



# Food Security

The Illusion of Money  
vs The Reality of Food



# Contradictions in Thailand's Food Systems

**Thailand used to be well known for its abundance of food, as symbolized through the Thai popular saying “Fish in every water; rice in every field.” Nobody starved to death in Thailand, one of the world’s most fertile countries.**

Thailand is one of the world’s top food exporters, especially for rice, poultry, prawns, canned tuna and canned pineapple for which Thailand continues to be the world’s No.1 exporter. In 2008, Thailand earned more than 778,056 million baht from food exports, or about 13% of total export values. Thailand’s food accounts for more than 2% of global food exports.

It is not an overstatement to say that Thailand is one of the major bread baskets of the world.

However, the other side of this proud reality shows a myriad of problems facing millions of Thai farmers including: lack of access to means of production, particularly land; deterioration of agricultural resource bases; mounting debts; monopolisation of agricultural and food systems by capitalists and middlemen or brokers; rising costs; excessive use of health-threatening chemicals; environmental degradation; an energy crisis; global warming; intense competition in the international market; and trade liberalisation. All of these factors have direct and indirect impacts on Thailand’s food security.



As a result, many concerned people are starting to question how these problems may affect the country's food security and whether Thailand will be able to maintain its food sovereignty amid an onslaught of changes from within and outside of the country.

Some people have concluded that Thailand's food system has reached a cross-roads whereby the country must have a clear strategy and make a clear decision between a system oriented to production growth and national income where most farmers are deprived of their fair shares, on the one hand, and a system focusing on food security

where households and local communities are sustainably self-reliant, on the other. In other words, should Thai society put more importance on profit-oriented agro-business or sufficiency agriculture for the sustainability and safety of both farmers and consumers?

This section of the report aims to evaluate Thailand's food production security with an emphasis on agriculture, which is the foundation of food production and also one of the four dimensions of food security. In addition, agriculture is the basis not only for nourishment but also for economic, social and cultural life of the country.

## Food Security

The National Committee on the Food Act BE 2551 (2008) defines *food security* as “access for consumption by the population to available and adequate food with safety and age-appropriate nutritional values for wellbeing, as well as to ensure a secure food production system which supports and maintains ecological balance and the country's natural food resource base in normal times as well as during natural disasters or in case of terrorism threats against food supplies.”

The 1996 FAO World Food Summit stated that food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

### Four Dimensions of Food Security

*Food availability*: the availability of sufficient quantities of food of appropriate quality through domestic production or importation.

*Food access*: access by individuals to adequate resources (entitlement) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).

*Utilisation*: Utilisation of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being.

*Stability*: To be food secure, a population, household and individual must have access to adequate food at all times without risking shortage or famine whether during normal times or crises.

**Source:** 1. National Committee on Food Act 2. FAO Policy Brief, June 2006, Issue 2

# Unstable Security

The picture is rosy when one looks quantitatively at Thailand's agricultural production. The country produces excesses of principal food supplies which are then exported, thereby earning the country hundreds of billions of baht per year. Despite year to year fluctuations due to climate, the overall food picture is one of increase. Yet, behind this rosy image, many fundamental problems lurk. Some are becoming critical and need to be urgently and holistically addressed.

## 1. Crisis of Agricultural Resource Base

Land, water and forests are the most important agricultural resource base. In the past decades "development" has exploited these resources, affecting both their quantity and quality. The impacts are now being felt in food production.

### Land ownership and utilisation problems

#### Shrinking of agricultural areas

In 2009, there were 131.7 million *rais* of agricultural areas in holding, accounting for 41% of the country's total area of 320.7 million *rais* (1 *rai* = 0.4 acre). Forests covered approximately 107 million *rais* or 33% of all land. The remaining land was non-agricultural land, particularly residential and industrial areas.

Most agricultural areas were rice paddies, followed by areas of seasonal crops and orchards. The rest were areas growing flowers and decorative plants, grazing pastures and others. It is worth noting that while rice-growing areas decreased from approximately 55% of total farmlands in 1989 to about 52% in 2009, the total production output continued to rise due to increased dry-season farming. Over the same period, areas growing seasonal crops also decreased from 26% to 21% while areas growing fruits and perennial trees (including rubber plants) increased from approximately 14% to 21% (Table 1).





**Table 1:** Agricultural areas by utilisation 1989–2009

	1989	1994	1999	2004	2009
Rice	54.6	53.2	51.4	51	51.7
Other seasonal crops	25.8	25.0	22.5	21.9	21.4
Perennial trees	14.5	16.9	20.4	21.2	21.4
Vegetables and decorative plants	0.06	0.7	0.8	1.0	0.9
Grazing pastures	0.6	0.6	0.6	0.8	0.8
Others	4.0	3.6	4.2	4.2	3.8
Total	100	100	100	100	100

**Source:** Adapted from data of the Office of Agricultural Economics, Ministry of Agriculture and Cooperatives

The average size of land holdings also shrank from approximately 26 *rais* per household in 1986 to 22 *rais* in 2009—around a 15% decrease. When closely examined, the proportion of farming households with small land holdings (less than 10 *rais*) grew from approximately 33% in 1998 to 38% and 39% in 2003 and 2008 respectively. Meanwhile, the proportion of farming households with medium-size land holdings (10–39 *rais*) shrank from approximately 58% in 1998 to 52% in 2008. Households with large land holdings (more than 40 *rais*) accounted for approximately 10% of the total households and appeared to be on the increase. (Table 2)

Statistics from the 2003 Agricultural Census show that approximately 77% of farmlands were owned by farmers themselves while 23.1% were rented or in other arrangements.

### A large number of landless farmers

In 2003, approximately 650,000 farming households were landless. The Central

Region had the highest proportion of landless farmers while the Northeastern Region had the lowest. Another statistical report showing the large number of landless farmers is the 2004 registration of people living in poverty—those who have no or insufficient land for livelihood and those living illegally on government land. The number of those who self-registered under this category at 4.9 million persons shows that land holding problems remain a chronic crisis which continues to worsen.

What are the causes of landlessness among farmers? Essentially, landlessness is caused by structural injustice in the country's land distribution and economic system.

Most pertinent issues are:

1. The free capitalist economy has changed the status of land from a foundation of life and social capital within community into market commodities, allowing the rich and the powerful to amass lands through weak laws and legal loopholes
2. Economic development policies only focus on industrial growth where big money holds sway while the economic, social and traditional life of small-scale farmers is largely neglected.

**Table 2:** Land-holdings of farming households, by size

Size	1998	2003	2008
Less than 10 <i>rais</i>	33.1	37.6	38.6
10–39 <i>rais</i>	57.5	51.1	51.6
40 <i>rais</i> and more	9.4	11.3	9.7
Total	100	100	100

**Source:** National Committee on Food 2011 (Based on 2008 National Statistical Office data)

**“Most urgent is land reform which must be made a national agenda. Only with government policy-making commitment and political will combined with strong civil society support can we solve this problem.”**

3. The individualistic land ownership system which is subject to market mechanisms and taxation conducive to the concentration of land ownership in the hands of the small number of the rich.

4. The government’s centralised forest management in the name of “conservation” which not only deprives communities of their role in land distribution and resource management but also uproots communities from the areas where they have long lived and benefited from their land.

### **Concentrated land ownership**

For these reasons, land ownership tends to be concentrated in the hands of the rich few. A study on land policy found that in many provinces a small number of land holders own a very high proportion of land. For example, the 50 biggest land owners hold about 12% of the total area in Pathumthani province, 14% in Phuket, 12% in Samut Prakarn, 10% in Bangkok, 5% in Nakhon Nayok and 5% in Ang Thong.


A review of data from 399 land offices across the country found that most Thais own less than 4 *rais* of land (with deeds) on average while those in the minority who own larger pieces of land have a larger combined holding. The number of individuals who own more than 100 *rais* of land was 4,613. Among these, 121 owned 500–999 *rais* each and another 113 owned more than 1,000 *rais*. Among juristic persons, 2,205 owned more than 100 *rais*. Among these, 100 owned 500–999 *rais* and 42 owned more than 1,000 *rais*.

A large proportion of land is left by owners (mostly wealthy speculative individuals and juristic persons) with no or little utilisation. A study by the Land Institute Foundation in 2001 revealed that the total area of land being left with no or little

utilisation accounted for approximately 30% of all land holdings, resulting in approximately 127,384 million baht in economic losses and opportunity losses per year. Naturally, some of these lands are arable lands.

The perversion in Thailand’s land distribution means that while a large proportion of the population are landless or are driven from their ancestral areas, much land is left with no or little utilisation. This symptom shows that our flawed land distribution policy and system must be urgently reformed.

Landlessness is a time bomb that will one day explode as open social conflict and cause food insecurity for hundreds of thousands of farming households in Thailand. The committee on agricultural land reform, emphasising the importance of landlessness or loss of farming lands, stated in 2011 that landlessness “not only destroys livelihoods and causes suffering but also robs farmers of their traditional life and these farmers constitute an important cultural foundation of Thai society.” Landlessness problems among farmers are, therefore, a major problem which may become impossible to solve and which can lead to other social problems. Most urgent in addressing these challenges is land reform, which should be made a national agenda. Only with government policy-making commitment and political will combined with strong civil society support can we solve this problem.



“The point, therefore, is not just providing adequate water but an efficient water management.”

## Water for Agriculture: Access Gaps and Poor Management

### Inadequate irrigation

Thai agriculture largely depends on rainfall. According to the 2009 agricultural statistics, only 25.5% of agricultural areas are irrigated. The Central Region, at 17 million *rais*, has more irrigated lands than other areas compared to 9 million *rais* in the Northern Region, 6 million *rais* in the Northeastern Region and 4 million *rais* in the Southern Region. Looking at the low proportion of total irrigated land, Thailand still needs more irrigation. However, developing irrigation will take a long time due to heavy costs as well as other social and environmental concerns associated with the construction of dams and irrigation systems.

Another important problem for Thailand is droughts and floods which occur every year—repeatedly in some areas. In addition, farmers still cannot manage their crop choices in accordance with water volume each year. Most farmers in irrigated areas grow rice—a water-intensive crop—and suffer heavy losses when dams have insufficient water. Outside irrigated areas, droughts and floods recur, sometimes even within the same farming cycle. The issue for Thailand is not just providing adequate water but creating an efficient water management system.

**“Sharp decline in daily amount of catches obtained by small-scale fishermen increasingly affects food security of fishing communities and households along coastal areas.”**

### Marine depletion

Thai seas, once a fertile food source, have become severely depleted. The most important reason for this depletion is large-scale fisheries industries with modern equipment and indiscriminate fishing regardless of fish species or size. The shrinking of mangrove forests due to industry and tourism has also resulted in the rise of pollution and disappearance of marine animals. This is evident in the sharp decline in daily amount of catches obtained by small-scale fishermen and affects food security of fishing communities and households along coastal areas.

The Thai seas themselves, once a source of food security, are increasingly in crisis. Only a management system with commitment to sustainable food production for the coastal communities can mitigate these challenges.

### Degradation of natural resources

The decrease of food sources such as tropical forests and wetlands, including mangrove forests and bog forests in the past several decades has caused immeasurable damages to agricultural production in Thailand. In addition to cycles of floods and droughts in many areas, there has also been significant degradation in soil quality and climate change which are all interconnected links in the general environment.

### Shrinking forests

In 1961, Thailand had 171 million *rais* of forest coverage, or more than half of the country's total area. In 1999, this figure has shrunk to 80 million *rais*. In just 38 years, no less than 90 million *rais* or approximately 53% of Thailand's forest coverage has disappeared. However, the area of forest has significantly increased to 106 million *rais* in 2000 and stabilised until present. This rise was attributed to the change from land-base survey to satellite image readings (at 1: 50,000) in 2000. But this satellite data have not been verified by land-based surveys.

From actual observation, it is likely that deforestation still continues through illegal logging (all logging concessions have been terminated since 1989) and agricultural encroachment. A comparison of 2004 satellite images to those of 2000 found a deficit of approximately 3.8 million *rais*—a deforestation rate of around 700,000 *rais* per year. And the ecological conditions of the remaining forest areas are also challenged. A forestry expert estimated that Thailand has only 18% forest coverage in good condition.

The shrinking of forests directly impacts water volume from natural sources. As the forests in high-altitude areas disappear, many communities in the downstream basins face a higher risk of flash floods early in the rainy season and droughts near the end of this season. This 'double jeopardy' situation already happens in the lower Yom River basin and several other areas, affecting food production in those places.



### Threatened wetlands

Wetlands are very fertile areas which benefit the lives of humans, plants and animals. The total area of mangrove forests, bog forests, marshlands, ponds, lakes and rivers is approximately 21.4 million *rais*. However, mangrove forests and bog forests have worryingly shrunk due to agricultural encroachment, settlements and tourism. In a 1961 survey, there were more than 2.3 million *rais* of mangrove forests but only 1.3 million *rais* 25 years later (1986)—a 43.5% decrease—and only 1.1 million *rais* another decade later (1996)—a further decrease of 15.4%. At present, the total area of mangrove forests is estimated at only 940,000 *rais*.

As forests and wetlands are fertile food sources for the common use of rural communities, their continuing decline negatively affects food security of rural communities and households as well as the ecology of the area, with inevitable impacts on the lives of humans, plants and animals.

### Deteriorating soil quality

Deforestation and the rise in monoculture leaves soil with no time for recovery. Combined with lack of care, soil becomes depleted of

minerals essential to plants. Some areas have alkaline soil problems while others face acid soil problems. In 2004, Thailand had about 4.5 million *rais* of land with alkaline soil problems and 5.5 million *rais* of land with acid soil problems. Worsening soil quality and a rise in pests and diseases have compelled some farmers to use more inorganic fertilisers and pesticides to maintain production output. However, soil quality continues to worsen and pests become resistant, leading to even higher use of chemicals. Although this endless cycle may not depress output, its impact on the environment and health is particularly worrying.

### Climate change

Climate change as a result of global warming is now clearly showing devastating effects on people across the world. For a tropical country like Thailand, the direct effects on agriculture are irregular rainfalls. Rainfall is too little in some areas, too much in others and unseasonal in many areas. This situation causes severe floods, plant diseases and insect plagues. All of these situations affect agricultural production and its reliability. In addition, rising temperature also results in stronger storms and ocean waves that damage coastal ecology and impact food production both directly and indirectly.





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## Water for Agriculture: Access Gaps and Poor Management

### Inadequate irrigation

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### Marine depletion

Thai seas, once a fertile food source, have become severely depleted. The most important reason for this depletion is large-scale fisheries industries with modern equipment and indiscriminate fishing regardless of fish species or size. The shrinking of mangrove forests due to industry and tourism has also resulted in the rise of pollution and disappearance of marine animals. This is evident in the sharp decline in daily amount of catches obtained by small-scale fishermen and affects food security of fishing communities and households along coastal areas.

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### Deteriorating soil quality

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### Climate change

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## 2. Rising Costs

Today's agriculture requires a large amount of investment, not only for breeding stocks or seeds but also inorganic fertilisers, pesticides, feeds and labour.

### Breeding stocks and seeds

Most Thai farmers today use newly developed stocks and seeds which account for a significant proportion of costs.

Most of the rice being grown in Thailand today is from the modern rice strains. The most popular strains number only around ten. Hundreds of traditional strains which were adapted to local environment and ecology, and some of which also have high nutritional values, have mostly disappeared from the paddy fields. Likewise, most of the corns being grown today in Thailand are newly developed hybrid strains whose output is unsuitable as growing seeds because of inherent developmental defects and unreliable productivity. Regardless of profitability, the use of such seeds leaves farmers very market-dependent and results in rising costs.

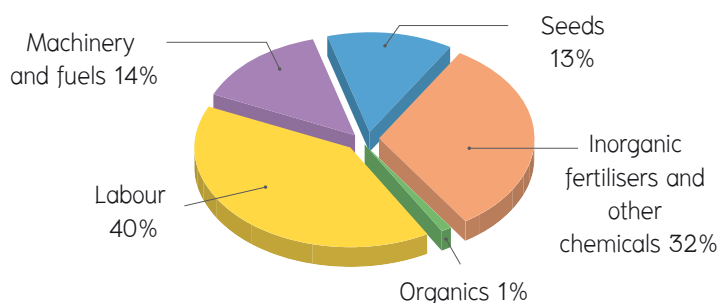
Unlike in the past, most farmers today are averse to selecting seeds for replanting. Farmers now sell all their outputs immediately after harvest and buy seeds when the next growing season arrives. A study conducted with farmers in Suphanburi's Ban Loom Bua village found that seeds accounted for 13% of total costs (Figure 1).

For poultry farms and fish farms, farmers also pay high costs for breeding stocks. A study on traditional chicken farms found the average price of a chick at 6 baht compared to 5 baht if the farmers raise hens to breed their own chicks. The largest expense in animal farming results from expensive feed.

### Feeds

Although Thailand can produce almost every kind of animal feed, domestic supply has yet to catch up with demand. Feed imports cost the country tens of billions of baht per year. In 2009, Thailand imported one billion baht worth of maize, twenty billion baht worth of soybean, thirty billion baht worth of soybean meal and 63 million baht worth of fish meal (Table 3). When calculated at retail prices, the amount that individual farmers pay for feed accounts for a very high proportion of their costs, which also include vaccines, pens, labour and other more general expenses.

**Figure 1:** Average expenses of a typical farmer in Suphanburi's Ban Loom Bua village, 2002–2003

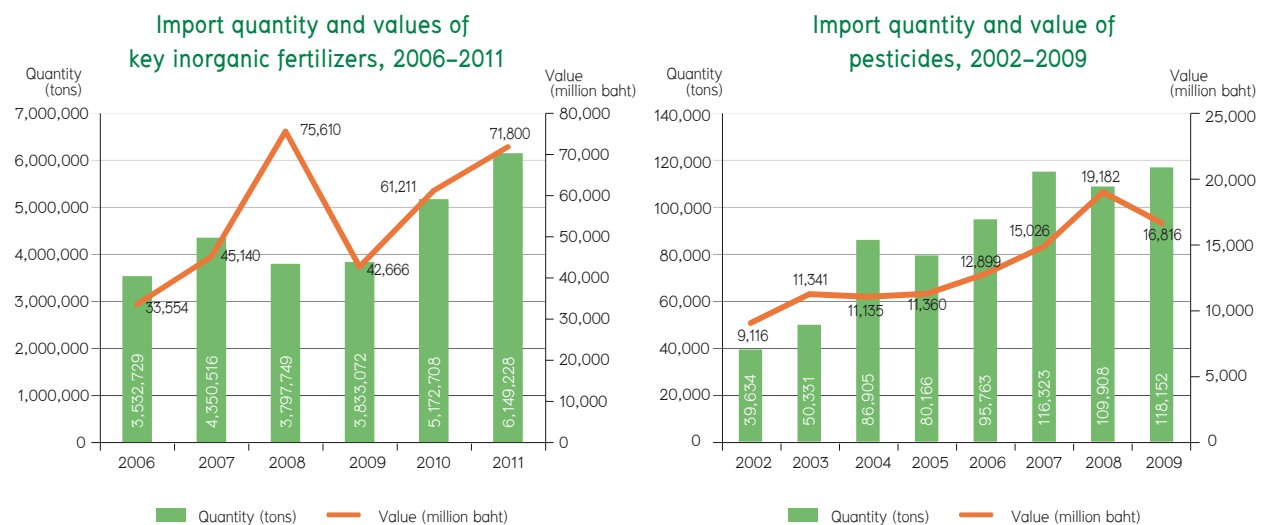


Source: Witoon Lianchamroon et al, 2008

**Table 3:** Domestic consumption, domestic production, import quantity and estimated import values of feeds in 2009 (tons)

	Quantity (tons)			
	Maize	Soybean	Soybean meal	Fish meal
Domestic consumption	4,787,562	18,630,000	2,902,692	556,021
Domestic production	4,430,039	190,480	190,480	500,000
Import quantity	291,863	1,534,551	2,076,634	1,839
Import values (million baht)	1,000	20,000	30,000	63

Source: National Committee on Food, 2011

**Figure 2:** Import quantity and value of inorganic fertilizers and pesticides

**Note:** In 2008, the import value of fertilisers increased significantly, despite quantity decrease, as a result of price hikes, especially in Chinese products. The import value in 2009 decreased, despite quantity increase, likely because of a drop in chemical prices in foreign markets.

**Source :** Toxic Substances Division, Agricultural Regulatory Office, Department of Agriculture

### Inorganic fertilisers and other chemicals

In today's agricultural systems, whether it's for rice or other crops, inadequate amounts of inorganic fertiliser and chemicals most likely lead to a drop in output. The use of inorganic fertilisers and other chemicals has become indispensable because of worsening soil quality and increased pests and diseases (caused by repeated monoculture without spacing). In addition, most farmers fall prey to advertisements from agribusinesses touting inorganic fertilisers and other chemicals, resulting in a group mentality that advertised products must be good because everybody is using them.

Farmers tend to dread the prospect of low outputs if they do not use inorganic fertilisers and chemicals, even though there may not be any need for them.

Inorganic fertilisers and other chemicals have become indispensable in today's mainstream agricultural systems. However, virtually all inorganic fertilisers and chemicals are expensive imports, costing the country tens of billions of baht per year (Figure 2). These financial burdens are shouldered by farmers. The study among rice farmers in Suphanburi (Figure 1) showed that the expenses for inorganic fertilisers and chemicals accounted for about a third of total expenses—second only to labour.





“Thailand ranked the world’s number 48 in terms of agricultural area but number 4 for herbicide use and number 5 for insecticide use.”

Photo courtesy of the Biothai Foundation

### 3. “Chemo-culture” Crisis

#### Chemical flood

It may not be an overstatement to call Thailand’s mainstream farming practice a “Chemo-culture” given Thai farmers use a very high quantity of chemicals. An FAO report in 2000 stated that Thailand ranked the world’s 48<sup>th</sup> country in terms of agricultural area but number 4 in terms of herbicide use and number 5 for insecticide use. Considering that Thailand has continued to import increasing amounts of these chemicals in the past 10 years since that report, the country’s world ranking may be even higher now.

Chemicals used by Thai farmers are mainly insecticides, herbicides and other anti-disease chemicals. Over the past 10 years, import quantity of chemicals has unabatedly increased. Since 2007, import quantity exceeded 100,000 tons per year. In only 8 years (2002–2009), import quantity of chemicals has almost

**Table 4:** Number of trade licenses given for pesticides in Thailand, compared with other countries in the region

Country	Number of active ingredients	Number of trade licenses
Thailand	439	27,126
China	600	20,000
Vietnam	886	3,423
Malaysia	240	3,104
Sri Lanka	269	1,383
Indonesia	*	1,158
Myanmar	*	818
Laos	46	100
India	194	*

\* No data

Source: Rapichan Poorisamban, 2011

**“Since 2007, import quantity exceeded 100,000 tons per year. In only 8 years (2002-2009), import quantity of chemicals has almost tripled. Import value has also exceeded ten billion baht per year since 2003.”**

tripled. Import value has also exceeded ten billion baht per year since 2003. (Figure 2)

Thailand has commercially registered more than 27, 000 chemical items. This may or may not be the world's highest but it is certainly the highest in the region (Table 4). Many of these chemicals have been clearly shown to be hazardous to human and animal health as well as the environment. Some are carcinogenic, causing diseases such as cancer which one among the top causes of death among Thai people. Although these toxic chemicals have been banned in many countries, they continue to be imported and licensed for widespread sales in Thailand without effective regulatory measures.

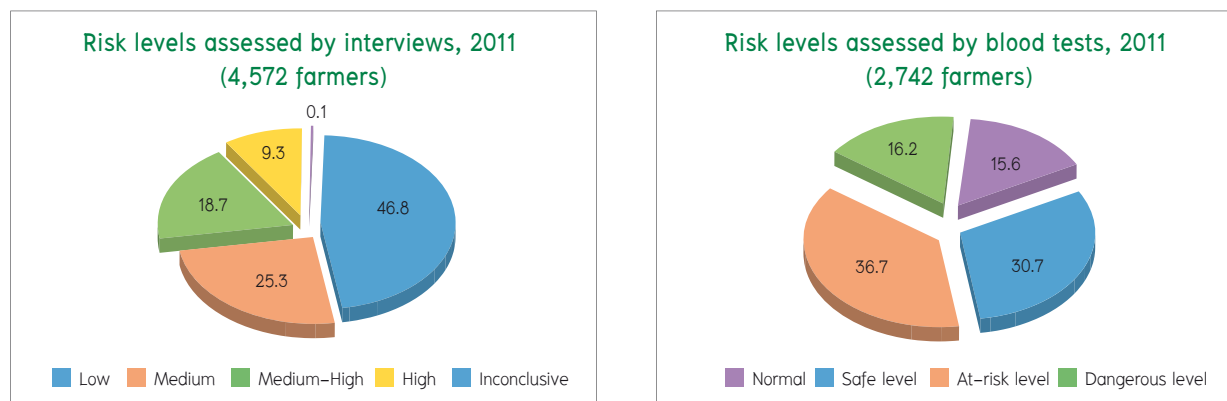
Academics, NGOs and farmers' groups have for many years been unsuccessfully demanding a ban on four chemicals, namely, carbofuran, methomyl, dichrotophos and EPN. All these chemicals are considered to pose a serious threat to human health and the environment (see page 64). Despite attempts to regulate the use of chemicals in agriculture in Thailand, effective regulation is far from becoming a reality. The Hazardous Substance Act 2008 requires all existing chemicals available on the market to be re-registered by 22<sup>nd</sup> August 2011 or withdrawn from the market. However, enforcement of the legislation has been stalled by demands for an extension to allow those chemicals already on the market to be on sale for another two years. It's unknown whether the deadline for registration will be extended again at the end of these two years.

## **Silent threat to farmers and consumers**

The devastating health impacts of chemical use on farmers are unknown to the wider public as their illnesses and deaths never make news headlines. The awareness of the risks of chemicals is limited only amongst academics and genuinely interested parties. The impact of chemical use continues to silently loom over farmers' lives, however.

The following data presents a clearer picture.

- *In 2007, the Ministry of Public Health's Bureau of Occupational and Environmental Diseases conducted blood tests for pesticide exposure levels among 89,376 farmers and found 34,428 or 38.5% of them to be at an unsafe level.*
- *In 2011, the same agency conducted a risk-evaluation survey with questionnaires on chemical usage behaviors and symptoms. Preliminary data showed that from a sample of 4,572 farmers, 47% were at low risk while 53% had moderate to high risks. But among 2,742 farmers from the same group who consented to a blood test, those who were at significant risk with unsafe levels of chemical usage accounted for 54% (Figure 3).*
- *An epidemiological study of countrywide in-patients reported to the Ministry of Public Health's surveillance systems showed that incidents*

**Figure 3:** Proportion of farmers by risk level (as assessed by interviews and blood tests), 2011

Source: Dr.Pibool Issarapan, 2011

of chemical hazards (both from agriculture and suicide attempts) were high at 14.067 per 100,000 people in 2006, 18.256 in 2007, 17.115 in 2008 and 17.692 in 2009. The highest mortality rate among chemical poisoning in agriculture was caused by herbicides and fungicides (mortality rate of 14.9%) followed by insecticides in the organophosphate and carbamate family (6.2%), other herbicides (2.9%), rat poisons (2.7%), other insecticides (1.4%) and finally halogenate insecticides (0.6%). All these chemicals are widely used by Thai farmers, especially those in the Central Regions

of the country with its intensive farming practices. Almost all of the top ten provinces in Thailand with highest morbidity rates caused by pesticides are in this region.

Not only health of farmers is at risk from chemicals but also the health of consumers. Random tests have found traces of toxic residues in vegetables and fruits in the markets. Sometimes these traces were found in highly unsafe levels, thereby exposing consumers to serious health risks.





**“If most families in the community practice monoculture, the community’s food security level will decline because of increased dependence on other food types from outside.”**

## **4. Consumption-based Agriculture Marginalised by Trade-oriented Agriculture**

### **Decline of consumption-based agriculture**

Today’s mainstream agricultural practices are no longer geared towards household use but for trade. Farming households that produce what they consume and consume what they produce are now a minority. Office of Agricultural Economics data

showed around 30% of all farming households falling into this category ten years ago (Table 5). It is believed that the proportion is even smaller today.

Market-oriented monoculture farming aims to produce only one kind of crop while household consumption requires different food types. Farmers need to buy most of their food to meet consumption



needs. As such, farming households are less self-reliant in terms of food. If most families in a community practice monoculture, the community's food security level will decline because of an increase need to depend on other food types from outside. In addition, price fluctuations (which often happen) can easily lead to losses and debts for market-dependent farmers.

In capitalism, Big Money and agro-businesses play a large role in agriculture by monopolising production inputs and outputs. These agro-businesses, both local and transnational, have strong influences throughout the system from production upstream to processing midstream and marketing downstream. At present, there are no fewer than 40 stockmarket registered companies with businesses in agricultural and the food industry (around 7% of all registered companies) with a combined capital of 33.378 billion baht (2012 data). These figures do not include companies outside the stockmarket which likely number many more.

In a way, the direct involvement of Big Money and agro-businesses in production can be seen as benefiting production both in terms of quantity and quality because such companies are

better equipped with capital, resources and technology than small-scale farmers. Indeed several of Thailand's top food exports such as poultry, prawns, baby corns and canned pineapple became successful only with strong involvement of agro-businesses. Such successes benefit the country as a whole as well as consumers.

However, this direct involvement by large companies also affects small-scale farmers who constitute the biggest proportions of Thailand's agricultural producers. The monopolisation of the important production resource, land, increasingly marginalises small-scale farmers, driving them to the edge of food production systems.

## Contract farming: Mutual benefit or exploitation?

Big Money and agro-businesses are relatively cunning in not getting themselves involved in physical production processes. Such actors instead outsource production while providing some support to small-scale farmers to fulfill their requirements both in terms of quantity and quality. This process is known as "contract farming". Companies that are provided seeds/stocks, fertilisers, pesticides, capital, know-how, technology and other equipments are in fact burdened with disguised debts that farmers must repay with their production outputs. In contract farming, farmers become debtor right from the beginning of the production process.

At present, there are no reliable statistics on the number of contract farmers. Estimates range from 160, 000 whilst an independent academic has put the number at around 300,000 and increasing.

The advantage of contract farming is that the company or agents/brokers can be sure that they will obtain products according to market

**Table 5:** Proportion of households using own produce mostly for household consumption, by region, 2001–2002 season.

Region	Percent
Northeast	37.2
North	23.2
Central	39.8
South	6.4
All regions	29.7

Source: Office of Agricultural Economics, 2003

demand in quantity, prices and with an appropriate time scale. Farmers also can be sure that they will be able to sell their products and often at agreed prices. Contract farming often looks like a win-win situation. The reality of this situation, however, is much more complicated.

Whether the contract with farmers is actually done in writing (mostly for poultry farms, husbandry and aquaculture) or not (mostly for crops), virtually all the terms of contracts are determined by the large company or its agents/brokers. This puts farmers in a weak position right from the beginning. Even in cases where farmers can negotiate some aspects of their contracts, negotiation is based on an unequal relationship. In practice, farmers shoulder more risks due to lack of experience and knowledge or disasters (drought, flood, storms, epidemics, and plagues). Farmers may not be able to sell their

products at all or have to sell them at lower prices if the products do not meet specified terms. If the company buys products late, farmers also have to shoulder the costs of delay which means smaller profits or even losses.

Although some contract farmers become successful, many more fail. Some families have decided to cease agricultural work altogether while others are propped up by encouragement to persevere in the hope to recoup their past losses. Some farmers have even become bankrupt and lost all their family assets. Contract farming, therefore, is not dissimilar to an agreement to exploit and turns farmers into hired workers on their own land.

Contract farming may help increase Thailand's production but such increase also paradoxically doesn't increase the food security of the farming households themselves.

## 5. Labour Crisis

### Changing labour demographics

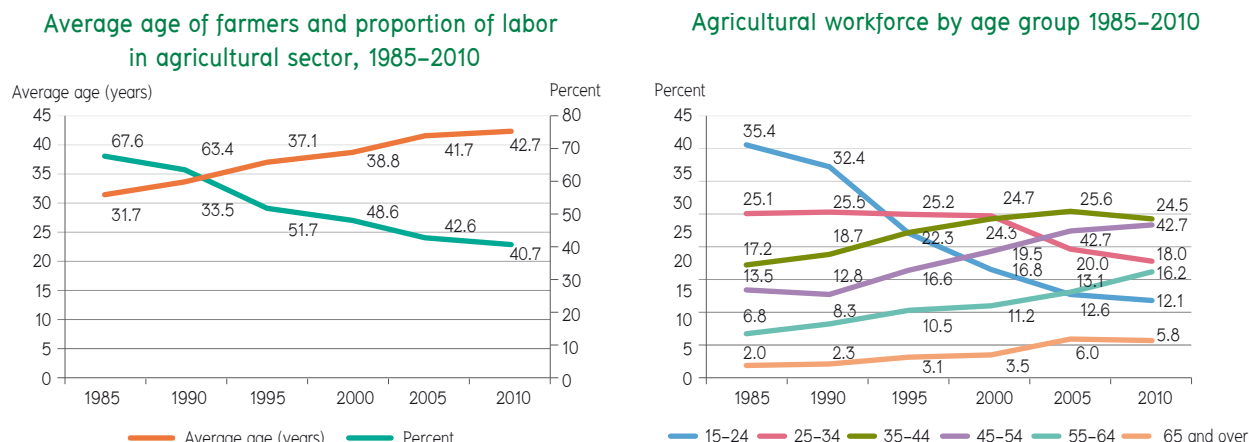
Although Thailand's total number of workers has risen, workers working in the agricultural sector have decreased. A National Statistical Office's Labour Force Survey (third trimester) showed that in the 25 years between 1985–2010 the proportion of workers in the agricultural sector dropped from 68% to 41%, while the average age of workers increased from 32 to 42 years. Another set of data from a BioThai Foundation study, supported by the Thailand Research Fund in 2008–9 showed the average age of workers in agriculture to be 45 and 51 years respectively. This ageing of the agricultural workforce is partly due to the overall ageing of Thai society. However, another reason is that fewer young Thais chose to become farmers these days (Figure 4).

On one hand, an older workforce may be of advantage in terms of experience and endurance for agricultural work. But, on the other hand, from the perspective of continuation especially



Photo courtesy of the BioThai Foundation



**Figure 4:** Average age of Thai farmers and agricultural workforce by age group, 1985–2010

**Source:** Labour Force Survey, third trimester. (Data processing courtesy of the Economic and Social Statistics Division, National Statistical Office)

at household and community levels, this ageing of agricultural workers may also affect food security unless there is a timely response to this situation.

## Poverty and debt: Major problems for farmers

### Farming = Poverty?

Although Thailand has been successful in reducing the proportion of its population living in poverty in the past several decades, the proportion of those living in poverty in the agricultural sector has not significantly decreased. In 2002, almost 20% of those in the agricultural sector were living in poverty. Five years later in 2006 the proportion significantly decreased to 12% and then remained static. Even in 2009, slightly over 10% of agricultural households were in poverty. However, outside the agricultural sector, the proportion of those living in poverty in Thailand remains lower than 5%.

As agricultural workers have lower educational level, the value of their production outputs are low. About two thirds of those living in poverty are working in agriculture. It is estimated

that there are about 660,000 poor landless farmers who must rent land for farming or become labour hands.

According to National Statistical Office data, most farmers are in debt and around 60% of those debts are incurred from farming. The total amount of debts for farming purposes is more than 360 billion baht. Around 63% of these debts are borrowed from the Bank for Agriculture and Agricultural Co-operatives, 7% are loans in the informal sector, 10% are from Village Funds and the remainder are loans from other sources.

Poverty and debt experienced by the agricultural workforce reflects income gaps linked to several different dimensions of structural disparity. This condition may greatly threaten Thailand's food security unless there is an appropriate adjustment in the agricultural sector in the near future.

### New breed of farmers?

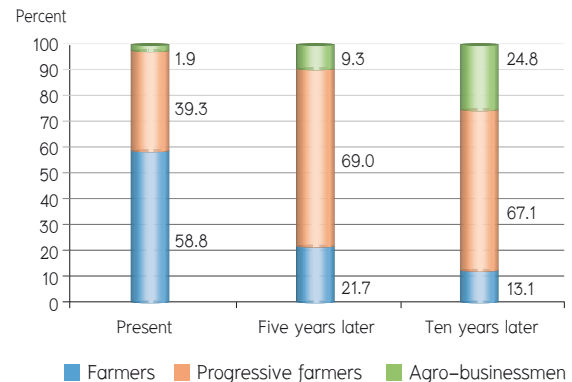
A study by the Office of the National Economics and Social Development Board, "Changing way of life among farmers in the Central Region under globalisation (2010)" suggests that the way of life of rice-growing farmers is changing.

Traditional farmers are increasingly evolving into “progressive farmers” or “high-tech farmers” and eventually “businessmen farmers.”

This last type of farmer can be better regarded as an “agro-businessman”—a “new breed” of farmers who “farm” without getting their hands and feet dirty. Instead, such individuals or companies use business administration models and hire “consultants” to help at every stage of the agricultural process from soil preparation to harvesting and sale. Such actors give orders through modern communication tools like mobile phones.

This new breed of farmer has already emerged in the lower Chao-Praya basin. Such “agro-businessmen” already constitute 2% of all farmers, according to the research. When asked to imagine their future, most farmers reported that they saw themselves as becoming “progressive

**Figure 5:** How farmers in the Central Region view themselves



Source: Suriyon Thanyakijjanukij et al, 2010

farmers” and “agro-businessmen” (Figure 5). To some extent this response shows the direction of future changes in the agricultural sector in Thailand.

It is as yet difficult to predict how such evolution will affect Thailand’s food security.



Photo courtesy of the BioThai Foundation



## 6. Impacts of the Energy Crisis

Thailand depends on imports for almost all its energy needs, costing the country an enormous amount of money. In 2008, 1 trillion baht or approximately 11% of GDP was spent on energy imports. Past energy crises have always impacted on the costs of agricultural production as most farmers use machinery for farming. In addition, higher energy prices also increase prices of inorganic fertilisers that contain components of petroleum derivatives.

As a result of fuel price hikes and worries around fossil fuel depletion, many countries, including Thailand, have turned to alternative energy to replace fossil fuels. Food crops such as sugar cane, tapioca and oil palm have been used to produce ethanol to mix with fossil fuels or to be converted into biodiesel. The Thai government aims to increase its production of ethanol-mixed fuel to 9 million liters per day in 2022 from about 1 million litres at present and to boost biodiesel production

to no less than 4.5 million liters per day from 1.4 million liters at present. This increase does not only result in expropriated food crops to be made into fuel but it also competes with food crops for arable land use.

Thailand's 2009 agricultural statistics showed that between 2000 and 2009 oil palm-growing areas have more than doubled from around 1.7 million *rais* to 3.9 million *rais*, sugar cane from 5.5 million *rais* to 6.0 million *rais* and tapioca from 6.9 million *rais* to 8.6 million *rais*. The demand for fuel crops will increase in the future and will compete with food crops for use of land.

In the long-term, an energy crisis will impact food security. In order to soften the blow of this crisis, the government should implement appropriate measures to strike a balance between demands for food crops and energy crops. Farming communities also should adapt themselves by reducing energy-intensive farming.





## 7. Free Trade Liberalisation: Trick or Treat?

### Impacts of competition and subsidies

Thailand is a WTO member. In the past 10 years, the country has also entered free trade agreements (FTAs) with other ASEAN countries under the ASEAN Free Trade Agreement (AFTA) and the Ayeyawady–Chao–Praya–Mekong Economic Cooperation Strategy (ACMECS). In 2015, Thailand and other ASEAN members will become the ASEAN Economic Community (AEC) in much the same way that European countries now form the European Community. Outside of the region, Thailand has also made free trade agreement with China, India, Australia, New Zealand and Japan. In addition, free trade agreements are being negotiated with other countries including the United States. Free trade allows a freer flow of capital, production resources, goods and labour between countries.

On the one hand, free trade will decrease prices of many goods and consumer products. Thai products will also become more competitive due to tax exemptions and lower tariffs. This situation benefits both local manufacturers and consumers.

On the other hand, free trade may threaten some of Thailand's agricultural products, especially when there's competition from countries which offer cheaper labour or better quality goods. Such negative impacts are unavoidable under free trade agreements.

China's cheap garlic is one clear example of this situation. This garlic started to flood the Thai market after the Thai–Chinese Free Trade Agreement came into force in 2003. As a result, many Thai garlic farmers in the Northern Region of the country suffered heavy losses and withdrew

from the industry. In addition, other Chinese temperate fruits with better quality and similar prices also hurt nascent local farmers. The free trade agreement with Australia also had similar effects on local dairy farmers. The superior quality of Australian dairy products started to be imported when the Thai–Australian FTA came into force in 2005 and this forced Thailand's cattle and dairy industry to adapt itself for survival.

Subsidies are a problem linked to international trade competition which affects Thai farmers significantly. The clearest example is agricultural subsidies of developed countries. For example, the United States is one of Thailand's major competitors in the rice market. The US government has a budget and measures to subsidise its agricultural products in order to boost their competitiveness. Without such subsidies, American agricultural products could not compete on international markets due to high labour costs. An expert on rice export said that if the United States did not subsidise its rice farmers Thailand would be able to sell much more rice in the global and US markets and at much higher prices.

It is an issue of concern that Thailand has no clear food security policy to deal with these FTA issues and no effective measures to protect farmers. In addition, the country has no health measures to guarantee that local consumers will not be affected by globalised trade.

### Risk of plant genetic loss

Academics and many farmers in Thailand are concerned that FTAs with more biotechnologically advanced countries like the United States and Japan, if not implemented carefully, may lead to the loss of the country's unique plant genetics

as such countries may employ loopholes in global trade agreements such as intellectual property rights and other regulations to patent local genetic materials with little regard to the biological origin of those plants.

This is not idle speculation as such situation has already arisen. In 2001 a group of American researchers tried to patent a strain of rice developed from Thailand's jasmine rice. Only following Thailand's strong protests did the researchers back down.

Local experts, however, believe that the United States is unlikely to give up its pressure. Many consider that during the new round of Thai-US free trade negotiations, the US will try to pressure Thailand on two specific points: Firstly, that Thailand must enact a trademark law to replace the Geographical Indications Act for the protection of plant and animal genetics; and secondly, that Thailand must become party to the International Union for the Protection of New Varieties of Plants (UPOV).

Both the trademark law and UPOV will allow patents to be granted for new plant or animal genes regardless of geographical origin, unlike the Geographical Indications Act. The United States has successfully negotiated FTAs with other countries on similar terms and is believed to be trying the same approach with Thailand. The Thai-US free trade negotiations began in 2004 but were disrupted by the 2006 coup and there has been no further progress since that time.



Photo courtesy of the BioThai Foundation

If the United States successfully ensures Thailand agree to the two latter conditions the patenting of new strains of US-developed jasmine rice will become a reality. This will threaten the status of the 200,000 tons of Thailand's jasmine rice exported to the US market per year. Even today, Thailand is already facing challenges from the use of "jasmine rice" label by US-grown long-grain rice. (See opposite page)

## Food sovereignty under threat

Past food crises, whether caused by natural disasters, political instability or economic meltdowns sent food prices skyrocketing. Faced the energy crisis and global warming, wealthy countries from Europe, America, Asia and the Middle East are now identifying ways to ensure food security for their citizens in the future.

Strategies used by large businesses from these wealthy countries include the use of developing countries with rich agricultural resources as food production bases to feed populations back in their country's of registration. Thailand is one of important targets for these companies.



## The Future of Thai Jasmine Rice

*Jasmine Rice is the best and most well known rice in the world. But its future is worryingly in doubt given Thailand's free trade negotiations with a bio-technologically advanced country like the United States.*

Jasmine Rice, or officially “Khao Khao Dok Mali 105”, is grown in about a quarter of Thailand's rice-growing areas, mostly in the Northeastern Region and parts of the Northern Region. This rice is suited to sandy soil with low organic materials. The arid *Thung Kula Ronghai* area is a haven for jasmine rice. Not only fetching high prices in domestic market, jasmine rice is also very popular abroad with a high export quantity and value. In 2004, export quantity of jasmine rice consisted of 2,279,621 tons which earned the country 35,572 million baht.

Because of its unrivalled quality, jasmine rice is coveted by other countries, especially the United States. In 2009, the United States government allowed its local rice industry to use the label “Jasmine Rice” for any long-grain rice produced in the country, claiming that an American company had registered the “Jasmati” as a trademark for jasmine rice grown in Texas. Despite protests from the Thai government and Thai people, the label continues to be used for US-produced rice.

An American company then tried to genetically engineer Thai jasmine rice to allow it to be grown in the United States. Although the company claimed to use genetic materials from the International Rice Research Institute in the Philippines, there was no evidence to support the claim. This attempt evidenced the United States' intent to patent and claim ownership over Jasmine Rice, which was considered to be an unacceptable practice. Thai farmers and other Thais protested in front of the United States Embassy in Bangkok to voice their anger. The United States government then agreed not to patent rice strains developed from Thai Jasmine Rice.

But local experts believe that in the next round of the Thai-US free trade negotiation the United States will try to pressure the Thai government to match intellectual property protection to American levels by protecting patents on all kinds of life forms including plants, animals and microorganisms, as the government has done in free trade negotiations with several other countries. Thailand's law however forbids patenting plants and animals and has instead enacted laws to protect them. In addition, the United States will likely pressure Thailand to become party to the International Union for the Protection of New Varieties of Plants (UPOV) and demand that Thailand enacts a trademark law to replace the Geographical Indications Act. If successful, the patenting of jasmine rice by American researchers will become easier.

*If the United States successfully patents new strains of rice developed from jasmine rice, Thai jasmine rice in the US market, which amounts to about 200,000 tons per year, will face a challenge as rice exporters will need to pay patent fees according to US laws. Even today, Thai rice is already facing problems from the use of the “jasmine rice” label by US-grown long-grain rice. The future of Thai jasmine rice continues to be a serious concern.*



Foreign attempts to use Thailand as a food production base have occurred in two ways. First, joint ventures have been used by large corporations or nominees in Thailand to produce food by contract farming methods. This situation has been going on for many years. Foreign groups do not need to own production resources like land or perform production themselves. Such companies instead hire local farmers through a nominee. Japan's corporations use this method of acting in Thailand, Vietnam and perhaps other ASEAN countries too.

Another way corporations act is to buy or rent land with long-term contracts (through nominees who may be an individual or a juristic person) and invest in food production for exporting food back to their own countries or to the international market.

It's no surprise that foreign capital will choose fertile areas with good agricultural infrastructure such as the Chao Praya basin to achieve their goals. This way, the land will for a long time or forever remain under the control of foreign persons.

Large corporations from Taiwan and some Middle Eastern countries have apparently been trying to find land for agriculture in Thailand through nominees. China has also proposed to rent land in *Thung Kula Ronghai* area to grow jasmine rice to sell back to its own population.

There is yet no clear data on how much land is already in possession of foreign groups but it appears that such organisations have already infiltrated Thailand in subtle ways and may eventually push Thai farmers out of food production.

As a direct result of this process, not only can other countries cheaply utilise Thailand's agricultural areas with little benefits for the Thai people but they can also compete for infrastructure such as irrigation, transportation and communication which were created with Thai taxpayers' money and without their contribution. The losses caused by such developments outweigh the benefits and the country's food sovereignty also comes under threat.



“FTAs with more biotechnologically advanced countries like the United States and Japan, if not implemented carefully, may lead to the loss of the country's unique plant genetics”



# Toward Food Security

“The best thing for Thailand’s present situation is an agricultural reform.”

All the aforementioned situations show that Thailand’s agricultural system is facing significant challenges and opportunities. The question that arises is what to do next.

As an important food security goal is food production which meets the consumption needs of the population in all situations with safe, eco-friendly production systems that allow farmers to have a secure life and society. Given this, the best thing for Thailand’s present situation is an agricultural reform.

The following topics should be part of such a reform and it is hoped that by raising these specific topics, more public discussion will be undertaken and solutions can hopefully be found.

## 1. Land reform

Several hundred thousand households in Thailand do not have any or sufficient land for their livelihoods. It’s likely that this number will increase in the future. Land-redistribution undertaken with appropriate related measures is an urgent priority. Important measures that the Reform Committee and the National Food Committee recommended already include tax measures and intervention in the land market through the National Committee on Land for Agriculture Policy and Land Bank. In addition, there should be a modern land database and a ceiling for land holdings to prevent monopolies. Land possession reform should be made a national agenda

## 2. Agricultural resources management

It is necessary, in terms of agricultural resources management, to: replenish soil, water and forests and return them to the quality levels which are necessary for food production; locate sufficient water sources; encourage farmers to use soil and water efficiently; ensure community participation in the conservation of water head forests, mangrove forests and community forests; improve and maintain soil and water quality in good conditions; support eco-friendly food production systems; and widely promote organic farming and other forms of alternative agriculture.

## 3. Improve food production efficiency

In order to improve food production efficiency, it is necessary to: encourage farmers to innovate and use technology and locally-available resources in production; support groupings of farmers to strengthen production and increase negotiating power in the market; and define agricultural zoning in accordance with resource conditions, social needs and the community’s way of life.

## 4. Ensure safety in food production systems

So as to ensure safety in food production systems, it is necessary to: reduce chemical use in agriculture; ban hazardous chemicals; implement measures to regulate chemical-use in agriculture; implement strict and consistent measures to test toxic residues in vegetables and fruits; reduce the

import of chemicals and fertilizers; and promote production and use of organic fertilisers.

### 5. Strike a balance

Thailand should strike a balance between agriculture for food security of households and communities with a focus on product diversity on the one hand and trade-oriented agriculture which focuses on market demand on the other hand. The country should strike a balance between food crops and energy crops given that the latter will likely demand more growing areas in the future.

### 6. Ensure security in farm work

Farmers should be able to make a living. In addition, as food producers, farmers across the country should be guaranteed a good quality of life and dignity at levels no lower than those in other professions in order to encourage young people to enter agriculture. In addition, concrete sustainable measures should be implemented by the Thai Government to reduce costs and increase incomes for farmers whilst strengthening and diversifying local food industry to add value to products and reduce export dependency.

### 7. Support agriculture conducive to food security

Thailand should aim to make households and communities self-reliant food production units based on the sufficiency economy philosophy, promote agriculture which is conducive to biodiversity both in terms of food type and plant/animal genetics and conserve and develop new strains of food which are unique to the community with nutritional and herbal values.

### 8. Improve the efficiency of food distribution systems

Efficient food distribution facilitates convenient access to food. Improvements can be made in two major areas: firstly, by improving infrastructure to increase convenience, safety, speed and affordability, such as rail systems; and secondly, by improving market mechanisms to allow consumers access to reasonably-priced food without market monopolisation and manipulation.

### 9. Support R&D and innovation throughout the food chain

Research and development on soil and water quality and efficient and economical use of agricultural resources to maximum benefits should be promoted. In addition, knowledge and good practices should be widely disseminated. There should also be research and development in agricultural innovation, technology, and plant and animal genetics as well as increased funding for agricultural research both in the public and private sectors.

### 10. Make national food policies and plans with public participation

Thailand should develop legal measures to create national frameworks for agricultural development and for food safety, formulate measures to cope with food crises in times of disasters, epidemics or global crises and formulate measures to protect the interests of farmers in the context of international trade and trade liberalisation.

*Although incomes from the agricultural sector account for less than 10% of GDP, the sector is more important than money or property as the real value of the agricultural sector is not monetary but food production that nourishes human life. Agriculture is, thus the foundation of life, supporting well-being and linking all the multiple dimensions of well-being together, whether economic, social or cultural.*

*As today's world is often rocked by food crises, a society with food security is a rich and powerful society. But if agriculture which is the foundation of food production is not secure, human life and society are also not secure. Even money or other properties cannot assist because they are but illusory. Only food and health are real tangible things in life.*