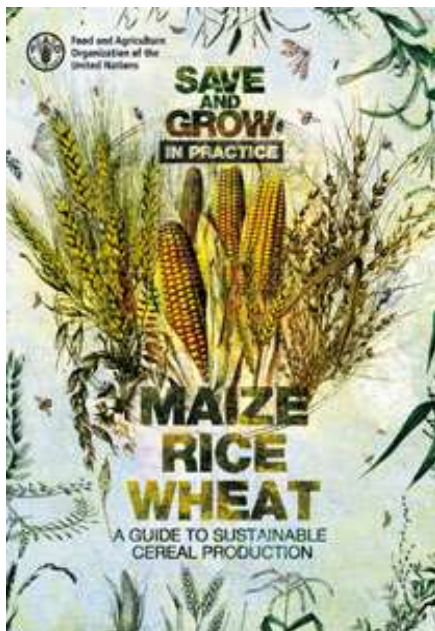
.. obese



...tons/year wasted!

Sustainable Intensification of Crop Production, promoting Climate-Smart practices while optimizing multiple ecosystem goods & services

(FAO, 2016)



Crop intensification and problems associated with pesticide use in agriculture

- Harms vital ecosystem services



- Causes frequent poisoning and chronic health problems



- Negative impacts on food and nutrition security



- **Raises food safety concerns and jeopardizes export potential**





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Pesticide Risk Reduction

FAO's integrated approach

Policy & Regulatory control:
Strengthen regulatory control
of the importation,
distribution and use of
pesticides



Farmer education:

Promotion of **Integrated Pest Management (IPM)** to:

- eliminate pesticide overuse,
- reduce reliance on pesticides,
- end use of WHO Class I pesticides



Integrated Pest Management (IPM)

Knowledge-intensive process of decision making that combines various strategies (biological, cultural, physical and chemical) for sustainable management of pests and diseases.

Pesticides used as a last resort!



Pesticide Risk Reduction

Risk = Hazard x Exposure

Probability to cause harm as determined by hazard (chemical property) and exposure (environmental conditions and preventive action) equation

1. Reduce **reliance** on pesticides through IPM
2. Reduce **hazard** through selection of less toxic products
3. Reduce **exposure** through better management

Case Study: Thailand:

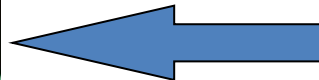
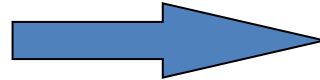
Safe and Profitable Cabbage Production

(Source: Upanisakorn et al, 2011)

➤ **Conventional:** 10-20 toxic pesticide applications/season

➤ **IPM:** Classical Biocontrol, 1-2 biopesticide applications, if needed

IPM Farmers produce high yielding, profitable and safe cabbages, marketed through GAP/food safety programmes



ศูนย์ศึกษานวัตกรรมรับรองสินค้าเกษตรและอาหาร
กรมวิชาการเกษตร



รับรองแหล่งผลิตพืช (GAP)

What is a Farmers Field School ?



- ❑ “School without walls”, farmers learn about crop ecology and pest management in the field;
- ❑ Season-long, from seed to harvest, 25-30 farmers;
- ❑ Aim to help farmers adopt IPM, grow healthy crops and produce more & safer food with less inputs of agro-chemicals
- ❑ Brings farmers together for collective and collaborative inquiry to initiate community action in solving agriculture-related and broader community concerns





Training activities for local leaders, pesticide sellers, health workers and farmers

Developing core groups IPM FFS alumni who can coach other farmers in the community particularly on improved production practices and alternative pest management strategies



Farmers Field School: potato seed tubers on rice straw using minimum tillage and less pesticides



Community action: Closure of pesticide shops that do not conform to local pesticide policies (e.g. selling banned pesticides)

Vietnam: Community Education, Action Planning & Mobilization for Pesticide Risk Reduction



Baseline surveys (inventory and flow of pesticides in the communities as well as health and environment related information)



Community action: Adoption of IPM & development of local policies on pesticide management



Community action: Posters on pesticide risk reduction have been developed and displayed in public places



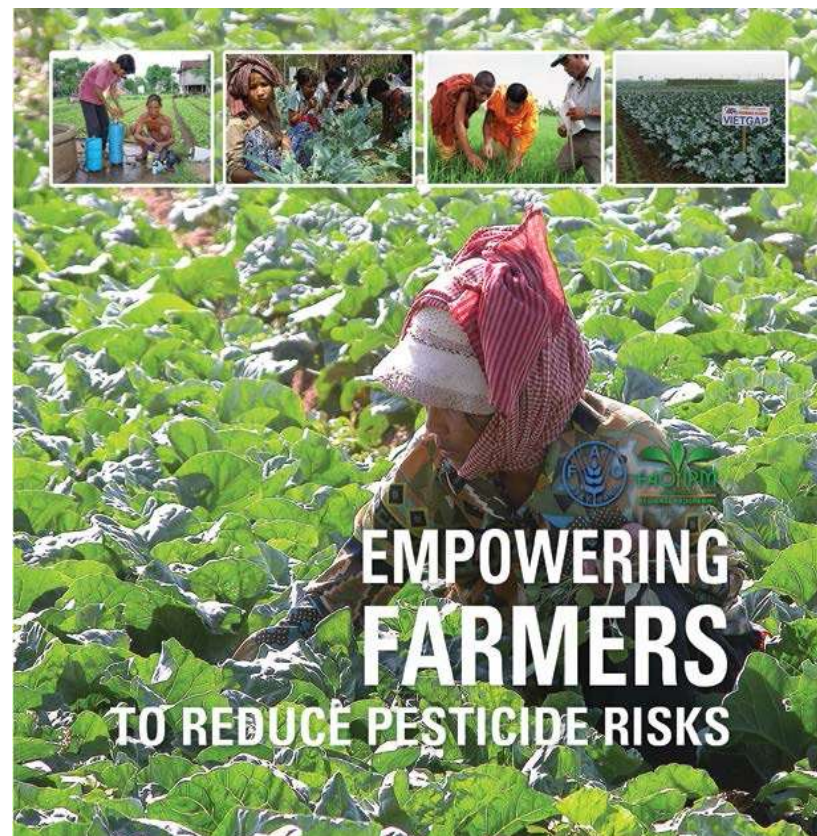
Community action: Cement tanks have been established by the local government for disposal of pesticide containers



Vietnam/Cambodia:

Impact Assessment (2008-2015)

- Reduced use of pesticides (less toxic and 4.6 kg/ha reduction active ingredient)
- Improved pesticide storage and disposal practices
- Reduced pesticide poisoning cases
- Local and national policy development and increased investments in IPM training



(FAO, 2013)

<http://v1.vegetableipmasia.org/docs/Empowering%20Farmers%20To%20Reduce%20Pesticide%20Risks%2028Oct.pdf>

Policy Impact

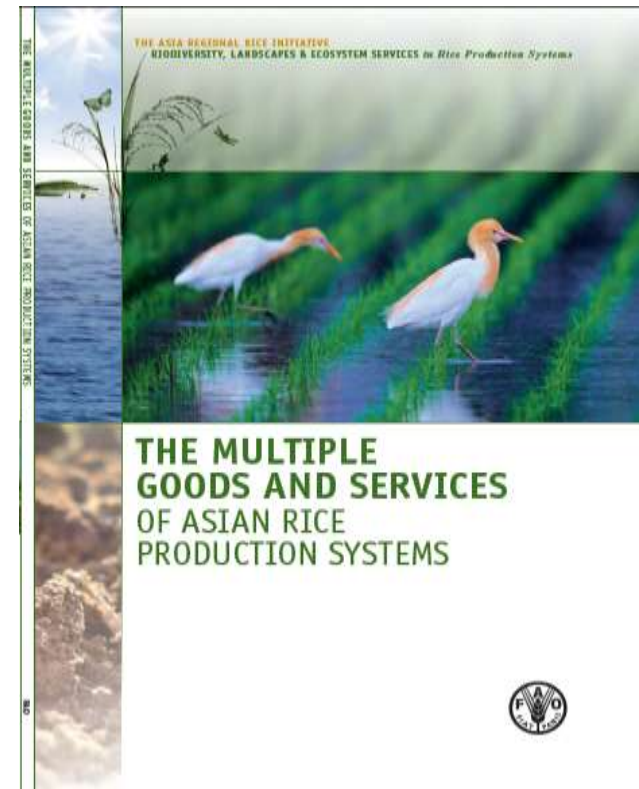
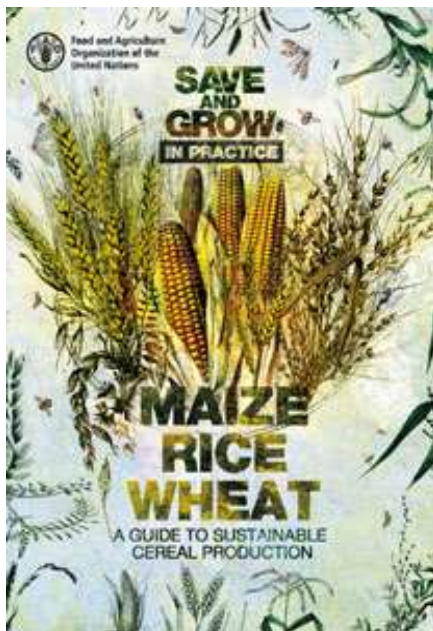
- *VietNam*-Directive No. VN 2027-BNN-BVTV (2 June 2015) on the Action Plan for Strengthening and Scaling Up of IPM in Crop Production (2015-2020)
- *VietNam*- MARD-MONRE joint circular (No: 05 /2016/TTLT-BNNPTNT-BTNMT) issued on 16 May 2016 on “Providing Guidelines for Collection, Transport and Treatment of Empty Pesticide Containers”

GCP/RAS/229/SWE: Project Results:

- Pesticide management strengthened and capacity developed for pesticide risk reduction training;
- By December 2016, ~ **80,000 (40% female)** farmers had directly benefitted from the project through participation in ‘fortified’ Farmers Field Schools or focused 3-day Pesticide Risk Reduction Farmer Trainings;
- Impact Assessment provides science-based evidence that risk is reduced;
- National and local government promulgate policies, institute regulations and invest in Community Education for Pesticide Risk Reduction.

Sustainable Intensification of Crop Production, promoting Climate-Smart practices while optimizing multiple ecosystem goods & services

(FAO, 2016)





Supports policy development and capacity building of:

...rice farmers in applying sustainable rice production practices in order to increase rice production and improve resource use efficiency for improved food and nutrition security



A REGIONAL RICE STRATEGY FOR
SUSTAINABLE FOOD SECURITY
IN ASIA AND THE PACIFIC

FINAL EDITION

(FAO, 2014)





Efficient Management for SUSTAINABLE INTENSIFICATION OF RICE-BASED FARMING SYSTEMS

THE CHALLENGE:

TO FEED A GROWING WORLD POPULATION, THERE IS A PRESSING NEED TO INCREASE CROP PRODUCTION WHILE ENSURING SUSTAINABILITY AND ENHANCING RESILIENCE TO FACE NEW CHALLENGES.

This is particularly relevant to rice production in Asia, where increases in productivity are slowing and land, water and labour are moving out of production. Consequently, there is a need for achieving better efficiency, in particular:

- *Crops and varieties* suited to different agro-ecosystems and farming practices, and tolerant to the effects of climate change.
- *Farming systems* that offer a range of productivity, socio-economic and environmental benefits.
- *Water management strategies* that use ecosystem approaches to conserve water.
- *Soil health* by drawing on natural sources of plant nutrition and more judicious use of mineral fertilisers.
- *Plant protection* that relies primarily on healthy ecosystems and natural enemies to control pest populations.
- *Knowledge and market systems* that facilitate access by small-holder farmers.

Save and Grow

...in Asian rice production means increasing efficiencies to produce more, with higher quality, while relying on fewer and more sustainable inputs:

- Better choice of appropriate management strategies
- Building on ecosystem services
- Making more efficient use of inputs
- Conservation and sustainable use of natural resources

More with Less

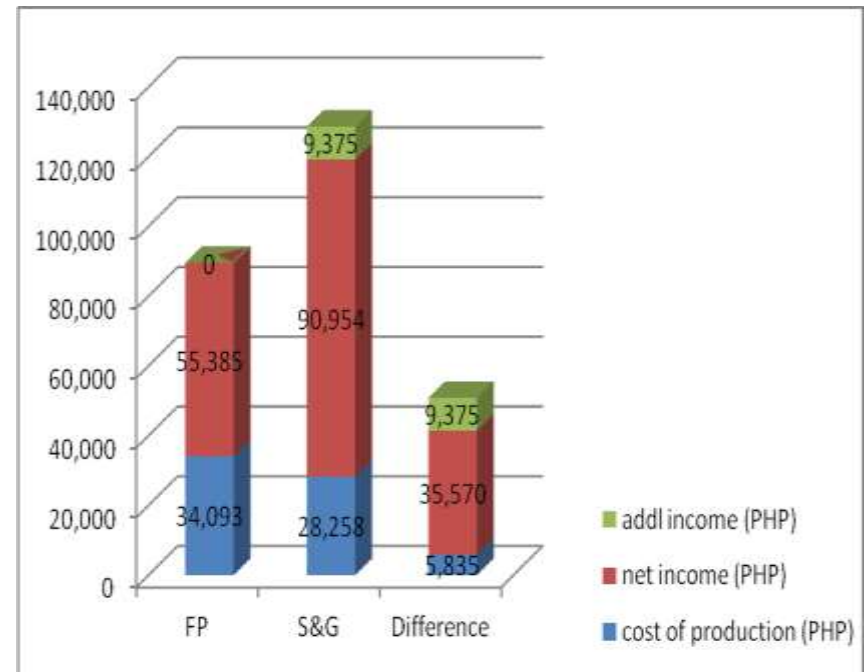


➤ Capacity building on Sustainable Intensification of Rice Production through Farmers Field Schools (FAO, 2016)



FFS Save and Grow – SIRP

Case Study: Philippines



Save & Grow practices increase rice yields by 27%, reduce cost of production by 17%, and increase net income by 72%



Burning straw is a common practice in Vietnam and elsewhere in the Asia & Pacific region

Burning straw stubbles kills natural enemies, harms soil ecology, pollutes the environment & contributes to climate change

Vietnam Case Study:

No Tillage Potato Production in Rice-based Systems



Conventional practice of land preparation for potato production: Deep tillage and labor-intensive



No-Tillage Potato Production in Rice-based Systems

2008: IPM Trainers and farmer groups carried out pilot experiments in Farmer Field School in one province

2009-2012: Guidelines for experimentation and large scale application in 15-22 provinces in Vietnam

2012: Farmers organized FAO-GO-NGO-supported National Field Day for policy advocacy

Winter Crop 2014: 22 Provinces and applied by over 4,000 farmers (70% women) on 1,480 ha

Reduced water: 25 – 67%

Reduced pesticides: 75%

Reduced labour: 28 - 47%

Increased yield: 8 - 25%

Increased income: 19–31%



Policy Support for Scaling Out: No-Tillage Potato Production in Vietnam

2013: MARD issued Decision Number 204/QD-TT-CLT recognizing “no tillage potato IPM in combination with rice straw mulch” as an “agricultural technical advancement” instructing all potato-growing provinces to apply the practice

2015: Minimum Tillage Potato received "Vietnam Golden Rice Award"



For more information:

Regional Rice Initiative :

<http://www.fao.org/asiapacific/perspectives/regional-rice/en/>

The screenshot displays the FAO Regional Office for Asia and the Pacific website. The main heading is "FAO Regional Office for Asia and the Pacific". Below this, there is a navigation menu with options: Home, FAO in Asia and the Pacific, Regional perspectives (selected), News, Events, Resources, Programmes and projects, Partners, and Pacific Islands.

The main content area features a large image of a person working in a rice field. To the left of the image, there is a text box stating: "Asia is home to rice, and people in this region depend on rice economically, socially and environmentally. Without rice, sustainable development in Asia can hardly be achieved. Furthermore, rice plays an essential role in global food security. This Regional Initiative focuses on improving the sustainability of rice production and resource use efficiency, and ultimately improving food and nutrition security, based on goods and services from rice ecosystems and landscapes."

Below the main content, there are several sections:

- REGIONAL INITIATIVES**
 - Zero Hunger Challenge
 - Regional Rice Initiative (highlighted)
 - Blue Growth Initiative
 - Value Chains for Food Security and Nutrition
- REGIONAL PRIORITIES**
 - Strengthening food and nutritional security
 - Agricultural production and rural development
 - Resource management and utilization
 - Emergencies
 - Climate change
 - Agricultural Statistics in the Asia-Pacific Region
- Asia and the Pacific's Regional Rice Initiative**

Rice-based farming systems and rice economy have been experiencing significant structural changes and challenges, including the 2008 rice price crisis and environmental issues. These challenges have prompted governments across the world to come up with sustainable ways of rice farming as well as overarching rice policies and strategies.

At the 32nd FAO Regional Conference for Asia and the Pacific held in Ulaanbaatar, Mongolia in March 2014, member countries endorsed the Regional Rice Initiative Phase II which aims to:

 1. support rice farmers and producers for applying innovative and sustainable rice farming practices through the effective provision and utilization of rice ecosystem services and goods;
 2. build a knowledge base and evidence for resource use and production efficiency to demonstrate the effectiveness of the sustainable rice ecosystem-based approach; and
 3. realize food-secure, better nourished and prosperous rice farmers and consumers in the Asia-Pacific region by contributing to policy processes, especially the formulation and implementation of national rice strategies or policies, building on the strategic options laid out by the Regional Rice Strategy for Sustainable Food Security in Asia and the Pacific.

To achieve the objectives, an array of options which are more productive, sustainable and efficient in resource use are available. These include: rice-50k, rice-livestock and rice-vegetables systems, integrated Pest Management (IPM), Trees
- Click here to watch the Side event Asia and the Pacific's Regional Rice Initiative**
- Related Strategic Objective**
 - Make agriculture, forestry and fisheries more productive and sustainable
- Documents**
 - Corporate Areas for Resource Mobilisation: Asia and the Pacific's Regional Rice Initiative
- Read more**
 - Save and Grow
 - Regional Rice Strategy for Sustainable Food Security in Asia and the Pacific
 - Aquatic Invertebrates in Rice-Based Ecosystems

For more information about the **FAO Asia Regional IPM/PRR Programme**

Email: vegetable-IPM@fao.org

Website: <http://www.vegetableipmasia.org>

Join us on Facebook/Twitter



Lao Government Award for IPM work in support of “Clean Agriculture” (Vientiane, 22nd April 2017)



<https://www.youtube.com/watch?v=4LwXOiojaJc&list=PLzp5NgJ2-dK7L2qzBjfsWnNilpVAvrNJZ&index=1>