Australian Government
Australian Centre for
International Agricultural Research

Vietnam food security policy review

Edited by Elizabeth Petersen

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ACIAR Monograph 196

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2017

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Petersen E. (ed.) 2017. Vietnam food security policy review. ACIAR Monograph no. 196. Australian Centre for International Agricultural Research: Canberra. 126 pp.

ACIAR Monographs – ISSN 1031-8194 (print), ISSN 1447-090X (online)

ISBN 978 1 925436 94 5 (print)
ISBN 978 1 925436 95 2 (PDF)

Design by Peter Nolan, Canberra

Cover: Bean farmer North-western Vietnam (Photo by Sally Ingleton).

Foreword

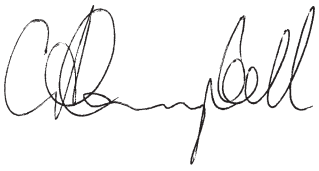
The United Nations Universal Declaration of Human Rights states that access to food is a fundamental human right. It is a basic need of humankind required for health and productivity, and contributes significantly to social wellbeing, economic development and national and global stability.

The definition of food security is fluid and has changed over time. The most widely used definition was proposed at the 1996 World Food Summit of the United Nations' Food and Agriculture Organization. It defines food security as ensuring that all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Vietnam has made incredible progress in improving food security over the last 30 years. Its *Doi Moi* policy reforms of the late 1980s allowed it to reform its agricultural sector. From suffering severe food shortages, it was able to become one of the world's leading rice exporters. Vietnam now produces more than enough calories for the whole population at a national level. However, significant food security issues remain. Malnutrition, anaemia and food safety are persistent issues, especially among pregnant women, children under five years of age, and peopled in disadvantaged regions.

This monograph is a collection of papers by an ACIAR research team spanning government and academia in Vietnam and Australia. It provides valuable insights into Vietnam's agricultural development through time, the policy development process, current food security policies, and capacity for evidence-based food security analysis. Current food security policies are evaluated against a set of food security policy issues, and recommendations for food security policy reform are presented. Methods for food security policy analysis are reviewed and a second set of recommendations is suggested regarding developing modelling capacity in Vietnam for evidence-based policy analysis.

The monograph is a significant contribution to the food security policy debate in Vietnam. It is hoped that it will generate further discussion and rigorous research, contributing to improved food security policy, policy analysis, and the ultimate goal of eliminating food insecurity in Vietnam.



Professor Andrew Campbell

Chief Executive Officer, ACIAR

Contents

Preface

This monograph is a compilation of papers prepared under ACIAR project ADP/2015/001, 'Scoping study for agricultural development policy review for Vietnam food security'. The intention of the monograph is to inform and instigate further research and discussion into Vietnam's food security policy development process, current policy direction, and capacity for evidence-based policy analysis by making readily available the research findings of the project.

Ten papers are presented in this monograph and are the result of extensive literature review, discussions amongst project participants and other key informants in Vietnam, Indonesia and Australia, and semi-structured surveys of key stakeholders involved in policy development or impacted by policy reform in Vietnam (including national and central government employees, researchers, farmers and other business owners/operators). Project participants in Vietnam include staff from the Ministry of Planning and Infrastructure (MPI) and the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD), the latter being a government think-tank within the Ministry of Agriculture and Rural Development (MARD). Australian project participants include staff from the University of Western Australia (UWA) and the Australian National University (ANU).

The monograph begins with a background paper by Luu Ngoc Luong which provides an overview of agricultural development in Vietnam. The remaining nine papers are divided into three groups: (1) policy development, (2) food security policy and (3) evidence-based policy analysis.

The first group of papers begins with a paper by Uong Dinh Hoang, which summarises the policy development process in Vietnam, comparing theory with practice. The second paper in this group is by Elizabeth Petersen and compares the policy development process in Vietnam, Indonesia and Australia to provide international lessons on policy development.

The second group includes four papers that relate to food security policy in Vietnam. The first, by Petersen, outlines a set of principles for food security policy based on extensive study of the literature on food security and its causes. Vu Hoang Yen provides a detailed overview of food security policy in Vietnam, including the 2009 Resolution on National Food Security as well as over 60 food security-related policy documents. In the third paper in this group, Petersen compares food security policies in Vietnam, Indonesia and Australia to provide lessons in food security with an international perspective. The last paper of this section is written by Petersen, Vu and David Vanzetti and is an evaluation of Vietnam's food security. The information in the overview provided by Vu is used to evaluate Vietnam's food security policies against the ten policy principles provided by Petersen. Strengths and weaknesses are outlined, and a set of seven recommendations for food security policy reform in Vietnam are suggested. The paper notes that development of capacity for evidence-based policy analysis is required to build an effective and efficient suite of food security policies in Vietnam.

The third group of papers relates to evidence-based food security policy analysis and contains three papers. The first is written by Tran Cong Thang, Vu Huy Phuc and Petersen and presents results of a survey of 221 stakeholders on perceived strengths and weaknesses of food security policy and its development in Vietnam. The second paper in this section, by Vanzetti, Petersen, Pham Lan Huong and Nguyen Ngoc Que, is a review of the analytic methods available to Vietnam policymakers who wish to conduct evidence-based policy analysis to address the issues of food security. The paper presents a taxonomy of model types and features, examining the theoretical foundations, available data and institutional issues relating to these models. Eight recommendations are suggested regarding developing modelling capacity for evidence-based policy analysis in Vietnam. The last paper is written by Ray Trewin and complements the previous paper by focusing on how the results of analyses can be disseminated to different stakeholders (including ministers, government officials, professionals, business and the public).

The contributors to this monograph hope the research provided makes a significant contribution to the debate regarding food security policy and its development in Vietnam, and is a catalyst to food security policy reform and improved capacity for evidence-based food security policy analysis in Vietnam.

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Acknowledgments

Many people have provided information and guidance to support this project. Special thanks go to Dr Cam Van Doan, Dr Nguyen Thanh Duong, Ms Vu Hoang Yen, Ms Nguyen Hong Nhung, Mr Luu Ngoc Luong, Mr Uong Dinh Hoang, Mr Tran Anh Dung, Mr Cao Lam Anh, and Mr Nguyen Gia Hiep from the Agricultural Economics Department of the Ministry of Planning and Investment; Dr Tran Cong Thang, Ms Nguyen Le Hoa, Vu Huy Phuc and Dinh Bao Linh from the Institute of Policy and Strategy for Agriculture and Rural Development, Ministry of Agriculture and Rural Development; and Dr David Vanzetti and Dr Ray Trewin from the Australia National University.

The research reported in this monograph was funded by ACIAR under project ADP/2015/001. The careful guidance of Dr Ejaz Qureshi, Research Program Manager, Agricultural Development Policy, ACIAR, and the editorial support of Anne Moorhead are much appreciated.

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Overview of agricultural development in Vietnam

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Abstract

Due to the rapid increase in food production and productivity since the *Doi Moi* reform, Vietnam now meets most of its basic food needs through domestic production, and even has surplus for export. This significant increase in food production and productivity means that the agricultural sector is relatively efficient, productive and of high quality compared with 30 years ago, with an international market orientation of increasing competitiveness for export goods and services. Over the last 30 years, the agricultural sector in Vietnam has restructured. As a percentage of agricultural/forestry/fisheries GDP, the fisheries and livestock sectors have expanded and the forestry and cropping sectors have contracted, although all have grown in absolute terms. The fisheries sector has restructured towards aquaculture and larger scale capture fisheries of higher value products. Vietnam is confronting a number of difficult issues, including floods, droughts and pest and disease outbreaks, which all occur quite frequently. This situation is complicated by the impact of global climate change. Also, due to some difficulties in agricultural production, especially in mountainous areas, ethnic minorities still suffer from hunger and famine. Constraints to development of Vietnam's agricultural sector are highlighted as problems of sustainability (both economic and environmental), ineffective organisation of the supply chain, low incomes, poor access to essential services, and inadequate policy mechanisms. The elements of agricultural production in rural areas are yet to be allocated by the market, and are still being allocated according to government direction and subsidy. This includes land and water resources and the application of science and technology. Addressing these constraints is likely to lead to further advances in agricultural productivity, economic efficiency and economic growth.

INTRODUCTION

Agriculture, farmers and rural areas have a strategic role in industrialisation and modernisation processes which help to build and protect a state's prosperity. Agriculture is a foundation for a state's economic development, sustainable society, political stability, and national security. If agricultural development is managed well, it also preserves and promotes the national cultural identity and can contribute to ecological sustainability.

The *Doi Moi* reform process[1], which began in 1986, contributed to enhancement of Vietnam's agricultural productivity and production quality, making significant progress towards food security for the nation (MPI 2014). Some export commodities have strong competitive advantage in the world market, contributing significantly to export volume and economic growth of the country. To take advantage of the potential to further integrate into the world market, and in light of future challenges (such as climate change), Vietnam needs to maximise its competitive advantage in agriculture, thus contributing to national growth and food security.

This overview of agricultural development in Vietnam is presented in two sections:

- Achievements in agricultural development and national food security; and
- Constraints to agricultural development.

1 *Doi Moi* literally means 'economic renovation'. It is the name given to the set of economic reforms initiated in Vietnam in 1986 with the goal of creating a 'socialist-oriented market economy'.

ACHIEVEMENTS IN AGRICULTURAL DEVELOPMENT AND NATIONAL FOOD SECURITY

Achievements in agricultural development and national food security are discussed here in four sections:

- Agricultural development and increased food productivity;
- Breakthroughs in productivity;
- Restructuring the agricultural and rural economy; and
- A new rural development strategy.

Agricultural development and increased food productivity

Industrialisation and modernisation progress in Vietnam have put significant pressure on the agricultural sector in terms of land conversion (where significant areas of land have been converted from rural to semi-urban or urban uses), and infrastructure development. The contribution of agriculture to overall GDP has been declining, but its role in job creation and food production for the poorer populations in rural areas makes an important contribution to food and social security, and economic growth. The agricultural sector provides employment for about 24 million people which is approximately 46% of total employment in the country (MPI 2015a).

In reality, after 30 years of the reform process, significant improvement in food security is one of the greatest achievements of Vietnam's agricultural sector. In 1984–86, Vietnam produced approximately 18 million tonnes (t) of rice per year, or an average of 20 kg/capita/year (MPI 2015a). With few options to import rice at the time, this resulted in a severe shortage of food and a weak economy that was depending on food aid. Since then, rice productivity has increased such that production exceeds domestic demand and Vietnam is one of the top five rice exporters in the world (EIU 2015).

The conversion rate of agricultural land and labour to urban and industrial uses is considerable—approximately 70,000 hectares (ha)/year and 100,000 labourers/year, respectively. Despite this, the agricultural sector continues to grow at approximately 3.5% per year (Figure 1), 3% per year from agriculture, and 5% from both forestry and fisheries (GSO 2015; MPI 2015a). These achievements in the reform period have contributed greatly to the overall development

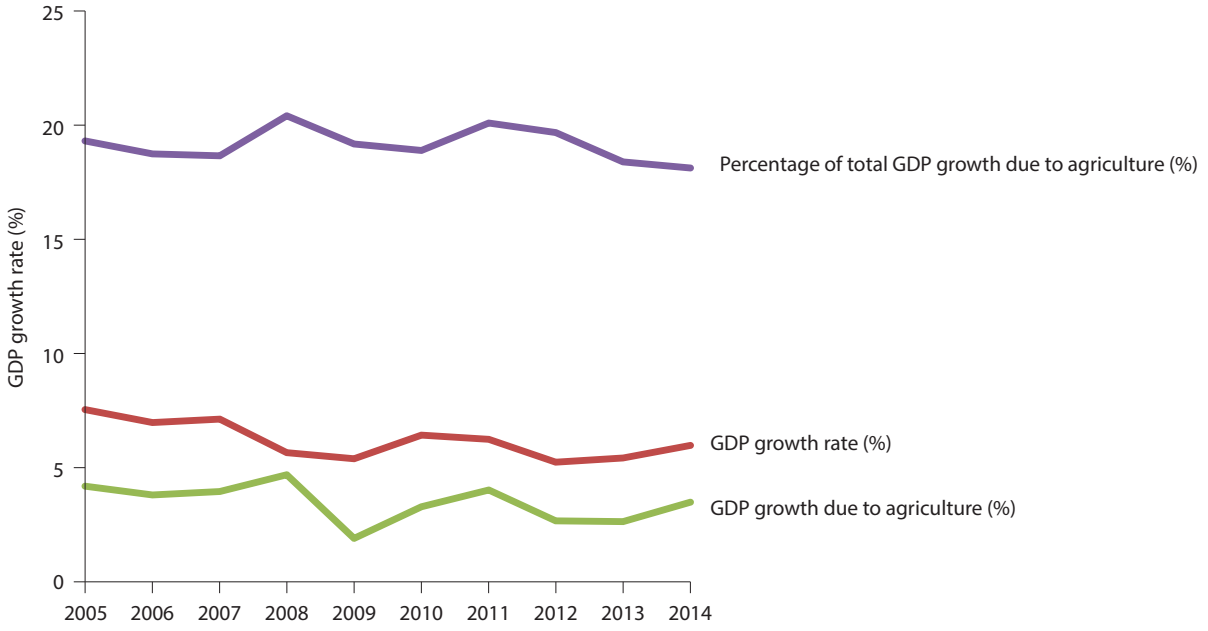

Figure 1. Growth rate of Vietnam's agricultural sector in recent years (2005–14). Source: GSO (2009, 2015).

of the country. Agriculture provides some buffering capacity when the overall economy suffers, although it is exposed to seasonal and price variability, and losses due to pests and diseases and natural disasters. The Vietnamese government considers agriculture to be a key driver of sustainable development and macroeconomic stability.

Breakthroughs in productivity

In the initial period of the *Doi Moi* reform, agricultural productivity increased dramatically, and the country was able to meet most of its domestic food demand early in the process. Some staple goods have increased both in productivity and output (Table 1).

Crop production

In 1986, average productivity of rice was 2.8 t/ha and total gross production was 16.0 million t. In the 10-year period from 1986 to 1996, this increased to 3.3 t/ha through the use of new varieties and advances in irrigation, fertiliser use and crop protection. The period of industrialisation and modernisation (1996 to present) had the strongest growth. In 2014, rice production reached 5.8 t/ha on 7.8 million ha with a total production of 45 million t (the highest production of all crops in Vietnam). This was almost three times the production of 1986. There have been significant increases in other crops too. Corn production increased from 1.4 t/ha (600,000 t/year) in 1986 to 4.4 t/ha on 1.2 million ha (5.2 million t/year) in 2014, more than a nine-fold increase. Total grain output (including paddy rice and maize) reached 50 million t in 2015.

Other crops that also saw increased production include sweetpotatoes (140,000 ha with a production of 1.5 million t—an increase of 100,000 t since 2011), and cassava (550,000 ha with a production of 10 million t—an increase of 190,000 t since 2011).

Productivity and production of vegetables, especially beans and other legumes, have also increased. The area of vegetables and legumes reached 1 million ha in 2015, with a productivity of 170 kg/ha and production of 15 million t (an increase of 3.4 kg/ha and 1 million t/year since 2011). The area of land for peanuts reached 230,000 ha in 2015, with production of 541,000 t. Soybean area was approximately 134,000 ha with production of 208,000 t. Sugarcane area was 310,000 ha, with a production of 20 million t—an increase of 28,000 ha and 3 million t compared with 2011.

Table 1. Productivity and production of Vietnam's major agricultural products, 1986–2014.

Commodity	Indicator	1986	2006	2014
Rice	Productivity (t/ha)	2.8	4.9	5.8
	Total production (million t)	16.0	35.8	45.0
Corn	Productivity (t/ha)	1.4	3.7	4.4
	Total production (million t)	0.6	3.9	5.2
Sugarcane	Productivity (t/ha)	–	58.0	65.3
	Total production (million t)	–	16.7	19.9
Pepper	Productivity (t/ha)		2.0	2.6
	Total production (thousand t)	3.6	78.9	147.4
Cashew	Productivity (t/ha)	–	0.9	1.2
	Total production (thousand t)	–	227.1	345.0
Coffee	Productivity (t/ha)	–	2.0	2.3
	Total production (thousand t)	–	985.2	1,395.6
Rubber	Productivity (t/ha)		1.6	1.8
	Total production (million t)	0.1	0.6	1.0
Fisheries	Wild caught (million t)	0.6	2.0	2.6
	Farming (million t)	0.1	1.7	3.4

Source: GSO (2015), MPI (2015a).

The production of perennial industrial plants continues to grow, and this has become one of the fastest growing parts of the agricultural sector in recent years. By 2015, it is expected that the area of rubber production will be 1.0 million ha and dry latex production will be approximately 1 million t, an increase of 210,000 t compared to 2011. Coffee area is approximately 620,000 ha, an increase of 34,000 ha since 2011. Coffee production has reached 1.4 million t, an increase of 103,000 t compared with 2011. Tea plantings cover 130,000 ha, an increase of 3,000 ha since 2015. Tea production reached 1 million t of fresh buds, an increase of 178,000 t since 2011. The pepper area is approximately 66,000 ha, an increase of 10,000 ha since 2011. Its output is approximately 147,000 t, an increase of 33,000 t since 2011. The area of cashew has a downward trend. The area is approximately 305,000 ha, which is 59,000 ha less than in 2011. Production is approximately 386,000 t, a reduction of 36,000 t compared with 2011.

Animal husbandry

Animal husbandry faces many challenges, including price fluctuations and competition with imports (both legal and smuggled). Other factors that affect production negatively include adverse seasonal conditions (especially in northern Vietnam) and diseases (such as Asian avian influenza, foot-and-mouth disease and green-ear disease). While innovations in feed and veterinary services have led to an increase in domestic livestock productivity, the livestock industry has not achieved the government's targets for production.

Livestock products of all kinds in 2015 are expected to reach 4.8 million t. Egg production is expected to reach 8.8 billion eggs, fresh milk output is expected to reach 550,000 t, and industrial feed production is expected to reach 16 million t (MPI 2015a).

Imports of livestock products have increased in recent years, especially beef. Exports of many livestock products have also increased (MARD 2015).

Forestry

Vietnam's forestry policy aims to protect sections of current forestland (including gradual restoration and improvement), and encourages the generation of timber products from other areas. This way, environmental and economic objectives can be met in different regions. The estimated value of export furniture and other forestry products in 2015 is around US$7 billion (MARD 2015).

Fisheries

The development of fisheries in Vietnam has taken advantage of its strengths. Both fish farming and offshore fishing have expanded. The quantity of seafood products has increased constantly over these past years. These achievements have become a significant driver of agricultural growth in recent years.

In 2015, it is estimated that there are about 115,000 fishing boats, with a capacity of 6.6 million horsepower. The water surface area for aquaculture has reached 1.3 million ha. Total fisheries production reached 6.0 million t in 2014 (an increase of 3.3 million t since 2011), in which aquaculture output was 2.6 million t. Brackish water shrimp production has increased rapidly (reaching 0.7 million t in 2014, an increase of around 37% compared to 2011) and accounts for 50% of aquaculture production in brackish saltwater and 18% of aquaculture production.

Restructuring the agricultural and rural economy

The contribution of agriculture, forestry and fisheries to Vietnam's GDP has fallen from 39% in 1986 to 18% in 2014. A declining share of agriculture in national employment and GDP is an inevitable consequence of economic progress (Cervantes-Godoy and Dewbre 2010). However, agricultural GDP has been increasing over this time in absolute terms (GSO 2015; MPI 2015b).

The process of modernisation has impacted on the structure of agriculture, forestry and fishery sectors. Fishery has grown at a faster pace than the other two sectors. The proportion of fishery growth in the GDP growth of agriculture, forestry and fishery together increased from 6% in 1986 to 30% in 2013 (GSO 2015). Within agriculture, while GDP from livestock and crops has been increasing in absolute terms, the share of the livestock sector has been constantly increasing while the share of the cropping sector has been constantly decreasing. The share of livestock in agriculture has increased from 17% in 1995 to 27% in 2014, with an average annual increase of 0.6%.

The structure of the cropping sector has changed towards a diversification of crops and a reduction in

monoculture (especially rice) to increase the land usage efficiency. The proportion of grain crop area decreased from 72% in 1990 to 56% in 2014, with a trend of reducing the area sown to rice and increasing that sown to corn. The total area of industrial crops and fruit trees has increased over the same period (GSO 2015).

With respect to the animal husbandry sector, there has been a change in the structure of the livestock and poultry industries, with an increase in the number and proportion of cattle raised for beef and milk production rather than raised specifically to help manually plough fields for crop production. Pig growout industries have increased which has led to an increase in the quality of meat (a higher proportion of lean meat in pigs). This increases the value of the pork product, meeting the quality requirements of the domestic and export markets.

The structure of the forestry sector has shifted from a state-owned forestry industry towards social forestry (the management and protection of forests) with many participants working to rejuvenate, generate and protect forest capital (MARD 2015).

The structure of the fishery sector has seen a dramatic change, from a sector dominated by wild-catch fishing to the dominance of aquaculture. The proportion of fishery products to aquaculture products is now approximately 30:70 (compared with 55:45 in 1990). Restructure of the fishing industry has moved from coastal fishing with small-capacity boats and catching low-value products to offshore fishing with larger equipment catching higher value products (MARD 2015).

A new rural development strategy

New Rural Development (NRD) is a new policy of the Communist Party. The policy aims to encourage rural residents to work towards improving the material and spiritual lives of the Vietnamese people. This policy is designed to make significant practical change, especially with respect to agricultural investment. It is intended to be a social movement in the country.

In addition to the fundamental goals of improving infrastructure, increased economic development and incomes are also priorities of the policy. The policy includes a number of different strategies including the encouragement of best management practices. As the main source of income in rural areas, agriculture still plays a pivotal role in the rural economy. Therefore, it is expected that restructuring agricultural will raise the income of the rural-based population. Separate NRD schemes are established for each commune based on national and regional economic development plans and agricultural development plans. Many localities have implemented the NRD program rapidly, accelerating economic restructuring plans in rural areas towards commodities with relatively high value-added and competitiveness (MPI 2014a).

It has been five years since NRD was initiated. Generally, areas that have implemented NRD schemes have improved essential infrastructure providing momentum for economic development. Many provinces have enacted flexible systems which fit the specific condition of each region to mobilise resources for investment in the most efficient uses. The proposal of each village unit is built on the basis of identified groups of plants, animals, or industry advantage. Many communes have focused on the direct implementation of projects in the field. It is expected that by 2015, 51% of the communes will meet the NRD policy's income criteria, 76% of communes will meet the employment criteria, and 46% of communes will reach the poverty criteria. By 2015, it is expected that 20% of communes will be recognised as new rural communes (MARD 2015).

CONSTRAINTS TO AGRICULTURAL DEVELOPMENT IN VIETNAM

Four constraints to agricultural development in Vietnam are discussed in this section:

- Development is not sustainable;
- Ineffective organisation of production;
- Low incomes and poor access to essential services; and
- Inadequate policy mechanism.

Development is not sustainable

The environment is becoming increasingly polluted in Vietnam. Land pollution is increasing due to the increased use of chemicals. There has been an increase in the use of plant protection products and growth stimulants (which cause soil contamination) and agricultural residue (toxic chemicals remaining in products purchased by the consumer). Rivers, streams,

ponds and lakes are becoming increasingly polluted by domestic waste from factories, hospitals and schools as a result of urbanisation. Air pollution is increasing in the rural industrial zones (MPI 2015a).

Agricultural land is still highly fragmented which increases the risk for agricultural enterprises. Productivity growth and the meeting of consumer standards are constrained by this fragmentation. Agricultural development between regions is uneven. Production is concentrated in the Mekong River Delta. Agricultural development in mountainous and remote areas is limited, with many places still focused on subsistence farming. The output of agriculture, forestry and fisheries is not linked to processing. Quality management and food safety programs with clear origin requirements are ineffective and causing a barrier to participation in agricultural supply chains (MPI 2015a).

Ineffective organisation of production

While the structure of the rural economy is adjusting, the manufacturing and services sectors are developing slowly. The link between agricultural production and processing is weak. While improvements have been made to the food processing industry, processing technology is still largely outdated. The prices of agricultural inputs (such as veterinary medicine, plant protection products, animal feed, fertiliser etc.) are still relatively high which leads to high costs of production (MARD 2015).

Improvement to the organisational structure of agricultural production is happening at a slower rate than set out in the goals of government policy. Small family farms are still the most common business unit, producing food staples in rural areas. This is revealing the limitations and weaknesses of small-scale production, such as constraints to mechanisation and achieving economies of scale and scope, and therefore relatively high costs of production. Many existing cooperatives operate inefficiently (MPI 2014a). The number of value-added enterprises in agricultural and rural areas is small (1.6% of the total enterprises in the country) and growing slowly, with weak competitiveness and lack of links with farmers (MPI 2015a). State-owned enterprises have not shown a leading role in linking with farmers. The area operated by state-owned agricultural farms is large (2.8 million hectares) and MARD (2015) argues that they are run inefficiently.

Low incomes and poor access to essential services

Infrastructure and essential services are poor in many rural areas of Vietnam, especially in mountainous areas. Hunger and poverty exist in these areas, and industrialisation and modernisation are progressing only slowly. Infrastructure that does exist is often of poor quality. The NRD program has been slow, and hence new and improved infrastructure development has also been slow (MPI 2015a).

Vietnam has achieved rapid growth with only modest increases in income inequality (World Bank 2014). However, there are substantial differences in economic conditions by geography and ethnic group. Labour structure is shifting slowly, with the proportion of agricultural workers still high. Social security for the rural population is inadequate and farmers often have to bear the consequences of adverse seasonal and market conditions or natural disasters with little assistance (MPI 2015a). The quality of medical care, teaching and learning, and cultural and sporting events in many areas remains low, again especially in the mountainous regions.

Education levels of agricultural labourers are still very low. Change of occupation from agriculture to the construction, manufacturing and service sectors is slow. The industrial sector lacks skilled workers but often cannot attract employees from rural areas due to their lack of expertise (MOLISA 2014).

Inadequate policy mechanisms

Policies on developing agricultural and rural areas are essentially complete but their comprehensiveness and effectiveness, and policy coordination, are still low. Regarding investment, there are many public investment policies for agriculture and rural areas, and because each policy has its own resources allocated from the central steering committee, it is difficult for local authorities to integrate capital, reducing the power and efficiency of investment.

Many policies for agriculture and rural development are not appropriate, and are heavily subsidised by the state. They are not empowering poor people towards self-improvement. Rather, these policies make the poor more dependent on the government and authorities. For example, policies aiming to eliminate hunger and poverty or other social security policies, may by

accident encourage provinces, districts, communes or households to claim to be poor (MPI 2014).

The elements of agricultural production in rural areas are yet to be allocated by the market, and are still being allocated according to government direction and subsidy. This includes land and water resources and the application of science and technology. This is leading to economic inefficiency, reduced economic growth and waste.

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Policy development

Policy development in Vietnam: theory vs practice

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Abstract

The formulation of Vietnam's legislation and policies has been prioritised since the country's independence. The policy development process in the early stages of independence lacked sufficient consultation with stakeholders, although implementation was quick. The process of law and policy formulation has been standardised and improved over time, with greater emphasis on consultation. However weaknesses remain, including lack of coordination across the large number of agencies that develop policies, excessive detail in policies and associated regulations, poor policy feasibility and predictability of outcomes, simplistic policy impact assessment, a lack of specific and measurable indicators, and limited resourcing from the state. Processes of policy development are outlined in legislation. Laws are passed by Parliament (the National Assembly), ordinances by the Standing Committee of the National Assembly, and government decrees by relevant ministers. These documents contain government policy and their development processes must include review of related legislation and scientific research, assessment of expected impacts, and estimation of resource requirements. Consultation, appraisal and legal verification processes are required before they can be passed. To aid understanding of these processes, this paper includes a case study of the 2015 decree on incentive policies for investment in agriculture and rural areas, to describe the processes and steps that were involved in its promulgation and implementation.

INTRODUCTION

The aim of this paper is to describe the processes by which policy, and specifically food security policy, is developed in Vietnam. These processes differ depending on the type of policy, who leads its development, and the issue which the policy addresses. Hence, the practice of how policies are developed in Vietnam differs from the theory.

The paper is organised into four sections. The first describes the food security policies that were in place from 1945 to 1986. This includes a brief summary of the strengths and weaknesses of the policies and the policy development process. The next section describes food security policies that have been in place since 1986, outlining the strengths and weaknesses of the policy development process during this period. The following section provides a detailed description of the current policy development process in Vietnam. A case study on the development of the decree which articulates policies to encourage business investment in agriculture and rural development is provided in the final section.

FOOD SECURITY POLICIES 1945–86

After the August Revolution of 1945, whereby Vietnam achieved independent self-government, food security policies focused on solving hunger in the country. At that time, solving hunger was not only an economic priority but also a political one. In its first session (3 September 1945), the provisional government council discussed solutions to combat hunger. On behalf of the Government, President Ho Chi Minh promulgated an ordinance titled 'Launching agricultural production for the entire population'. In addition, the Government enforced a number of sanctions, such as:

- banning the use of food for making wine;
- removing obstacles to domestic rice transportation (rice transportation from southern and central regions to the north was required urgently; in the last 3 months of 1945 approximately 700 tonnes of food aid rice was transferred to northern provinces);
- forbidding rice speculation; and

- establishing national government committees for food supply and assistance.

According to Lam (2007), in his book 'Problems of Vietnam's Land', these food security policies achieved positive results.

At this stage agriculture was collectivised, whereby rural workers were organised into 'brigades' that jointly farmed each commune's land.

In order to achieve food security and abolish famine, the Government's next target was agricultural land reform for farmers, which focused on reducing land rents and tax. For example, based on a decision of the government council, the President issued an ordinance in 1949 which stated that land rents had to be 25% of those before 19 August 1945; and the President signed a comprehensive ordinance (amounting to 11 chapters and 40 articles) in 1953 regarding land regulation which further addressed rent reduction and refunds as well as land receivership and ownership.

In 1953, the President signed a separate ordinance titled 'Law on land reform', that consisted of five chapters and 38 articles. This ordinance specified the content of agrarian division, expropriation and compulsory purchase with the aim of 'farmers having land'.

Some strengths of the policies from 1945 to 1986 are as follows:

- Land was transferred from rulers, who owned the majority of land, to farmers, who were mostly labourers and in the poorest strata.
- Production was encouraged in rural areas.
- The policies were respected and implemented immediately.

Some weaknesses of the policies during this period are as follows:

- The Government was newly formed, inexperienced and heavily structured on class distinctions—rich/poor, landowners/farmers etc. The policies were nascent, simple and not fully developed.
- Though the main target of the policies was food security, there were many second-order targets that were aligned with contemporary political thought on class division and struggles. Consequently, when implemented, these policies led to adverse results and made a number of mistakes, especially in the law of land reform.

The policy development process in the early stages of independence was simple. Policies were issued by ordinance and law and were respected and implemented quickly. However, they were normally developed without consultation with stakeholders (those impacted by the policies).

FOOD SECURITY POLICIES FROM 1986 TO PRESENT

Since the late 1980s, policies on food security have focused on land management mechanisms and the structure of agricultural and forestry production. In order to encourage land ownership and increased responsibility in land protection and utilisation, the 1988 Land Law (and its key implementation directive—Resolution No. 10) was approved by Congress. Consisting of six chapters and 57 articles, the law changed Vietnamese agriculture from the collectivised system to one where individual farm households had responsibility for production. Farmers were allocated land, and had rights over their allocated land with few obligations except paying taxes. They were largely free to put the land to the most beneficial use. Resolution 10 acknowledged that "farmers are autonomous economic units", and allocated land to individual farm households on a long-term basis (15 to 20 years) for short-term crops (one to two cycles for perennial crops). However, it did stipulate government production contracts and that the area of land under rice cultivation should be no less than 40%.

The 1988 Land Law resulted in the restructure of agriculture across the country. Socioeconomic activities in rural areas were decentralised and the economic function of rural households was established. This was a crucial step in the country's transition to a market economy and had a significant impact on agricultural production. The Land Law, together with achievements in irrigation, improved varieties, intensive cultivation in the North Delta and cultivated land expansion in the Mekong Delta, reinvigorated Vietnamese agriculture. From a starting point of chronic food shortages (Vietnam imported more than 450,000 tonnes of rice in 1988), rice production increased such that Vietnam was

a net exporter of rice by 1991 (Kompas et al. 2009). It is still one of the dominant rice exporters across the world.

The 1988 Land Law has undergone a number of revisions, the latest in 2013. While ownership of land remains with the state, the revisions have changed incentives for land use so that they are increasingly similar to private property land use rights. However, the Government still makes a significant number of production decisions, and there are still limitations on how land is used and allocated. For example, there are limitations to how much land a household or individual can use, and the area of land that must be under rice cultivation is stipulated by region.

From 1990 to the present, food security policies have shifted towards providing support to organisations and individuals to invest in production in order to ensure food security and create rural jobs. These policies have been specified by national target programs, for example:

- the national target program on poverty reduction commenced in 1996, and is the predecessor of the current national target program on sustainable poverty reduction;
- the national target program on labour and employment (commencing in 1998); and
- the national target program on rural renewal (commencing in 2010).

The policy development process in Vietnam has been improving gradually since the late 1980s. Policies and associated regulations are developed carefully by many authorities based on their assigned functions and missions (including Parliament, the Government, the Prime Minister, the Ministry of Agriculture and Rural Development (MARD), the Ministry of Planning and Investment (MPI), and the Ministry of Labour—Invalids and Social Affairs). The development process is evolving to include greater consultation with relevant stakeholders. However, there are still significant weaknesses in the current development process:

- Policies are developed and issued by many different agencies and there is a lack of coordination leading to duplicated content across policies.
- Some policies include excessive detail, and require detailed guidance documents, which delays implementation.
- Policy feasibility and the predictability of outcomes is often poor.
- Policy impact assessment is very simple, with a lack of specific and measurable indicators, leading to the modification of many policies after a short time.
- State resources to support policy development are limited, with some policies requiring funding from foreign donors.

CURRENT POLICY DEVELOPMENT PROCESS

The process of legislative policy development in general, and food security policy development in particular, has been gradually defined in legal documents. In 1988 the State Council issued regulations on developing laws and ordinances, and these regulations were amended and replaced in 1996, 2002, 2008 and 2015. The current law on legal document promulgation is Law No. 80/2015/QH13.

The current law sets out principles, content, form, order and procedures for the development and promulgation of legal documents. It also sets out procedures for accountability of state agencies, organisations and individuals in legal document promulgation.

The processes for developing food security policies differ depending on whether they are laws, ordinances or decrees:

- Laws of Parliament (the National Assembly) are the system of rules that address fundamental issues across a wide range of fields with associated rights and obligations. The Constitution is the fundamental law that establishes the relationships of different entities of government.
- Ordinances of the Standing Committee of the National Assembly contain regulations explaining the Constitution and other laws.
- Government decrees provide guidelines on the implementation of higher legal documents including specific action to implement policy, allocation of specific tasks to ministers, and identifying areas which are not mature enough to develop into laws or ordinances.

The processes for developing policies, or changing existing policies, are outlined in Table 1.

Table 1. Processes for development of, or changes to, laws, ordinances and decrees in Vietnam.

	Laws and ordinances	Decrees
Who can draft the document?	President, National Assembly Standing Committee, Committee of the National Assembly, the Government, the Supreme People's Court, the Supreme People's Procuracy, the State Audit, the Central Committee of Vietnam Fatherland Front and the central agencies of the member organisations of the Front	Ministries and ministerial agencies themselves, or as directed by the Government, Prime Minister, recommendations of agencies, organisations and individuals
To whom is the document submitted?	National Assembly and National Assembly Standing Committee	Prime Minister
Before presenting the proposal, organisations or individuals must perform the following:	• Review related legislation • Survey and assess the situation of related social issues • Carry out scientific research on related issues • Study related information, reports and international conventions of which Vietnam is a member; if necessary, request agencies, organisations and individuals to provide documents and information related to the proposal • Develop policy content in the proposal and assess the impact of the proposed policy • Estimate required resources and conditions for implementation of the policy after approval	
Consultation	• The author of the proposal should consult with agencies, organisations and individuals expected to be impacted by the proposal. This consultation process should include a clear explanation of the proposed policy, and related research findings with relevant explanations. The proposal should be amended to include comments and changes resulting from the consultation process. • Final reports and impact assessment reports of the proposed policy should be published on the government portal as well as the portal of the proposing agencies or organisations. This must be done at least 30 days before it is presented. • Consultation must include the Ministry of Finance, the Ministry of Home Affairs, the Ministry of Foreign Affairs, the Ministry of Justice, and other impacted agencies and organisations. If necessary, meetings/workshops should be organised for comments on the policy proposal.	
Appraisal	The Ministry of Justice presides over the appraisal process, in collaboration with the Ministry of Finance, the Ministry of Home Affairs, the Ministry of Foreign Affairs and involved agencies and organisations. Appraisals are submitted to the Government within 20 days of receipt of appraisal application.	
Legal verification	The Legal Committee verifies law and ordinance proposals and recommendations for the National Assembly. The Committee of the National Assembly and the Parliament Committee are responsible for coordinating the legal commission in examining law and ordinance proposals and recommendations, giving their opinions on the need of promulgation of policies and documents, and the priorities of policies and documents in the fields under their charge.	Ministry of Justice presents an evaluation report
Consideration of approval	National Assembly	Government vote

Source: Law No. 80/2015/QH13.

CASE STUDY: THE DECREE ON INCENTIVE POLICIES FOR INVESTMENT IN AGRICULTURE AND RURAL AREAS

In 2010, the Government issued Decree No. 61/2010/ND-CP which outlines policies to encourage business investment in agriculture and rural development. The decree included policies on a number of related issues including taxes, land rent, support and training, technology and consultation. There were some shortcomings in the development process for this decree. Moreover, once implemented, the policies were not viewed favourably by the business community as it was perceived that the state did not contribute enough funding to motivate enterprises to invest in agriculture and rural areas, especially in disadvantaged areas. Community support for the policies was low, the content of the policies was not sufficiently focused, and procedures to receive grants from the state budget were cumbersome. As a result, MARD and localities proposed amendments to the decree with the aim of making investment in agriculture and rural areas more attractive to investors. The Government assigned the MPI to review the decree.

Evaluation of implementation of the decree

The MPI carried out an evaluation of implementation of the decree (Hoang 2013). In early 2012, the MPI provided a synthesis report to the Prime Minister (Document No. 4748/BKHĐT-KTNN) which showed the following:

- The objective of the decree was to attract enterprises of all economic sectors to invest in agriculture and rural areas, to develop commodity production, to enhance production and business efficiency, and thereby to foster development of agriculture and rural areas. The policies were designed to support enterprises in solving difficulties such as the quality of human resources, the level of science and technology, and the ability to engage with and access markets.
- However, the MPI found that:
  - the decree targets had not been reached;
  - implementation of incentives and support for business had not been achieved, and direct grants from the budget had not been implemented; and
  - the business community was underwhelmed by the level of support from the budget; it was felt that tax policy, land rent, training support, technology and consultation had not been attractive enough to boost investment in agriculture and rural areas, especially in disadvantaged areas.

The causes of these shortcomings were found to be the following:

- Recession of the global economy, which impacted Vietnam's domestic economy. Economic growth in Vietnam slowed, the consumer price index rose, monetary policy was tightened and public spending was reduced. These all affected business, and particularly small and medium-sized enterprises who were the targets of this decree.
- The level of incentives and support for investment provided in this decree was not great enough to attract the business community to invest in agriculture and rural areas, where business risk is high and benefits are low.
- Some support measures (transportation, consulting, market development, etc.) were not consistent with the actual needs of business. The issues businesses faced were not solved by the decree.
- The design of the decree was complex. Grants were divided into many parts including advice, vocational training, scientific research, advertising and marketing, transportation, etc.
- Implementation guidelines of the MPI and the Ministry of Finance (MoF) stifled business investment. For example, small amounts of support still required certification.
- The financial regulations were unclear and unspecific, and procedures to receive grants from the state budget were cumbersome and complex.
- The main issue faced by local businesses was a shortage of capital; but capital was limited and difficult to access.
- Promotion of the decree was insufficient, and many businesses and other organisations were unaware of it.

Revising the decree

The MPI established a committee and editorial team who drafted amendments to the decree.

Consultation on the draft revised decree

The drafting committee held four workshops on the draft amendments to the decree, in the northern mountainous areas in Son La, the southwest regions in Can Tho, the central coastal highland in Ninh Thuan and a national conference in Hanoi. The workshops were attended by local and national members of ministries, industries and business. At the workshops, the content of the draft amended decree was discussed and it was further revised.

The draft revised decree and related documents were then sent for comment to relevant stakeholders (Document No. 4861/ BKHĐT-KTNN) and 56 responses were received. The draft was published on the electronic portals of the Government and the MPI. The drafting committee studied feedback from all stakeholders and further revised the draft.

Appraisal

The MPI submitted the draft revised decree and an impact assessment report to the Ministry of Justice for appraisal. Under the guidance of the Deputy Prime Minister, the MPI coordinated with relevant ministries and industries to complete the government proposal letter and draft decree. This involved a number of workshops.

Government consideration and acceptance

In 2013, based on the government proposal letter and draft decree, the Government issued an official dispatch to consult with members of the Government about the decree. Government members voted for the promulgation of this decree with 85% of members in favour (23/27). The decree was reviewed, completed and issued by the Prime Minister on behalf of the Government. This decree (No. 210/2013/NĐ-CP) has been effective from 10 February 2014.

Decree implementation

After the Government issued the decree, the relevant ministries developed guidelines for its implementation as follows:

- MPI issued a circular on implementation of the decree (Circular No. 05/2014/TT-BKHĐT);
- MoF issued a circular on estimation, payment and finalisation of grants under the decree (Circular No. 30/2015/TT-BTC);
- MARD issued a circular with a list of high production breeds (Circular No. 14/2014/TT-BNNPTNT) and another with a list of supported agriculture/forestry/aquaculture products, auxiliary products, mechanical products for preservation and processing of agricultural, forestry and aquaculture products according to the decree (Circular No. 43/2014/TT-BNNPTNT); and
- the Ministry of Health issued a list of priority medicinal plants for the period 2015–20 (Decision No. 206/QD-BYT).

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Comparison of policy development in Vietnam, Indonesia and Australia

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Abstract

Vietnam is a single-party state, with the only legal political party being the Communist Party of Vietnam which has great influence over the National Assembly (Parliament). This leads to a stable policy direction, but liberal inspired research findings tend to face obstacles in the form of conflicting ideology and economic interests. Indonesia's President is seen as the country's most influential policymaker, holding the apex of power and setting the policy agenda. Indonesia has multiple strong political parties that govern in coalition and who face difficulties forming consensus on decisions and making reforms. In Australia, the real authority of government is exercised by a small group of ministers called the Cabinet (the institution that must consider political, policy and administrative implications of any proposition, and settle a government position). Despite the power and significance of Cabinet, it is essentially an informal body governed largely by convention. Regarding the policy cycle, in Vietnam the process of policy and law formulation has been standardised and improved through time. However, stages in this process can be poorly completed due to a lack of capacity, time and/or resources. This leads to weaknesses in policy feasibility, predictability, outcomes and implementation conditions. The way in which civil servants are recruited, trained, managed, promoted and remunerated continues to be highly politicised, constraining the quality of policymaking. There is little documentation on any official procedures for policy development in Indonesia, leaving considerable discretion with the President. Of concern in both Vietnam and Indonesia is that policy compliance is extremely costly and time consuming. As a result, firms often sidestep these rules through deals such as bribes or favour through political connections. Developing the capacity and tools for evidence-based policy analysis is key to building a strong policy framework in Vietnam and Indonesia. Simplifying policy rules and strengthening governance will result in an increase in policy adherence, effectiveness and efficiency.

INTRODUCTION

Public policy is the process by which a society makes and enforces decisions on what behaviour is acceptable and what is not (Wheelan 2011). It is a course of action by government designed to attain specific results, and is separate from private policy of non-government organisations. The way in which policy is developed in a country affects the policy outcome. A clear understanding of how policy is developed is key for research organisations and the wider community to engage in the policy development process.

Policymaking is a process, and stages within the process can be hard to identify, often because the policies are under continual development, stages overlap, or stages are skipped or fast-tracked due to time pressures. A policy should have just one policy instrument chosen to achieve any one policy objective (the Tinbergen Rule—Tinbergen 1952). In practice, policy outcomes can be counter to policy objectives due to conflicting objectives, multiple and conflicting instruments, as well as poor implementation or coordination.

Any one government may make thousands of policy decisions in a year. Policies vary in their complexity, visibility (public attention), controversy, uncertainty, time duration of impacts, degree to which they may impact on the election of successive governments (if they are held), and whether their impact is at the international, national or regional level.

The purpose of this paper is to articulate the processes by which public policy is developed, to help

facilitate engagement by research organisations and the wider community in Vietnam's policy development process. This paper focuses on policies related to food security in Vietnam, including a comparison with Indonesia (another Asian country facing similar issues to Vietnam) and Australia (a developed country). A more detailed discussion for Vietnam, including a case study on a recent example of policy development, is provided by Hoang (2016).

Public policy formulation usually takes place in government departments and the ministerial executive. Decisions are usually made in the parliament, and implementation usually takes place in government agencies. To understand this in more detail, this paper starts with an overview of government in Vietnam, Indonesia and Australia. The policy cycle—from the stage of identifying an issue through to a policy implementation, evaluation and monitoring—is then described, including a discussion of the relevant sector which is responsible for each phase in the policy cycle. Strengths and weaknesses in the policy cycle across the three focus countries are also provided in this section.

OVERVIEW OF GOVERNMENT IN VIETNAM, INDONESIA AND AUSTRALIA

An overview of government in Vietnam, Indonesia and Australia is provided in Table 1. The three governments are democracies—power is held by the people and their elected representatives. Vietnam is a socialist republic, which means it is constitutionally dedicated to the construction of a socialist society, and the head of state is a president (who is elected by the National Assembly). Indonesia (a presidential representative democratic republic) also has a presidential head of state (who is elected by both houses of Parliament) while the head of state in Australia (a liberal democratic monarchy) is the Governor-General who represents the reigning British monarch (appointed by the monarch on advice of the prime minister).

Despite these differences, the elements of government that affect policymaking are similar. Each country is governed by a constitution; has a parliament which ratifies legislation and significant public policies whose members are elected by the people, with ministers being allocated areas of responsibility by the head of government; and has a public service with roles of developing and implementing policy decisions. The differences between the governments of the three countries include the following.

1. The Vietnamese Parliament has one house dominated by one party. This leads to relatively stable policy direction although this direction is entrenched in the views of the party. The Indonesian Parliament has two houses with multiple strong parties and the Australia Parliament has two houses with two strong parties. Policy direction can change quickly in these countries as the party who holds the balance of power can change relatively quickly. In Australia, the two major parties are often reliant on minority parties that can have the balance of power.
2. In Vietnam and Indonesia, voting is voluntary and elections are held less frequently (approximately every five years) than in Australia (approximately every three years), where voting is compulsory,
3. In Vietnam, ministers are members of Parliament (the National Assembly) who hold significant public office and are proposed by the head of government (the Prime Minister) and approved by the Parliament. In Australia, ministers are members of Parliament appointed by the head of government (the Prime Minister). This gives the head of government the power to choose policy direction through their choice of ministers, although they are all ultimately responsible to the Parliament. In Indonesia, ministers are appointed by the head of government (the President) and cannot be elected members of Parliament (the People's Consultative Assembly). This gives the head of government relatively more power than in Vietnam and Australia to set policy direction. It also exposes the Indonesian President to the moral hazard of selecting ministers based on vested interests or incentives provided in exchange for selection as a minister. The influence of ministries is often dependent on the persona and character of their minister and their relationship with the President (Datta et al. 2011).

Table 1. Overview of government in Vietnam, Indonesia and Australia.

Element of government	Vietnam	Indonesia	Australia
Definition of the organisation of government	Government largely defined by a constitution		
Type of government	Socialist republic	Presidential representative democratic republic	Liberal democratic monarchy
Organisation of parliament	Parliament has one house (National Assembly)	Parliament (People's Consultative Assembly) has two houses (People's Representative Council and Regional Representative Council)	Parliament has two houses (lower and upper)
How Parliament is chosen	All members of the parliament are elected by the people		
Compulsory or voluntary voting	Voluntary	Voluntary	Compulsory
Frequency of elections	Every five years	Every five years	Every three years
Number of strong parties who run for government	One party: the Community Party of Vietnam	Multiple parties that have not formed a majority but govern in coalition	Two strong parties
Head of state	President	President	Governor-General (representative of the British monarch)
Head of government	Prime Minister	President	Prime Minister
Selection of ministers	Ministers proposed by the Prime Minister and approved by the National Assembly	Ministers appointed by the President and cannot be elected members of the legislature	Ministers appointed by the Prime Minister
Selection of minister responsibility	Ministers allocated areas of responsibility by the head of government		
The governmental executive	The government (*Chính phủ*), headed by the Prime Minister, and including deputy prime ministers and several ministers	A subset of ministers form a powerful executive (Council of Ministers) who recommend policies to Parliament	A subset of ministers form a powerful executive (Cabinet) who recommend policies to Parliament
Decision-making power	Parliament ratifies law and significant public policies		

In Vietnam, decision-making power is scattered across a number of executive bodies, each with different roles, including the Government, the National Assembly Standing Committee, the Committee of the National Assembly, and the Communist Party of Vietnam (CPV)'s Executive Committee. Despite this dispersion of power, Datta and Huong (2013) argue that formal knowledge is still relatively centralised. Vietnam is a single-party state, meaning that only one political party is legally allowed to hold office. This is the CPV, which has great influence over the National Assembly (with 92% of the 500 seats in the National Assembly in 2015[1]) and the executive bodies. Members of the CPV hold all senior government positions. As a result, and despite pressure to sustain rapid economic growth, liberal inspired research findings tend to face obstacles in the form of economic interests, ideology and informality (Datta and Huong 2013).

In Indonesia, the President is seen as the country's most influential policymaker, holds the apex of power and sets the policy agenda (Datta et al. 2011). Indonesia has multiple strong political parties that govern in coalition. This makes the task of policy formation or reaching consensus on critical policies and reforms challenging (World Bank 2009). The complex set of interactions and interests among political parties and the People's Representative Council-based commissions and individuals, including government ministers and top-level bureaucrats, has resulted in an executive which finds it impossible to form consensus about policy decisions, and which leads to an often confused and inconsistent policy debate (Sherlock 2010).

In Australia, the real authority of government is exercised by the Cabinet (the institution that must consider political, policy and administrative implications of any proposition, and settle a government position) (Althaus et al. 2013). Despite the power and significance of Cabinet, it is essentially an informal body governed largely by convention. There is no reference to Cabinet or to the key office of the Prime Minister in the Constitution, and there is no predetermined process guiding Cabinet membership (which is decided by the Prime Minister) or their decision-making processes. Staff members who serve ministers have strong influence on ministerial attention and therefore the approval of policies.

THE POLICY CYCLE

While policymaking can be represented in many ways, generally a policy cycle is likely to begin with issue identification, and then proceed through policy analysis, policy instruments, consultation, coordination, decision, implementation and evaluation (including monitoring) (Figure 1). These stages can be hard to identify, often because the policies are under continual development, because stages overlap or because stages are skipped or fast-tracked due to time pressures. The phases of the generalised policy cycle are discussed below.

Identifying issues. A new problem emerges in private discussions with interest groups, or in the media, with demand for government action. Sometimes an existing policy ceases to be effective and requires an overhaul.

Policy analysis. Policy analysis is often—though not always—the work of the public service, drawing on broader debate among specialists and practitioners in the policy field. Its objective is to provide decisionmakers with sufficient information about the policy problem to make an informed judgement, and it typically takes the form of briefing papers for senior officials and ministers.

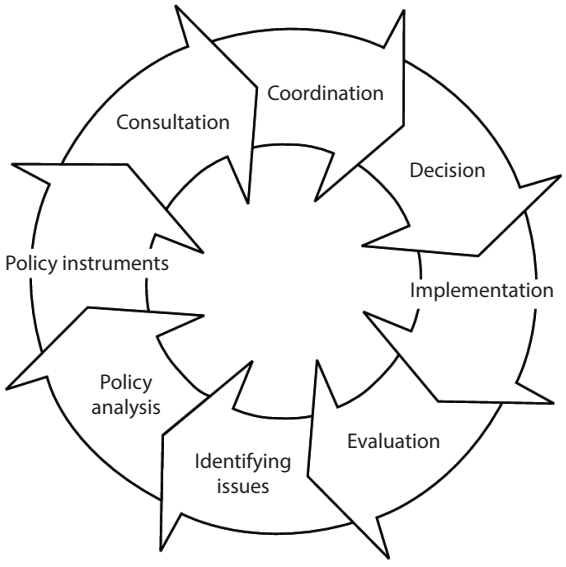

Figure 1. The generalised policy cycle (Althaus et al. 2013).

1 The remaining 8% are individuals unaffiliated with a party. Non-CPV member candidates must be approved by the CPV to stand for election.

Policy instruments. Policy instruments are the tools for turning ideas into reality, tools that allow a government to achieve its policy objectives. There are five common types of policy instruments used:

1. Advocacy: educating or persuading, using information available to government;
2. Network: cultivating and leveraging relationships within and across government and with external partnership bodies to develop and implement desired goals and behaviours;
3. Taxes and subsidies: using spending and taxing powers to shape activity beyond government;
4. Direct government action: delivering services through public agencies; and
5. Law: legislation, regulation and official authority.

Consultation. Consultation is public participation that includes public communication (information conveyed to the public from policy sponsors), public consultation (information conveyed to policy sponsors from the public) and public participation (information exchanged between policy sponsors and the public through dialogue) (Rowe and Frewer 2005).

Coordination. Once a policy proposal is ready for consideration by the government, coordination is required to facilitate discussions with treasury about available funding for the policy, and with other central agencies over the relation between the new proposal and overall government direction including coherence and consistency with other existing policies.

Decision. This often means consideration by an executive body. With too little information, the executive may require the policy to go back to the identification phase. Too much information and the executive may be unable to work through the detail and achieve a resolution.

Implementation. Policy is given expression through legislation or a program, in pursuit of the goals agreed by ministers.

Monitoring and evaluation. Since policies often drift from the objectives of the original submission or are imperfect in realising their goals, evaluation is essential to gauge the effects of a policy and adjust or rethink policy design as appropriate. Evaluation starts the cycle afresh with a new look at the problem and reconsideration of the recommended instruments.

Figure 2 is an illustration of the sectors responsible for each phase of the policy cycle at the national level in the three focus countries. Any sector within the economy (community, media, non-profit organisation, business, government etc.) can identify a policy issue. The roles of policy analysis, determining policy instruments, conducting consultation and policy coordination are the domain of the relevant government agencies (called 'ministries' in Vietnam and Indonesia, and 'departments' in Australia). The decisions regarding a policy are made by an executive body and are taken to the Parliament for finalisation. Implementation, monitoring and evaluation are the domain of the relevant department/ministry of the public service.

At the regional level, Vietnam is divided into 58 provinces and five municipalities, the latter of which exist at the same level as provinces. Governance of provinces is a somewhat simplified version of the national government. Provincial governments are controlled by a People's Council which is elected by those who live in the province. The People's Council appoints a People's Committee which acts as the executive arm of the provincial government. Provincial governments are expected to be subordinate to the central government.

The People's Consultative Assembly is the legislative branch in Indonesia's political system. It has two chambers—the upper house which is the Regional Representative Council, and the lower house which is the People's Representative Council. Indonesia has 34 provinces, each headed by a governor, and with its own legislative body called the Regional People's Representative Assembly. Governors and representative members are elected by popular vote for a 5-year term.

Australia has six states each with its own state constitution which divides the state's government into the same divisions as the federal government—legislature, executive and judiciary. The state parliaments are permitted to pass laws related to any matter that is not controlled by the Commonwealth as specified by the Australian Constitution. The monarch's powers over state matters are exercised by a governor in each state. The head of each state government is known as the Premier. Australia also has ten territories, three

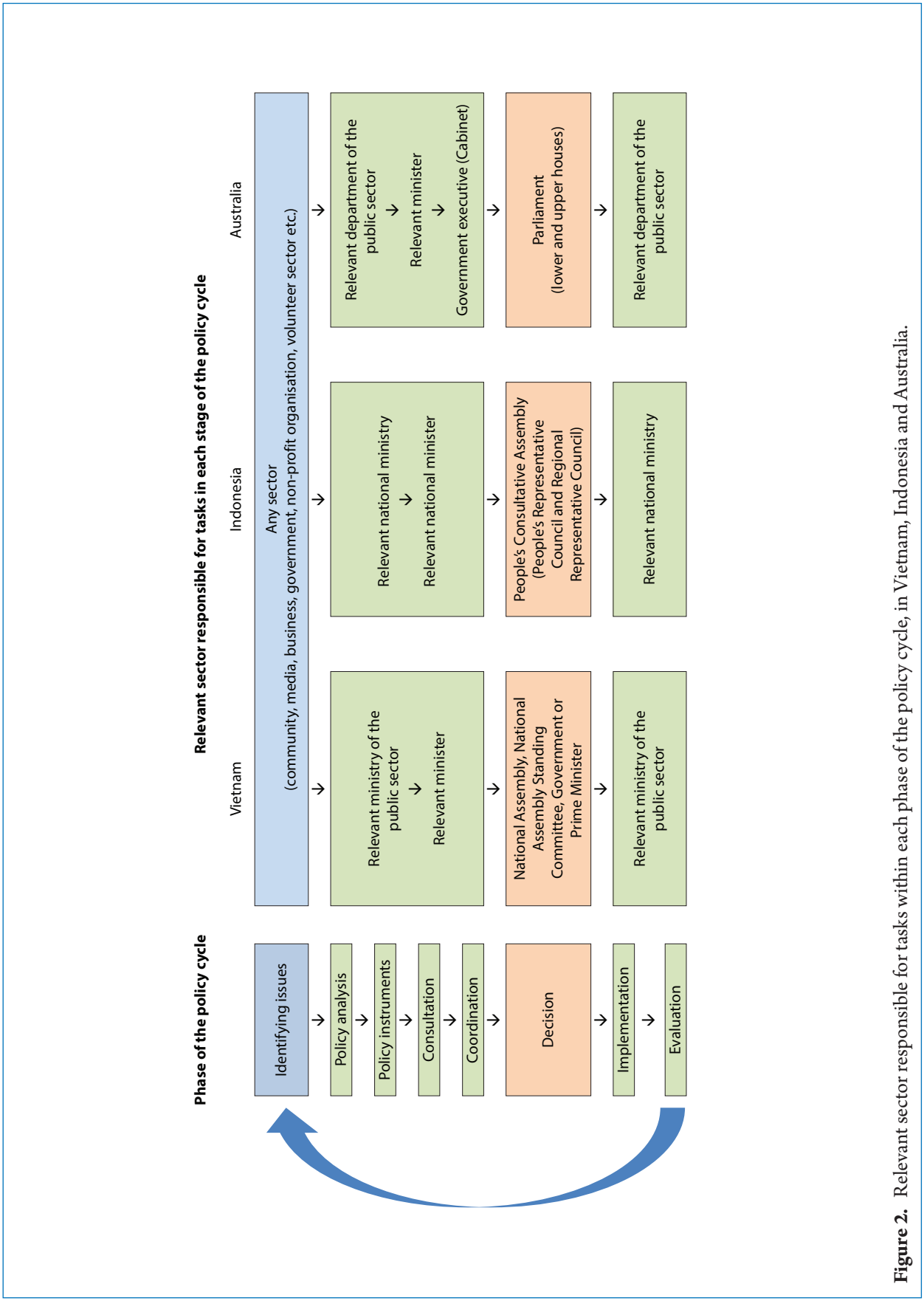

Figure 2. Relevant sector responsible for tasks within each phase of the policy cycle, in Vietnam, Indonesia and Australia.

of which have limited right of self-government handled by locally elected parliaments, and seven which are government by Commonwealth law usually through an Australian Government-appointed administrator.

While this illustration of policymaking and its stages seems quite straightforward, in practice it is complicated. In Vietnam, there are a number of different policy documents, each with a specified process for development and approval. The hierarchy, content, numbering and coding of legal documents in Vietnam government are outlined in Table 2. The process of policy and law formulation has been standardised and improved through time (as outlined in the law on legal document promulgation of 2015). Almost anyone in government can draft a law or ordinance, and anyone can propose a decree that goes to the National Assembly or Prime Minister. Proposals must go through a scientific review, consultation, analysis, financial review and legal review. However, stages in this process can be poorly completed due to a lack of time or resources. Policy coordination, feasibility, predictability, outcomes and implementation conditions are weaknesses outlined by Hoang (2016). The way in which civil servants are recruited, trained, managed, promoted and remunerated continues to be highly politicised, constraining the quality of policymaking (Datta and Huong 2013).

With so many players involved in the policy development processes, and the decentralisation of policy-making power, there are a large number of policy documents with significant problems of policy overlap and implementation inefficiency in Vietnam. For example, the Ministry of Agriculture and Rural Development has the task of overseeing the implementation of the Resolution on National Food Security (Resolution No. 63/NQ-CP of 2009). There are over 60 policy documents relating to this Resolution implemented across ministries, branches and provincial-level People's Committees (Yen 2016). This is leading to significant inefficiency from clashing policy outcomes and increased information and administrative requirements (Petersen et al. 2016). Petersen et al. argue that developing the capacity for, and tools to aid, evidence-based policy analysis is required to build a strong policy framework in Vietnam for improved and sustained food security policy review and analysis. Vanzetti et al. (2016) provides insights into the tools required for such policy analysis.

Indonesia also has a hierarchy of legal documents, as presented in Table 3. They include the Constitution, laws, government regulations, presidential regulations and provincial/district regulations. In practice, there are also presidential instructions, presidential decrees, ministerial decrees, joint ministerial decrees and circulation letters. Regarding presidential instructions, there is little documentation on any official procedures for drawing these up, indicating that considerable discretion is left with the President. Datta et al. (2011) argue that research and development units within ministries and research centres seem to play a mainly legitimating function, with knowledge (including ideas) stemming mainly from abroad.

Of considerable concern in both Vietnam and Indonesia is that firms that attempt full regulatory compliance with policy rules face an extremely costly and time-consuming process. Firms are often able to sidestep these rules through deals such as bribes or favour through political connections (Hallward-Driemeier et al. 2010). Policy implementation variability and uncertainty stifles business growth. These deals are in part due to problems with governance, such as weaknesses in the rule of law, bureaucratic quality, government effectiveness and the control of corruption (Hallward-Driemeier and Pritchett 2015). Simplifying policy rules and strengthening governance will result in an increase in firms adhering to policy rules rather than making deals.

Australia does not have a similar hierarchy of legal documents. Laws, also called Acts, are named according to their content and usually have the year in which they were enacted at the end of this name (for example, the Imported Food Control Act 1992). The Australian Government and state governments each have laws they enact, and name in a similar fashion. An example of a Western Australian state law is the Biosecurity and Agriculture Management Act 2007.

In Australia, policy issues are first presented during the consultation phase of the policy cycle as discussion papers called 'green papers'—so called because they were traditionally printed on green paper. Statements of a government's policy intention in a particular area are called 'policy papers' or 'white papers' because they

Table 2. Hierarchy, content, and numbering and coding of legal documents in Vietnam.

Hierarchy of legal documents

1. Constitution, laws and resolutions of the National Assembly (NA)
2. Ordinances and resolutions of the Standing Committee of the NA
3. Orders and decisions of the State President
4. Decrees of the Government
5. Decisions of the Prime Minister
6. Resolutions of the Justices' Council of the Supreme People's Court and circulars of the Chief Justice of the Supreme People's Court
7. Circulars of the President of the Supreme People's Procuracy
8. Circulars of ministers or heads of ministry-equivalent agencies
9. Decisions of the State Auditor General
10. Joint resolutions of the Standing Committee of the NA or the Government and the central offices of sociopolitical organisations
11. Joint circulars of the Chief Justice of the Supreme People's Court and the President of the Supreme People's Procuracy; those of ministers or heads of ministry-equivalent agencies and the Chief Justice of the Supreme People's Court, the President of the Supreme People's Procuracy; those of ministers or heads of ministry-equivalent agencies
12. Legal documents of People's Councils and People's Committees

Content of relevant legal documents

- Laws of the NA address fundamental issues across a wide range of fields as well as rights and obligations
- Resolutions of the NA focus on socioeconomic development tasks and state budget issues
- Ordinances of the Standing Committee contain regulations explaining the Constitution and laws
- Resolutions of the Standing Committee provide interpretation of the Constitution, laws and ordinances
- Decrees by the Government provide guidelines on the implementation of higher legal documents including specific action to implement policy, allocation of specific tasks to ministers, and identifying areas which are not mature enough to develop into laws or ordinances
- Decisions of the Prime Minister focus on ways to lead, manage and administer the Government's operations and public administration system
- Circulars of the Ministers provide detailed guidelines on the implementation of higher legal documents, regulations on technical processes and standards, and ways to exercise management of the sector/area

Numbering and coding

Alphabetical letters at the end of each policy's name include two parts connected by a hyphen (-). They represent the abbreviated names for the type of document and the promulgating agency in Vietnamese. For example, in the case of Resolution No. 63/NQ-CP of 23 December 2009 on national food security, NQ is the abbreviation for resolution in Vietnamese (*Nghị định*), and CP is the abbreviation for the Government. The following is a list of abbreviations for official documents and select issuers.

NQ (*Nghị quyết*)	Resolution	QH13	National Assembly
PL (*Pháp lệnh*)	Ordinance	UBTV	Standing Committee of NA
ND (*Nghị định*)	Decree	TW	The Communist Party of Vietnam Executive Committee
QD (*Quyết định*)	Decision	CP	Government
TT (*Thông tư*)	Circular	TTg	Prime Minister
TTLP	Joint Circular	BCT	Ministry of Industry and Trade
		BNN	Ministry of Agriculture and Rural Development
		BTC	Ministry of Finance
		BTNMT	Ministry of Natural Resources and Environment
		BYT	Ministry of Health
		NHNN	State Bank of Vietnam

Source: Law No. 17/2008/QH12 on the Promulgation of Legal Documents dated 3 June 2008 (cited in OECD 2015).

Table 3. Hierarchy of legal documents in Indonesia.

1. The 1945 Constitution of the Republic of Indonesia (Undang-Undang Dasar 1945, or UUD 1945) and its amendments.
2. Laws, which are formulated in agreement between the House of Representatives and the Government of Indonesia, and signed by the President (UU No. 10/1997). These provide statements of general principles.
3. Government Regulations as substitute laws (*perpu*), which are made by the President in urgent situations, such as in times of crisis.
4. Government Regulations (*peraturan pemerintah*, or PP) to provide implementation guidelines for specific laws which are drawn up and initiated by a minister (department or non-department) within an executive agency and signed by the President.
5. Presidential Regulations (*peraturan presiden*, or *perpres*), issued by the President as the head of executive bodies.
6. Provincial/District Regulations (*peraturan daerah*, or *perda*), which are formulated in agreement between the provincial or district House of Representatives and head of province/district.

Source: Datta et al. (2011).

were traditionally printed on white paper. Australia does not have a formal food security policy[2]. Most food security related policies are contained within the Agricultural Competitiveness White Paper (CoA 2015) which is a policy paper released after a consultation process which included the Agricultural Competitiveness Issues Paper and Green Paper (CoA 2014a,b).

Ashton (2013) completed a comprehensive consultative analysis of decision-making processes in Australia. Ashton notes that Australia is faring well compared with many advanced democracies. Its strengths are development of policy logic and analysis on specific issues. However, Ashton argues that decisionmaking in Australia is an old system struggling to adapt to a new world. It could improve its ability to translate the country's best thinking into effective action.

2 From 2010 to 2013, when the Australian Labour party was in government, Australia developed its first National Food Plan. The National Food Plan discussion paper (green paper) was released in 2012 (DAFF 2012) and a policy paper (white paper) was finalised in 2013 (DAFF 2013). During the 2013 elections, the Australian Labour Party was replaced by a coalition between the Liberal Party of Australia and the National Party of Australia. The National Food Plan was dropped. The new food policy direction is outlined in the Agricultural Competitiveness White Paper.

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Food security policy

Policy principles for food security

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Abstract

Food security is a complex issue. Food insecurity is caused by problems associated with access to and distribution of safe and nutritious food, which are exacerbated by drought, conflict, population growth and poverty. Governments play an important role in facilitating food security. So what is the role of government in ensuring food security for their country? How is food security best achieved? This paper outlines a set of key principles to consider when determining policies that relate to food security. These principles are chosen after an extensive study of the literature on the causes of, and remedies to, food insecurity. They are interrelated and synergistic in their impact on food security (i.e. each policy simultaneously affects food availability, affordability and nutrition). The policy principles are:

1. Inclusive economic growth is key to food security.
2. Self-sufficiency is an inefficient and expensive way of achieving food security and leads to domestic price volatility.
3. Well-functioning markets lead to poverty alleviation and food distribution.
4. Sustainable agricultural productivity growth increases food availability and household incomes.
5. Private and tradeable property rights for agricultural land lead to productivity growth.
6. Standards for food safety can reduce safety risk.
7. Capital should be allocated to its most efficient uses.
8. Price support mechanisms lead to market distortions and inefficiencies.
9. Social protection programs provide safety nets during food crises.
10. An efficient food security policy has just one instrument for each objective.

INTRODUCTION

Food security is a complex issue. The FAO World Food Summit in 1996 defined food security as ensuring that all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food insecurity is caused by problems associated with access to and distribution of nutritious and safe food, which are exacerbated by drought, conflict, population growth and poverty.

So what is the role of government in ensuring food security for their country? How is food security best achieved? Governments play an important role in facilitating food security. Countries that have achieved high levels of national and household food security generally have a track record of strong political emphasis on agriculture, careful consideration of economic incentives for agricultural production, and social and economic investment in research, extension and training (FAO 2015). On the other hand, countries that have not achieved high levels of national or household food security generally have restrictive trade policies (leading to increased prices and volatility), restrictions on access to productive assets (for example, land, capital and inputs), poor safety-net mechanisms, poor investment in agriculture, and unpredictable government policies (FAO et al. 2011).

The aim of this paper is to outline a set of key principles to consider when determining policies that relate to food security. These principles are chosen after an extensive study of the literature on the causes of food insecurity. They are interrelated and synergistic in their impact on food security (i.e. each principle simultaneously affects food availability, affordability and nutrition).

PRINCIPLE 1: INCLUSIVE ECONOMIC GROWTH IS KEY TO FOOD SECURITY

Economic growth is central to the fight against hunger—countries that become richer are less susceptible to food insecurity especially in the face of expanding population (FAO et al. 2015). Identifying the drivers of economic growth is a contentious issue. However, most credit can be given to the efficient allocation of capital and integration into global markets. These factors enable economies to grow—and it is growth, principally, that is easing food insecurity (The Economist 2013).

It is essential that this growth is inclusive—promoting equitable access to food, assets and resources, particularly for poor people and woman—so that everyone can develop their potential (World Bank 2008). Not all growth is inclusive. Very poor people cannot participate in growth processes that require capital or generate employment for the educated and skilled. The greater the inequity in the distribution of assets, such as land, water, capital, education and health, the more difficult it is for the poor to improve their situation and the slower the progress in reducing undernourishment (FAO 2015).

PRINCIPLE 2: SELF-SUFFICIENCY IS AN INEFFICIENT AND EXPENSIVE WAY OF ACHIEVING FOOD SECURITY AND LEADS TO DOMESTIC PRICE VOLATILITY

Most economists support the position that trade has helped today's industrialised and developing countries alike to grow and, in the latter case, to reduce poverty and increase food security. A policy goal of self-sufficiency for food (being able to meet consumption needs from domestic production rather than imports) is an inefficient and expensive way of achieving food security, compared with a mix of domestic production and international trade. In addition, self-sufficiency leads to an increase in the volatility of domestic prices. Prices in relatively small markets (e.g. one country) have to move more in response to any supply and demand shocks, compared with relatively larger markets (e.g. regional or global). Volatility in weather (such as floods, monsoons and drought) can lead to this type of supply shock, which leads to price volatility when food is largely obtained from one source (e.g. domestic production).

Self-sufficiency is not necessary for food security. Singapore is ranked as the second most food secure country in the world (behind the United States) despite importing 90% of its food and using less than 1% of its land for agriculture (GFSI 2015). Resilience of its food supply is attributed to the country's Agri-Food and Veterinary Authority (AVA) which has implemented policies that seek to diversify the source of food imports (as well as facilitating investments in new farming techniques such as hydroponics to optimise local production).

In some developing nations there is a growing nationalistic approach to food security (termed food sovereignty) by pursuing self-sufficiency in various foods. This policy objective remains despite the well-known costs of self-sufficiency and the damage it does to the overall economy. Some governments continue to impose self-sufficiency policies (e.g. tariffs and quotas on imports, and local content rules), to favour a small number of large domestic producers and their workers. The potentially larger number of consumers (and workers in affiliated industries) who suffer from these policies are dispersed throughout the economy, and have little political influence.

PRINCIPLE 3: WELL-FUNCTIONING MARKETS LEAD TO POVERTY ALLEVIATION AND FOOD DISTRIBUTION

Participation in open markets creates jobs, supports local economies, contributes to raising living standards, and helps food surpluses to reach areas of deficit. It can help producers as well as consumers improve household food security and provide greater comparative advantages over subsistence production (Qureshi et al. 2015). While markets provide some solutions to food security, policies and governance arrangements are needed to ensure that markets operate efficiently (Grafton et al. 2015). A government can strengthen the function of markets through supporting a rules-based trading system (e.g. ensuring enforcement of contractual

obligations, the rule of law, and security of property rights), encouraging private sector participation in food production and trade, building and maintaining domestic and port infrastructure, and removing barriers to trade (such as tariffs, quotas, subsidies and other trade restrictions). Markets that affect food security include output markets (for the commodity) and input markets (land, capital, labour and other inputs to production) (SDSN 2013).

PRINCIPLE 4: SUSTAINABLE AGRICULTURAL PRODUCTIVITY GROWTH INCREASES FOOD AVAILABILITY AND HOUSEHOLD INCOMES

Across food-insecure countries, the majority of the poor and most of the hungry live in rural areas, where family farming and smallholder agriculture prevail. Although the ability of family farming and smallholder agriculture to spur growth through productivity increases varies considerably, its role in reducing poverty and hunger is crucial. Labour and land productivity increases have positive effects on the livelihoods of the poor through increases in food availability and incomes. These productivity increases can come in the form of mechanisation, adoption of higher yielding varieties, efficient use of inputs (such as feed, fertilisers, herbicides and pesticides), improved infrastructure (such as irrigation) and adoption of other new innovations.

Sustainable agricultural productivity growth is threatened by factors such as poor policies (for example, those relating to biofuels, property rights and governance) and climate change (both in terms of influencing biophysical factors such as plant and animal growth, as well as affecting physical and human capital such as land availability, roads, storage and marketing infrastructure). Governments can facilitate sustainable agricultural productivity growth through adaptive strategies to appropriately invest in agricultural research, development, extension and infrastructure (World Bank 2012).

PRINCIPLE 5: PRIVATE AND TRADEABLE PROPERTY RIGHTS FOR AGRICULTURAL LAND LEAD TO PRODUCTIVITY GROWTH

Property rights—both in terms of physical property (for example, land and assets) and intellectual property (such as patents or written text)—are an institution essential for economic growth and food security. Property rights can be held in three different ways: in common (used by everyone as they wish on the basis of mutual trust and custom), collectively (where the land is 'owned' by the people with the government acting as their agent) or privately (owned by private entities who are free to do with it as they choose).

Security of all types of property rights is important for food security. As rural development and agricultural productivity growth are critical for poverty reduction and food security, an important property right is that of agricultural land (Kompas et al. 2009). While the conditions attached to land rights alter the incentives by which the user of the right behaves, generally private ownership of agricultural land leads to agricultural growth and development, for the following reasons:

- It leads to the trading of land—facilitating the allocation of land to uses that have the greatest value attached to the land.
- It provides the security and incentive for individuals to invest in land and the uses to which the land will be put (e.g. allowing economies of scale and scope, mechanisation and therefore reduced costs of production).
- It allows the land to be used as collateral for credit.
- It encourages sustainability—if land is not privately owned, then most people will act in their short-term self-interest rather than maintaining the sustainability of the land into the medium to long run.
- It allows people to act benevolently—people cannot be generous if they don't have anything to give away.

PRINCIPLE 6: STANDARDS FOR FOOD SAFETY CAN REDUCE SAFETY RISK

The adoption of science-based international food safety standards can help manage food safety risk and improve the predictability of and access to domestic and global food and feed supply chains. An example is the international food standards developed by the Codex Alimentarius Commission, which are recognised by the World Trade Organization Agreements on Sanitary and Phytosanitary Measures as the reference point for food standards applied in international trade. Note that the

use of standards should be balanced, as enforcing overly strict standards can reduce access to markets.

A government can facilitate the adoption of food safety standards by:

- requiring private operators to implement food safety standards (including HACCP—Hazard Analysis and Critical Control Points);
- supporting international standards for risk assessment and risk management (such as standards for agricultural biotechnology and other technologies);
- investing in appropriate port, distribution and transportation infrastructure; and
- ensuring that customs controls do not unnecessarily impede the movement of goods (Josling et al. 2004; Cargill 2014).

PRINCIPLE 7: CAPITAL SHOULD BE ALLOCATED TO ITS MOST EFFICIENT USES

An effective and efficient food security policy does not try to facilitate the supply of all its food needs domestically, but encourages an economy to do what it does best. This means specialising in production and trading the surplus to satisfy consumption rather than trying to produce everything itself. The question then is what to specialise in. The theory of comparative advantage provides some guidance. Comparative advantage is the ability of an individual/group to carry out a particular economic activity (such as making a specific product) more efficiently than another activity. It differs from absolute advantage which is the ability of an individual/group to carry out a particular economic activity more efficiently than another individual/group. Countries will profit most by focusing on the things they do best (comparative advantage), and trading surplus production for goods they would like to consume but produce less efficiently.

A country's changing comparative advantage and the offsetting government policies are reflected in the country's competitiveness and specialisation in international trade. It is tempting for a government to determine their comparative advantage and therefore invest in these industries, importing food in which that country does not have comparative advantage. However, comparative advantage is not fixed, but changes as relative input and output prices change. A government's overwhelming responsibility is not to determine and invest in products or services in which they have comparative advantage, but to create an institutional environment[1] in which private enterprise can seek and search out an economy's changing comparative advantage.

PRINCIPLE 8: PRICE SUPPORT MECHANISMS LEAD TO MARKET DISTORTIONS AND INEFFICIENCIES

Price support mechanisms intervene in the market through controlling prices. Prices can be maintained at specified levels either through public subsidies (funded by taxpayers) or government intervention (which leads to transfers from consumers to producers). A price control can be a minimum floor price, which is intended to keep the long-run market price of a good higher than the competitive equilibrium level by providing assistance to producers. A price control may also be a maximum ceiling price, which is intended to keep the long-run average market price of a good lower than the competitive equilibrium level. Floor and ceiling prices can be established by government (by law) or through industry (by negotiation amongst industry members resulting in collusion).

Floor and ceiling prices cause economic inefficiencies. While producers may gain from floor prices in the short run, consumers have to pay a higher price and can be priced out of the market. While consumers may gain from ceiling prices in the short run, producers are disadvantaged as they receive a lower price. Assuming that a government gives equal weight to producer and consumer gains, the welfare losses outweigh the welfare gains in each case. Also, it is easy for a government to mismanage these schemes and cause irreversible damage to the industries they are trying to protect. Government should be aware that assistance they provide can be capitalised into land or

1 Institutions are humanly devised constraints that shape human interaction—the rules of the game. Formal institutions are the rules that are rooted in the law and politics of each country. Informal institutions are a society's social codes, customs and traditions. Combined, formal and information institutions set the broad rules of the game within which people interact as workers, consumers and investors.

other asset prices, making the policy difficult to reverse. Rather than price support mechanisms, governments should focus on social protection programs which reduce risk. Anderson (2014) argues that for a small country which cannot influence its terms of trade, any subsidy or restriction on its exports or imports would lower national economic welfare by foregoing some of the gains from production specialisation and exchange that trade openness provides.

PRINCIPLE 9: SOCIAL PROTECTION PROGRAMS PROVIDE SAFETY NETS DURING FOOD CRISES

When a food crisis hits the vulnerable (such as food price spikes or household-level emergencies such as illness of an income earner), people often resort to coping strategies which have long-term and potentially irreversible consequences. As a result, nutrition may worsen, use of health and education services may decline, and productive assets may be sold. Social protection can alleviate short-term suffering and help disadvantaged families avoid making choices that push them further into poverty.

Social protection mechanisms can be:

- untargeted and unconditional—such as cash transfers to all (which are generally inefficient and wasteful);
- targeted and unconditional, such as cash transfers in the form of pensions or employment insurance, workfare (food and cash-for-work), fee waivers and scholarships, or school feeding; or
- targeted and conditional, such as programs designed for poor families, providing cash grants upon evidence of children regularly attending school or mothers receiving health checks (AusAID 2011).

While social protection programs are a cost to government, they are also investments in the poor to help strengthen economic growth in the medium to long term (OECD 2009).

PRINCIPLE 10: AN EFFICIENT FOOD SECURITY POLICY HAS JUST ONE INSTRUMENT FOR EACH OBJECTIVE

A basic rule of economic policy is that for each policy objective (goal or aim) there should be just one policy instrument (the method used to achieve the desired policy objective). This policy rule is often called 'the Tinbergen rule' (Tinbergen 1952). This principle is quite different from the preceding nine principles, but is important for efficient policy development—the objective of all the principles.

Having more than one policy instrument per objective leads to potential economic inefficiency from clashing policy instruments, and increased information and administrative costs (associated with redundant tools). The ideal policy instrument for a policy objective is one which effectively achieves the policy objective directly with efficiency, equity, simplicity and transparency.

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Overview of Vietnam's food security policies

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Abstract

Food security is an issue of concern for many countries, especially after the world food price crisis in late 2007 and early 2008. In 2009, the Government of Vietnam issued Resolution No. 63/NQ-CP on national food security. The policy aims to end food shortages and hunger by 2012, and to increase food production by 2.5 times by 2020. The resolution aims to guarantee the availability of sufficient land for growing rice until 2020 (3.8 million hectares, of which 3.2 million hectares is to be used for two crops of irrigated rice per year). This area is strictly protected for rice production and is mapped for each household to use. The resolution also outlines the objective of strengthening capacity for scientific research and extension, with a 10–15% increased budget for this purpose. Improved training and scientific knowledge of farmers are also goals of the resolution, to improve efficiency of food production and income generation. The resolution has a target of 50% of food producers being well trained by 2020. The Government of Vietnam has launched many policy documents in support of the resolution. This has helped local governments and other local authorities to identify appropriate agricultural direction and has, to some extent, improved output and quality in agriculture for the goal of food security. However, the current planning methodology allows each ministry to focus on its own interests, which leads to a fundamental lack of integration and cooperation. There is a lack of development models and the relationship between the objectives and conditions of legal development often do not match. This methodology brings out the subjectivity in planning, reducing the practicality and feasibility. Predictability and risk management in planning remain low, both in development planning and the planning of the sector. Database management for planning overall has not been well coordinated.

INTRODUCTION

Food security is an issue of concern for many countries, especially after the world food price crisis in late 2007 and early 2008 which had a severe impact in many Asian, African and Latin American countries.

At the start of the 21st century, there are a number of challenges to food security in Vietnam (MARD 2009):

- Continued population growth;
- The decline in available agricultural land due to urbanisation and industrialisation;
- Global climate change;
- Low income, with approximately 12% of the population below the poverty line (where the poverty line is the estimated minimum level of income needed for the basic needs of life in Vietnam; there are poor households in 61 districts in Vietnam, and more than 50% of poor households have low access to food, resulting in malnutrition); and
- Access to safe food.

Due to the global nature of many of these issues, solutions for food insecurity require enhanced international cooperation.

After more than 20 years of economic reform, Vietnam has achieved significant improvements in national food security, with accompanying impacts on development. Solving the problem of food insecurity is considered to be a fundamental base for Vietnam's social and political stability, as well as economic development.

In 2009, the Government of Vietnam issued Resolution No. 63/NQ-CP on national food security (Box 1). The policy aims to end food shortages and hunger by 2012, and to increase food production 2.5 times by 2020. The resolution guarantees the availability of sufficient land for growing rice until 2020 (3.8 million hectares (ha), of which 3.2 million ha is to be used for two crops of irrigated rice per year). This area is strictly protected for rice production and is mapped for each household to use. The resolution also outlines the objective of strengthening capacity for scientific research and extension, with a 10–15% increased budget for this purpose. Improved training and scientific knowledge of farmers are also goals of the resolution, with the aim of improving efficiency of food production and income generation. The resolution has a target of 50% of food producers being well trained by 2020. The resolution also includes planning solutions, infrastructure development priorities, power generation goals, and science and technology targets.

The resolution's policies are being implemented through a number of documents that have been ratified by the Vietnamese Government (Appendix A). However, implementation of these policies has not resulted in achievement of the desired results; the reasons for this are discussed in Petersen et al. (2016).

The aim of this paper is to provide a detailed summary of Vietnam's food security policy. Sixty food security-related policy documents are listed in Appendix A, and are discussed under the following headings:

- Rice land planning;
- Infrastructure development and science and technology;
- Human resources;
- Supporting policies for local farmers and the private sector; and
- Improving food distribution systems.

Box 1. Vietnam's policy approach to achieving food security (Resolution 63/NQ-CP dated 23 December 2009).

1. **Ensuring food supplies**
   - Continue to promote intensive rice production, especially in the Mekong Delta and Red River Delta, creating a secure rice supply to ensure national food security in the short and long term.
   - By 2020, annual production of the following crops is expected to increase by 30% from 2009:
     - Protect 3.8 million ha of land so that rice production is 41–43 million tonnes (t) of rice/year. This will meet the total demand of domestic consumption and exports of about 4 million t/year;
     - Corn area to 1.3 million ha for production of 7.5 million t;
     - Fruit planting area of 1.2 million ha and production of 12 million t; and
     - Vegetables area to be 1.2 million ha for total production of 20 million t.
   - By 2020, annual livestock production has the following targets:
     - Livestock meat: 8 million t;
     - Fresh milk: 1 million t;
     - Eggs: 14 billion eggs;
     - Fisheries: 2.4 million t;
     - Aquaculture: 4 million t.
2. **Ensuring nutritional needs**
   - By 2020:
     - Improve nutritional status and enhance calorie consumption to a daily average of 2,600–2,700 kcal/person; reduce the proportion of malnourished children under 5 years of age to fewer than 5%; and
     - Improve the structure and quality of food consumed, reaching the goal of average annual consumption/person of 100 kg rice (i.e. reduced consumption), 45 kg meat, 30 kg fish, 50 kg fruit, 120 kg vegetables, increased consumption of eggs, and double the 2009 level of milk consumption. All agricultural and food products in the market are targeted to achieve food safety and hygiene standards.
3. **Guaranteeing access to food**
   - End hunger and food shortages in 2012. Guarantee income from food production in 2020 at 2.5 times the current income from food production.

RICE LAND PLANNING

According to Resolution 63/NQ-CP, the Vietnamese Government should plan rice production for each region, and develop the absolute advantage of each region. The overall target is to protect 3.8 million ha for rice production (3.2 million ha with two irrigated crops per year). The Ministry of Agriculture and Rural Development (MARD) in collaboration with the Ministry of Natural Resources and Environment and the Provincial People's Committee are to direct the planning of land for rice for the Prime Minister's approval.

In 2012, the Prime Minister approved MARD's submission for agricultural planning and development (Decision No. 124/QD-TTg). The decision specifies production area for each crop and product intensiveness development orientation for each region:

- Rice: protect and stabilise 3.812 million ha of paddy land by 2020, of which 3.2 million ha is for two irrigated rice crops per year. The decision stipulates that production should reach 41–43 million tonnes (t) in 2020 and 44 million t by 2030 to ensure food security and exports.
- Maize: by 2020 maize should be produced on 1.44 million ha, concentrated in certain regions—the northern midlands and mountains, central highlands, north central coast, and the southeast. Emphasis is on maize for animal feed, with a target of about 80% of the raw materials needed for the feed processing industry.
- Cassava: cassava production area should reach 450,000 ha by 2020, producing about 11 million t for feed raw materials and biofuels. Production is to be focused in the northern midlands and mountains, north central coast, south central, central highlands, and the southeast.
- Soybean: major production areas are the Red River Delta and northern midlands and mountains.
- Peanuts: the main production regions are to be the north central coast, the north highlands and the south central coast.
- Animal feed: to be produced on approximately 300,000 ha, an increase of 260,000 ha compared with 2010. The main production regions are to be the northern midlands and mountains, north central coast, south central coast, the southeast and the central highlands.

To further strengthen development of the agriculture sector, in 2013 the Prime Minister issued Decision No. 899/QD-TTg approving a restructuring of the agriculture sector towards enhancing value-adding and maintaining sustainable development. The Government simultaneously announced objectives, views, content and specific measures to develop the agriculture sector in the new period. This is considered to be a very important proposal for stimulating the agricultural economy.

To implement the resolution and decisions, MARD developed a number of schemes (sub-projects). By the end of July 2015, 47 out of 63 provinces and cities had adopted the schemes with associated action plans for local agricultural restructuring. This included adjusting planning-oriented restructuring, which is based on taking advantage of local and market demand. So far, the Prime Minister together with MARD have approved 24 planned restructuring schemes, 17 of which are national and seven which are region specific.

The Prime Minister approved the overall planning of economic development in the north central region and central coast to 2020 (Decision No. 1114/QD-TTg dated 9 July 2013). These plans differ across locations, with different focuses for fruit trees, cash crops and perennial tree crops.

Decision No. 1874/QD-TTg dated 13 October 2014 approved overall economic development of the central region to 2020 and with a view to 2030. The central region will restructure according to the crops and livestock that are suitable for the land, addressing production safety, minimising flooding, improving the efficiency of arable land use, and developing livestock and poultry with farm sizes according to the conditions of each locality.

Decision 245/QD-TTg dated 12 February 2014 approved the overall economic development of the Mekong Delta to 2020 with a view to 2030. This will focus on intensification to increase productivity and improve the quality of rice. The policy ensures maintenance and stability of the rice area to 2020—approximately 772,200 ha. Fruit tree area will be stabilised and maintained at approximately 68,000 ha. Fisheries are to be developed sustainably based on

renewable fisheries resources and protection of the environment. This includes reducing inshore and nearshore fishing, and increasing offshore wild-caught production through technological innovation to increase efficiency. The area of brackish water aquaculture is approximately 338,500 ha within the region in 2015 and 345,000 ha in 2020. The area of freshwater aquaculture is to be stabilised at approximately 68,000–78,000 ha.

Figure 1 shows the forecasted arable land area under the different agricultural crops in 2020. MARD estimates paddy rice will account for 68% of total area planted for annual crops (3.8 million ha). The other crops are maize (13%), vegetables (11%), cassava (4%) and soybeans (3%).

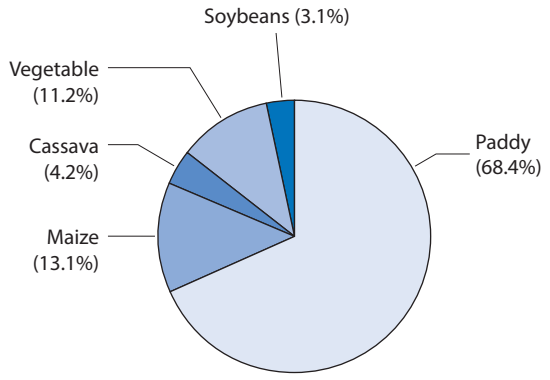

Figure 1. Estimated arable land area under the different crops in 2020 (%). Source: MARD (2009).

Regarding paddy land, the Government approved Decree 42/2012/ND-CP dated 11 May 2012 on the management and use of land to grow rice, which proposed several measures to keep 3.8 million ha of paddy land. However, after 3 years of implementation some difficulties emerged, including degrading of the rice land, problems with the restructuring progress, and inefficient farming methods.

To solve these problems, the Government issued Decree No. 35/2015/ND-CP on the management and use of land for rice cultivation. According to this decree, if converting paddy land to annual crops or combined paddy or aquaculture, the natural resource base must be maintained. When restructuring the paddy land, planters must be registered with the commune's People's Committee.

According to the General Statistics Office of Vietnam (GSO 2014a), Vietnam has more than 26 million ha of agricultural land, i.e. land used for agricultural, forestry and aquaculture purposes (Figure 2). The largest areas are for forestry (approximately 16 million ha) and agriculture (11 million ha).

The decree specifies that the transfer of land from rice cultivation to non-agricultural purposes (including leased land) must adhere to the law of the land. Land transfers must include payment of a sum of money to protect and develop the land for future rice cultivation. Some provincial People's Committees have agreed a specific condition that no less than 50% of the amount to be determined by the land area for rice cultivation

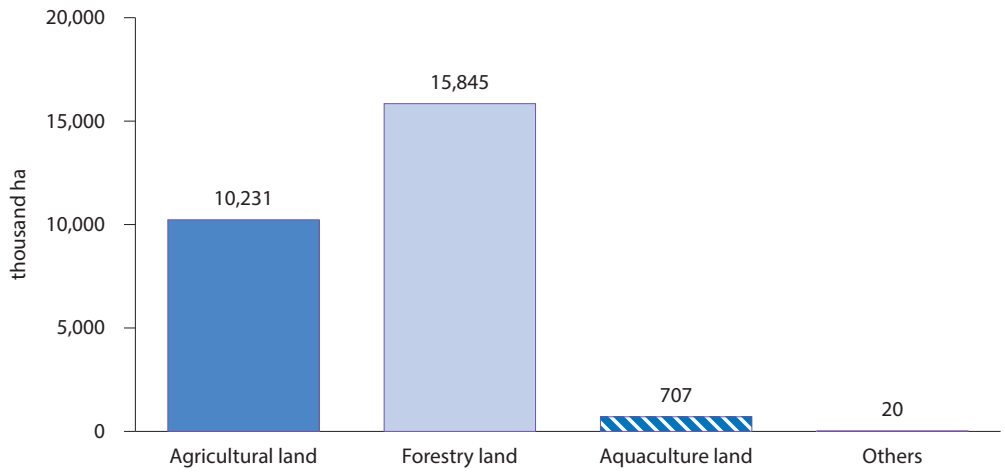

Figure 2. Agricultural land use in Vietnam in 2014 (thousand ha). Source: GSO (2014a).

can be turned to non-agricultural land. This amount, multiplied by the price of paddy rice, is then the cost of land transfer to different purposes.

Local rice production is supported by the state budget at 1 million Vietnamese Dong (VND)/ha/year, and 500,000VND/ha/year for rice land that is not cultivated to rice. In addition, the decree stipulates state support for the reclamation and rehabilitation of paddy land at 10 million VND/ha, and 5 million VND/ha for rice paddy land that is converted from other cultivation purposes.

The Government of Vietnam has launched many policies to support the agriculture sector for the goal of food security. Evaluating these policies is difficult as they have been issued only recently and have not been fully implemented. However, some weaknesses are apparent. The specific planning for each industry (in this case, rice) has generally occurred before the socioeconomic development plans have been issued at the national level. This creates inconsistences between the master plans and specialised plans, and leads to coordination difficulties across ministries.

The current planning methodology allows each ministry to focus on its own interests. This leads to a fundamental lack of integration and cooperation. There is a lack of development models, and the objectives of and conditions for the development often do not match. This is leading to subjectivity in planning, reducing its practicality and feasibility.

Problem have arisen with some of the approved plans, which are then difficult to amend. This has led to the suspension of several plans, decreasing the confidence of the people in the government.

Predictability and risk management in planning is low, both in development and sector planning. Database management for planning has not been well coordinated.

By 2020, agriculture in Vietnam needs to have modernised in a sustainable way, so that it can contribute to the economic growth of the country, and with a strong reputation for quality in world markets. Construction and planning is occurring in the right direction; however, the planning needs to be more realistic, with due consideration to available resources to make the objectives consistent with the national and global economic situation.

INFRASTRUCTURE DEVELOPMENT, AND SCIENCE AND TECHNOLOGY

The discussion in this section is presented in three parts:

- Irrigation infrastructure;
- Rice storage and warehousing; and
- Science and technology.

Irrigation infrastructure

Development of rural infrastructure is important for developing the food sector. However, developing countries face a severe shortage of resources to invest in infrastructure. Vietnam is prone to natural disasters, including tropical storms, hurricanes, floods, landslides and forest fires. Over the last 10 years (2006–15), natural disasters are estimated to have cost over 1% of the country's GDP (Dung 2015).

Ahmad et al. (1990) looked at the relationship between infrastructure for agricultural production and poverty reduction in the late 1990s, and found that infrastructure development has helped reduce poverty by approximately 2.1% in low-income countries and 1.4% in middle-income countries. Infrastructure that facilitates a growing agricultural sector includes irrigation, communications, finance and credit. Moreover, infrastructure has an important role in providing clean water. According to ADB (2008), $1 invested in infrastructure saves $6 in health care.

Building irrigation infrastructure for sustainable agricultural production is a priority for food security. Resolution 63/NQ-CP launched three major actions to upgrade and build new irrigation works:

1. Continued investment, construction and repair of irrigation systems to ensure all rice land is irrigated, and to increase irrigated areas for vegetable and fruit trees; the construction of irrigation works to serve aquaculture, and small irrigation works in mountainous areas are also prioritised;
2. Continued investment in upgrading and constructing new dykes along existing irrigation systems, in order to protect assets and people from sea level rise; and
3. Complete irrigation systems for food production areas which, along with increased mechanisation, will improve food production efficiency.

The Dyke Act, which was approved by the National Assembly in 2006 (No. 79/2006/QH11), covers dyke planning, implementation, construction and management across the country. The act specifies that construction or planning of dykes should be consistent with:

- overall planning of economic and social development;
- national defence and security goals; and
- strategic plans for the prevention and mitigation of natural disasters.

MARD is responsible for dyke management, flood control, water supply and related projects, as directed by the provincial People's Committees and in coordination with ministries and agencies at ministerial level. This includes planning, construction and maintenance. The provincial People's Committees are responsible for organising dyke construction, repair, maintenance and upgrading, and must ensure the dykes comply with safety requirements.

The Prime Minister issued in 2007 the National Strategy for Prevention and Disaster Reduction 2020, which aims to mobilise resources to implement effective disaster prevention from now until 2020, and to minimise damage to people and property (Decision No. 172/2007/QD-TTg dated 16 November 2007).

After several years of implementing the policy of building dykes and disaster prevention and mitigation, the Government of Vietnam has repaired and upgraded many large dam lakes in many areas of the country such as Cua Dat reservoir (Thanh Hoa), Song Chao (Nghe An), Rao Stone (Quang Binh), Lake Truoi, Ta Trach (Hue), Vietnam An (Quang Nam), Van Hoi, Dinh Binh (Binh Dinh), Dong Tron (Phu Yen), Oil Springs (Khanh Hoa), Tan (Ninh Thuan) and Upper Easoup (Dak Lak). According to different reports which assessed the effectiveness of dykes in 13 provinces, the construction of dykes has been very effective at preventing harmful impacts of floods, storms and tidal surges during the rainy season.

Total investment that has been allocated for projects in the program to upgrade sea dykes by the end of 2015 is 11 billion VND (Decision 58/QD-TTg), as shown in Table 1.

Although the irrigation program has been successful in many respects, there remain some issues:

- The use of local resources has been low (9% of the total capital layout);
- There has been insufficient mangrove tree planting along the dykes to create protection;
- In the last phase, the decentralisation of project approval to local authorities has led to imbalances in

Table 1. National investment in sea dyke upgrades in different localities (millions VND).

City	No. of proposals	Total investment	Completed quantities	Accumulated fund to 2015
Quảng Ninh	12	1,083,000	592,000	592,000
Hải Phòng	8	1,149,000	567,000	554,000
Thái Bình	19	1,927,000	1,459,000	1,280,000
Nam Định	16	3,078,000	2,126,000	1,962,000
Ninh Bình	3	1,463,000	1,431,000	1,104,000
Thanh Hoá	21	2,658,000	1,282,000	1,488,000
Nghệ An	18	1,538,000	1,260,000	999,000
Hà Tĩnh	32	2,535,000	1,737,000	1,672,000
Quảng Bình	16	664,000	306,000	312,000
Quảng Trị	28	259,000	202,000	227,000
T.Thiên Huế	17	316,000	211,000	233,000
Đà Nẵng	6	936,000	350,000	388,000
Quảng Nam	7	236,000	179,000	162,000
Sum	203	17,843,000	11,700,000	10,972,000

Source: MPI (2015).

the central budget, and to projects with increasing debt (total capital approved in recent years has increased to almost 18 trillion VND for 203 projects, while the central budget funding for the project is 8 trillion VND); and
- Sea dyke construction has been limited in poor regions as there are significant provincial budget constraints.

Rice storage and warehousing

Rice is seen as an important aspect of Vietnam's national food security and for export. However, storage infrastructure in Vietnam is underdeveloped. In 2009, grain storage capacity was 1.5 million t, approximately 7.5% of the annual rice harvest of 20 million t. Of the rice that is stored, only one-third is used properly; the rest deteriorates and is unusable, or is not used properly.

To improve the system, MARD approved Decision No. 3242/QD-BNN-CB 2010 to reserve 4 million t of rice in Dong Cuu Long. To achieve this, warehouses were built at 52 sites in 13 provinces and cities in the Mekong Delta and Ho Chi Minh City. Warehouse systems were built in six provinces which have a focus on commercial rice production (Can Tho, Long An, Tien Giang, An Giang, Dong Thap and Kien Giang). The systems are mechanised and automated to improve the rice preservation process.

The improved storage system for rice facilitates the circulation of 10 million t of rice per year in the Mekong Delta. The facilities are reducing losses after harvest, improving the efficiency of rice processing and export, and allowing to regulate the rice production business.

However, according to OECD (2011) the amount of warehoused rice by Southern Food was 66% of targets set by the provincial People's Committees, and that of Food Corporation North was 58% (OECD 2015). General Southern Food Company (Vinafood 2) is implementing 11 projects to build new warehouses but has only completed six. Projects in new areas (An Giang, Soc Trang and Hau Giang) have not been implemented due to technical difficulties and lack of resources.

Science and technology

Science and technology transfer in the agricultural sector has grown tremendously in recent years, especially in terms of resources and technical facilities (Table 2). Many companies have adopted science and technology in plant and animal breeding, and farmers are adopting scientific and technical innovation.

To continue to develop high-tech applications in agriculture, the Prime Minister recently issued a decision to approve the master plan for regional parks and agricultural high-tech applications to 2020 with a view to 2030 (Decision No. 575/QD-TTg dated 5 April 2015). The decision sets a target for speeding up the development of agriculture through modern, large-scale commodity production, enhanced productivity, quality, efficiency and competitiveness, to ensure food security and increase exports. Specifically, 10 high-tech agricultural areas are to be developed by 2020. Provincial committees decided on the areas, and the focus which is on the following commodities: vegetables, flowers, coffee, tea, dragon fruit, dairy, beef, poultry and shrimp. The committees are also involved in planning, organising and human resources for management and administration of the high-tech areas.

Since 2006, the Prime Minister has approved two key programs for biotechnology in agriculture and fisheries:

1. Key program development and application of biotechnology in agriculture and rural development by 2020 (Decision No.11/2006/QD-TTg dated 12 January 2006); and
2. Project development and application of bio-technology in the field of fisheries by 2020 (Decision No. 97/2007/QD-TTg dated 28 June 2007).

From 2006 to 2014, the agricultural biotechnology program implemented 214 projects with total funding allocation of 554 billion VND (Table 3). Some results include:

- Genetic engineering: training on plant transgenics for maize, soybean, sweetpotato and cotton, creating genetically modified crops that are resistant to disease;
- Cell technology: creating potato varieties with high blight resistance; and
- Microbial preparations for biological control: for control of bacterial wilt, nematodes, fungi and mealybugs (in 2014 the industry produced hundreds of tonnes of products that were successfully produced, sold and applied; production occurred in the central highlands, as well as Phu Quoc, Binh Phuoc, Ba Ria and Vung Tau).

Table 2. Agricultural areas of high technology application in Vietnam.

Area/ province	Name of high-tech areas	Investor	Area (ha)	Year of construction	Address	Capital (billion VND)	Function/production
Northern Region							
Son La	Moc Chau	PPC	200	2004	Moc Chau State Farm	30	Research, produce, train, exchange/ vegetables, flowers, fruits
Red River Delta							
HaNoi	Cau Dien	PPC	11	2004	Cau Dien Commune, Tu Lien Distric	23.7	Research, produce, train, exchange/ vegetables, flowers, fruits
Hai Phong	Hai Phong	PPC	7	2006	Center of Agri and Forestry development	23.8	Research, produce, train, exchange/ vegetables, flowers, fruits
Central Region							
Phu Yen	Phu Yen	PPC	460		Thach Lam Village, Commune Hoa Quang, Phu Yen dist	21.8	Research, produce, train, exchange/ sugarcane, cotton, cattle, chickens, vegetables, flowers, fruits
Khanh Hoa	Suoi Dau	PPC	66	2007	Suoi Cat Commune, Cam Lam Distric	32.0	Research, produce, train, exchange/ rice, maize, fruits, flowers, mango, swine, fish
Southern Region							
Tp HCM	Phan Van Coi National Farm	PPC	88	2004	State Fam Phan Van Coi	752.6	Research, produce, train, exchange/ tours, fish, vegetables, fruits
Bình Dương	An Thái	CTCP U&I	471	2011	An Thai Commune	380.9	Research, produce, train, exchange/ herbal trees, fish, vegetables, fruits

PPC = Province People's Committee; CTCP U&I = U&I Construction Company.

Source: MARD (2012).

Table 3. Summary of projects and funding from 2006 to 2014 under the agriculture and fisheries biotechnology program 2020.

	No. of projects	Funding (billion VND)
Agricultural biotechnology		
Total	145	380
In 2014	64	47
Fishery biotechnology		
Total	69	171
In 2014	21	25

Source: MARD (2014).

Despite progress in this area, the level of agricultural science and technology in many areas of Vietnam is still low and is developing slowly compared with other countries. The new achievements have increased productivity in some key products such as shrimp, fish, rice, corn, pepper, coffee, rubber and some other crops. However, it is still very limited in the field of animal husbandry. Researchers have not yet mastered technology for breeding, vaccines and biological products for disease prevention.

In the process of restructuring the agricultural sector, the role of business is becoming increasingly important. Hence, there is a need to create favourable conditions for enterprises to engage more vigorously in the field of scientific research. According to a survey by the Ministry of Science and Technology, of over 1,500 businesses with scientific and technological activities, only 350 businesses had the potential to develop into technologically specialised enterprises, of which only 28 businesses operate in the agricultural sector (8%) (MOST 2015). Thus, the state's support for science and technology enterprises as well as agricultural businesses has limited potential.

The application of science and technology in agriculture has yet to meet development needs. The themes are closely linked to the government's plans, while may be outdated. Studies are too narrow in their focus, and their quality is poor compared with other countries in the region. There is a need to change the vision and strategy for science and technology if agricultural restructuring and rural development are to be successful.

HUMAN RESOURCES

The discussion in this section is presented in two parts: policies regarding the training of labourers, and agricultural extension policies.

Training of labourers

In 2006 the Prime Minister issued a directive to support vocational training and employment for labourers in areas where agricultural land is used for other purposes (Directive No. 11/2006/CT-TTg dated 27 March 2006). The Ministry of Labour, Invalids and Social Affairs (MOLISA) is charged with implementing the directive.

In 2009, the Prime Minister approved the scheme on vocational training for rural labourers up to 2020 (Decision No. 1956/QD-TTg), which includes the following:

- The poor, ethnic minorities, disabled and people whose cultivated land has been withdrawn are eligible for short-term vocational training to a maximum of 3 million VND/person/course, as well as food support at 15,000 VND/person during the training;
- Travel support is provided based on public transport fares to a maximum of 200,000 VND/person/course for trainees who have to travel 15 km or more from their residence;
- Subsidised short-term vocational education is available to a maximum of 2.5 million VND/person/course for rural workers in poor households; other rural labourers are supported for short-term training to a maximum 2 million VND/person/course; and
- After attending the vocational training, rural workers can take loans from the National Fund for Employment to start their work.

The Ministry of Finance (MOF) and MOLISA guide the issuance, management and use of funds to implement the scheme according to the Joint Circular No. 112/2010/TTLT-BTC-BLDTBXH dated 30 July 2010. This circular also has specific instructions on job creation for apprentices, requiring that 90% of apprentices receive employment after training. There is also a policy on loans for rural labourers who

are working on an apprenticeship, under the same regulations on loans for students. A collaborative group formed by MARD, MOLISA and MOF guides the use of agricultural apprenticeship cards (according to Joint Circular No. 66/2010/TTLT-BNNPTNT-BLĐTBXH-BTC dated 16 November 2010).

After 5 years of implementation, Decision No. 1956 has basically achieved its objectives and requirements in the first stage, providing the basis for improving the quantity and quality of vocational training for rural labourers (Figure 3). Local authorities conduct surveys on vocational training needs, employer needs within businesses, and review vocational training lists annually in association with socioeconomic development plans, human resource plans and new rural construction plans.

The vocational training for rural labourers has had practical results, creating jobs and increasing incomes for rural labourers. After completing apprenticeships, a large proportion of the labourers (about 63%) continue in their previous jobs with higher productivity, lower production costs (5–20%), and greater efficiencies and incomes (10–30%), contributing to poverty reduction and improved living standards (MOLISA 2015).

Despite these successes, the vocational training has not achieved all its goals. Levels of vocational training at secondary schools and colleges has remained low for some specific groups. The vocational training has been unequal between regions of the country. The type of vocational training has not always been aligned with agricultural production plans or the restructuring. Only few rural labourers have benefited from the National Fund for Employment.

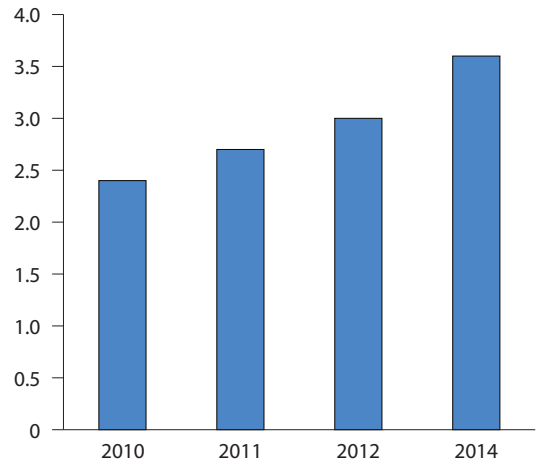

Figure 3. Percentage of trained rural labourers in agriculture, forestry and aquaculture. Source: GSO (2014b).

Agricultural extension

The agricultural extension system provides a link between the state, scientific research institutions, markets and farm households. It provides advice, knowledge and policy dissemination and facilitates the transfer of science and technology to farmers. There have been positive and important contributions to Vietnam's agricultural extension system since the inception of *Doi Moi*.

In 1993, the Government issued Decree No. 13/CP on agricultural extension, which established specialised extension systems. The agricultural extension system has continued developing since then, in parallel with the evolution of the agriculture sector.

At the central level, during the period 1993–2004 the Department of Agricultural Extension (in the Ministry of Agriculture and Food Industry) and the Department of Agriculture and Forestry (in the Ministry of Agriculture) performed both management and extension functions. The Department of Fisheries, under the Ministry of Aquaculture (MoA), performed these same tasks for aquaculture.[1]

In 2005, the Government issued a decree on agricultural and aquacultural extension (Decree No. 56/2005/NĐ-CP). The National Agricultural Extension Centre was established under MARD and the National Aquacultural Extension Centre was established under MoA. By 2008, when MARD and MoA had merged, these two centres were joined to become the National Centre for Agricultural–Aquacultural Extension.

In 2010, the Government issued a decree on agricultural extension to replace the earlier decree (Decree No. 02/2010/NĐ-CP replaced Decree No. 56/2005/NĐ-CP). The extension centre was officially named the National Agricultural Extension Centre, under MARD.

1 In 2007, the ministries mentioned in this paragraph merged under the Ministry of Agriculture and Rural Development (MARD).

In recent years, the National Agricultural Extension Centre has been responsible for the following:

- Established agricultural extension centres in all 63 provinces and cities under the local Department of Agriculture and Rural Development;
- Hosted nearly 60 ceremonies honouring successful farmers, dynamic and creative agricultural extension workers, and crop and livestock innovators;
- Facilitated some 50 fairs with approximately 7,000 kiosks introducing scientific and technical applications for agriculture, and new products—the fairs have attracted approximately 1 million visitors;
- Held more than 120 forums with many themes according to needs—the forums have attracted about 30,000 participants with an average of 260 participants per forum (over 70% of which were agricultural labourers);
- Collaborated with the media (press agencies, radio stations and television stations, at the central and regional levels) to disseminate information about innovative technologies through more than 29,000 news reports, articles and columns;

Despite these achievements, according to MARD (2013) the agricultural extension system in Vietnam has some shortcomings:

- The organisation system, functions and duties are inconsistent;
- The capacity of agricultural extension workers, especially those at the grassroots level, is low in some areas;
- Resourcing for and investment in agricultural extension activities has been inadequate; and
- There has been insufficient agricultural extension policy.

SUPPORTING POLICY FOR LOCAL FARMERS AND THE PRIVATE SECTOR

The discussion in this section is presented in three parts:

- Encouraging farmers and local authorities to continue planting rice;
- Incentives for the private sector to invest in agriculture; and
- Social policies relating to food security.

Encouraging farmers and local authorities to continue planting rice

Since 2012 Vietnam has established many policies, both technical and financial, to support agricultural production. Examples include tax exemptions on agricultural land, science and technology support, subsidies on seed and livestock, preferential credit mechanisms and rice purchase by government at set prices. This section focuses on policies relating to agricultural tax exemptions, irrigation fee exemptions and alleviating postharvest losses.

Agricultural tax exemptions

With the aim of encouraging agriculture development, the National Assembly issued a resolution on tax exemptions on agricultural land for the period 2003–09 (Resolution No. 15/2003/QH11) and another for the period 2011–20 (Resolution No. 55/2010/QH12). Farmers are exempt from 50% of tax on areas outside land limits, and 100% of tax within land limits. According to MARD (2015), 11.2 million farm households are exempt with a total tax exemption on the production of 1.85 million tonnes of rice annually (which is equivalent to 2.8 trillion VND at current prices).

Irrigation fee exemptions

In 2003, the Government issued a decree detailing implementation of the ordinance on exploitation and protection of irrigation works (Decree No. 143/NĐ-CP). The decree has since been amended and supplemented (Decree No. 115/2008/NĐ-CP dated 14 November 2008 and Decree No. 143/2003/NĐ-CP). The decrees regulate the rates, reductions and exemptions for irrigation fees. According to MARD (2015), the average annual irrigation fee exemption totals over 3 trillion VND.

The objective of the irrigation fee exemption is to help farmers reduce production costs. However, the exemption has created a moral hazard for farmers. As water is provided at a lower price than its actual value, farmers do not use water efficiently or appropriately. For example, rice needs to dry for some of the year, but some farmers are known to inundate the rice plants year round. Water from irrigation canals is sometimes flushed down drainage canals rather than used

efficiently for rice production. According to Agroviet (2015), if 10% of the water used for rice irrigation was saved, that would be 3.3 billion m^3 every year. Meanwhile, construction of Dinh Binh–Binh Dinh reservoir with a capacity of 200 million m^3 cost 2 trillion VND in 2000. Thus, water conservation measures would bring huge economic benefits.

Alleviating postharvest losses

The Prime Minister issued a decision in 2013 relating to support to reduce postharvest losses in agriculture (Decision No. 68/2013/QD-TTg, which replaced Decision No. 63/2010/QD-TTg and Decision No. 65/2011/QD-TTg which focused on machinery and equipment).

The state assists the purchase of machinery and equipment to reduce postharvest losses by covering the interest on commercial loans. The maximum loan specified in the decision is 100% of the value of goods. The state covers 100% of the interest in the first two years and 50% in the third year.

The state will also assist with interest on medium- and long-term loans for purchasing processing equipment, by covering the difference between state and commercial rates. The decisions stipulate the type of project that is eligible (which include greenhouses, net houses, storage and processing facilities, production lines and abattoirs). The maximum loan is equal to 70% of the total value of the project and the payback period cannot exceed 12 years.

After nearly 4 years of implementing these decisions, the number of loans has grown (Hong 2015). The amount of money loaned has increased almost six times, from 474 billion VND in 2011 to 2,674 billion VND in 2015. In 2011 (the first year of policy implementation), a total of 1,335 households, individuals and businesses accessed the support; by the end of 2014, the number of beneficiaries had increased almost ninefold to 11,732.

However, there have been many difficulties in the implementation of these decisions. It is clear that the number of beneficiaries and the turnover remain low. State and commercial interest rates are high (currently 9–10% per year) and there is little difference between them; hence the reduction is not enough to support significant additional investment in machinery or equipment. In addition, awareness and understanding of the policy has not been high, with many agencies confused about how it should be implemented.

Incentives for the private sector to invest in agriculture

In 2010, the Government issued a decree to provide incentives for enterprises to invest in agriculture and rural areas (Decree No. 61/2010/ND-CP). However, after 3 years of implementation, many problems were evident.

- There was limited implementation. The main incentives were by way of land and water tax/fee exemptions. Direct grants from the state budget were not implemented, and loans were provided only when mobilised from other programs.
- Surveys showed that enterprise owners were not enthusiastic about the policy (Dao 2013). The level of support with respect to tax exemptions, rental subsidies and training was not attractive enough to promote investment, especially in disadvantaged areas and for enterprises with high risk and low expected profits.
- Some support mechanisms (especially relating to transportation, consulting and market development) were not consistent with the actual needs of enterprises and did not address the issues they faced. The investment incentives of previous policies and legislation had been more effective.
- The design of the decree was complicated. There were only few grants and they were difficult to calculate; enterprises were unable to predict the support they might receive; financial regulation mechanisms were unclear with no specific provisions for investment sources; and procedures to receive the grants were cumbersome and complex.
- Local government investment capital is limited, and they did not have the resources to provide the support outlined by the decree.
- Awareness-raising for the policies was not done professionally or comprehensively so that enterprises and organisations were not aware of them.

Thus, in December 2013 the Government issued a replacement decree (Decree No. 210/2013/ND-CP), which specified 3 billion VND to build infrastructure for waste disposal, transport, electricity, water, buildings

and grassland, and to purchase equipment for large-scale project investors.

Projects have to be in the approved master plan of the state agency or approved by the provincial People's Committee to be eligible for support. The number of projects targeted for support include 1,000 or more for pork, 500 or more for cattle, goats, sheep and dairy products, and 200 or more for high-yielding imported beef. A minimum of 30% local labour is required, and projects must ensure disease prevention and food safety.

Social policies related to food security

The discussion in this section is presented in four parts:

- Policies on reducing rapid population growth;
- Policies on poverty reduction;
- Policies on adaptation to climate change; and
- Policies on nutrition.

Policies on reducing rapid population growth

According to GSO (2015), Vietnam's population reached 90 million in November 2014 and is growing at a rate of approximately 1% per year. Approximately 61% of the population live in rural areas (Figure 4). It is the third most populous country in the Association of Southeast Asian Nations (ASEAN) after Indonesia and the Philippines, has the eighth highest population in Asia, and the thirteenth highest population in the world.

After the victory of Dien Bien Phu in 1954 (which resulted in the French defeat in Indochina), Vietnam's birth rate markedly increased resulting in a 'baby boomer' period. The rate increased from 0.40 million people per year during the period 1945–55 to 0.99 million per year during the period 1955–65 (3.3% per year). As a result, the Vietnamese Government launched a series of policies aimed at controlling population growth. The first was Decision No. 216/CP (1961) establishing the Government Council on Population and Birth Control. In 2005, the Politburo (Vietnam's government executive) issued Resolution No. 47-NQ/TW on speeding up its implementation.

With new development conditions, including membership of the World Trade Organization and the Trans-Pacific Partnership, in 2013 the Prime Minister issued a decision approving Vietnam's strategy for population and reproductive health during 2011–20 (Decision No. 2013/QD-TTg dated 14 November 2011). The strategy launched 11 goals to improve reproductive health, maintain a reasonably low population growth rate, solve issues with population structure and distribution, and contribute to the success of industrialisation and modernisation. The population growth rate is currently approximately 1%. The targets set in the decision include, by 2020, to stabilise the 1% growth rate, to have one of the highest Human Development Index (HDI) rankings in the world, to improve health and reduce morbidity and mortality in children, and to significantly narrow the differences in health indicators of children between regions. This is hoped to be achieved through behaviour change

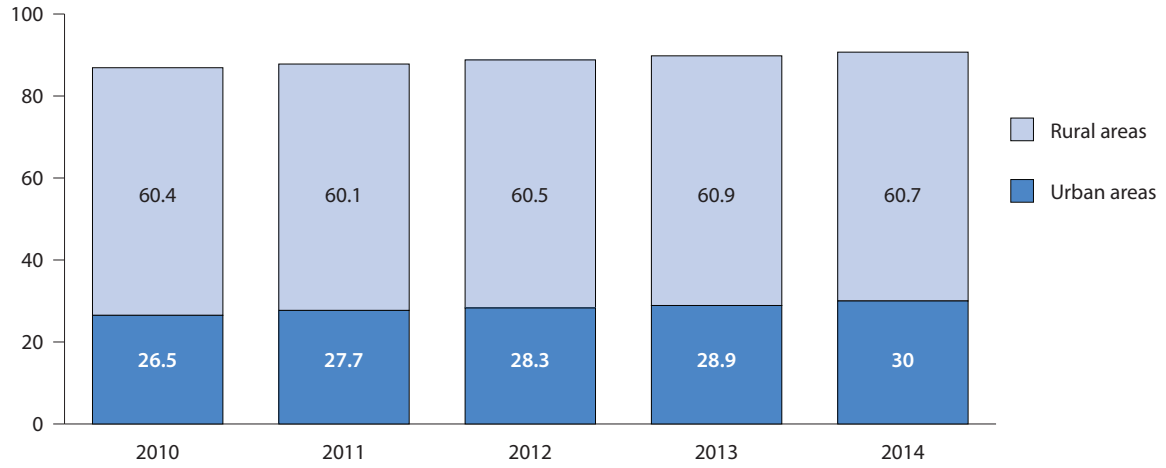

Figure 4. Population distribution in urban and rural areas in Vietnam 2010–14 (millions of people). Source: GSO (2015).

communication on population and family planning, family planning service delivery, capacity building on population and family planning, and addressing gender imbalances at birth.

Vietnam is facing challenges associated with its large population. As a result of climate change, approximately 5.3% of the total national land area might be flooded while the population continues to increase, reaching an estimated 100 million in 2025 and nearly 110 million in the mid-21st century (Nguyen 2014).

In the current international context, population policies are shifting from 'population and family planning' to 'population and development'. This requires:

- Integrating population variables into development planning and systems;
- Developing systems with complete and reliable population data and population projections; and
- Promoting information, education and communication on population and development.

Policies on poverty reduction

The Vietnamese Government has issued many policies and laws on poverty reduction. Initiatives include:

- Special consideration of the poor and poor households in Vietnam's general policies, including those relating to health care, education and training, productive use of land, and provision of clean water; and
- Specific policies that apply to the poor and poor households, poor districts, communes in coastal and island areas, border areas and safe zones, and villages with special difficulties relating to ethnic minorities and mountainous areas.

The policies can be divided into three subgroups: livelihood development, infrastructure investment and social welfare. Currently, there are approximately 70 legal documents detailing poverty reduction policies in Vietnam. Among them are two major government resolutions:

- The support program for fast and sustainable poverty reduction in 61 poor districts (Resolution No. 30a/2008/NQ-CP dated 27 December 2008); and
- The support program for sustainable poverty reduction 2011 to 2020 (Resolution No. 80/NQ-CP dated 19 May 2011).

There are also 10 government decrees, more than 30 decisions of the Prime Minister, and 30 circulars or joint circulars of ministries.

According to calculations of the GSO (2014c) using indicators calculated by the GSO and the World Bank, Vietnam's poverty rate has dropped steadily over the last two decades from 37% in 1998 to 10% in 2012. Since 1998, more than 30 million people have risen from poverty.

As of 2011, 99.8% of all communes received grid electricity (an increase of 0.9% compared with 2006). Approximately 93.5% of villages were connected to grid electricity (higher than in 2006 and 2001, when the figure was 88% and 70%, respectively). Rural roads have improved in terms of quantity and quality. As of 2011, there were motorways connecting 98.6% of communes (up from 94% in 2001 and 97% in 2006). Additionally, living standards have increased through improved education, and sanitary and healthcare systems. Approximately 99% of communes have medical stations, 85% of the rural population have access to clean water, and almost all communes have elementary schools.

Despite this progress in living standards, policies relating to poverty reduction in Vietnam have a number of problems. Many have been issued and their implementation is difficult to control. Their objectives are often conflicting; and they may support the same beneficiaries but have been issued by different government bodies at different times, resulting in problems achieving their goals. Also, due to policy overlap, people in the same area and at similar income levels may receive different benefits resulting in social discord.

The overlap of policies leads to inefficient use of a limited state budget (see Table 4 and Appendix A). For example, infrastructure investment in an area comes from many programs but cannot be integrated due to the different regulations and mechanisms.

Table 4. Duplicate content of some poverty reduction policies.

Programs/ policies	Traffic	Production support	Loans	Housing	Running water	Capacity building	Vocational training	Chair
Program 135-II	×	×	×	–	×	×	×	CEMA
National target program	×	×	×	×	×	×	×	MOLISA
Resolution 30a	×	×	×	×	×	×	×	MOLISA
Population disposition (QD 193)	×	×	×	×	×	×	×	MARD
Land and employment support (QĐ755/QĐ-TTg)	–	×	×	×	×	–	×	CEMA
Sedentarisation (QĐ33)	×	×	×	×	×	–	–	MARD
National target new rural construction	×	×	×	–	×	×	×	MARD

CEMA = Committee for Ethnic Minority Affairs; MOLISA = Ministry of Labour, Invalids and Social Affairs; MARD = Ministry of Agriculture and Rural Development.

Policies on adaptation to climate change

Global warming and sea level rise are amongst the greatest challenges that Vietnam faces in the 21st century. Over the past 50 years, the average annual temperature in Vietnam has increased by about 0.7°C and sea levels have risen by approximately 20 cm (MONRE 2003). According to the World Bank (2007), Vietnam is one of five countries that have the potential to be most severely affected by climate change and rising sea levels. The Red River and Mekong deltas are the regions expected to be affected the most.

Vietnam has issued many policies addressing the potential impacts of climate change, which are summarised in Figure 5.

The national strategy on climate change (No. 2139/QD-TTg dated 5 December 2011) has objectives of food security, energy security, water security, poverty reduction, gender equality, social security, public health, improvement of living standards, natural resources protection in the context of climate change, a low-carbon economy, mainstreaming green growth in sustainable development, and mitigation of greenhouse gas emissions and increases in greenhouse gas absorption.

The national target program on response to climate change for the period 2011–15 (No. 1183/QD-TTg dated 30 August 2012) and the national action plan on climate change for the period 2012–20 (No. 1474/QD-TTg dated 15 October 2012) have objectives of strengthening climate monitoring and early warning for natural disasters, food security, water security, active response to disasters, flood protection for big cities, strengthening of river dykes, sea dykes and reservoir safety, mitigating greenhouse gas emissions, developing low-carbon market economies, and strengthening mechanisms and policies on climate change.

The Vietnamese Government also established the support program on response to climate change (SP-RCC), to facilitate policy dialogue between government agencies and international development partners on issues related to climate change in Vietnam, and support the climate change goals of the national strategy. During the period 2012–15, the Government assigned funds and developed a priority list of 63 projects under the SP-RCC (No. 1443/TTg-QHQT dated 19 September 2012 and No. 262/TTg-KTN dated 25 February 2013). Despite this, few projects in the SP-RCC program were implemented.

Awareness of climate change and green growth in Vietnam is limited. Because responding to climate change and green growth is not always accompanied by economic growth in the short term, these are currently not usually addressed in socioeconomic development activities.

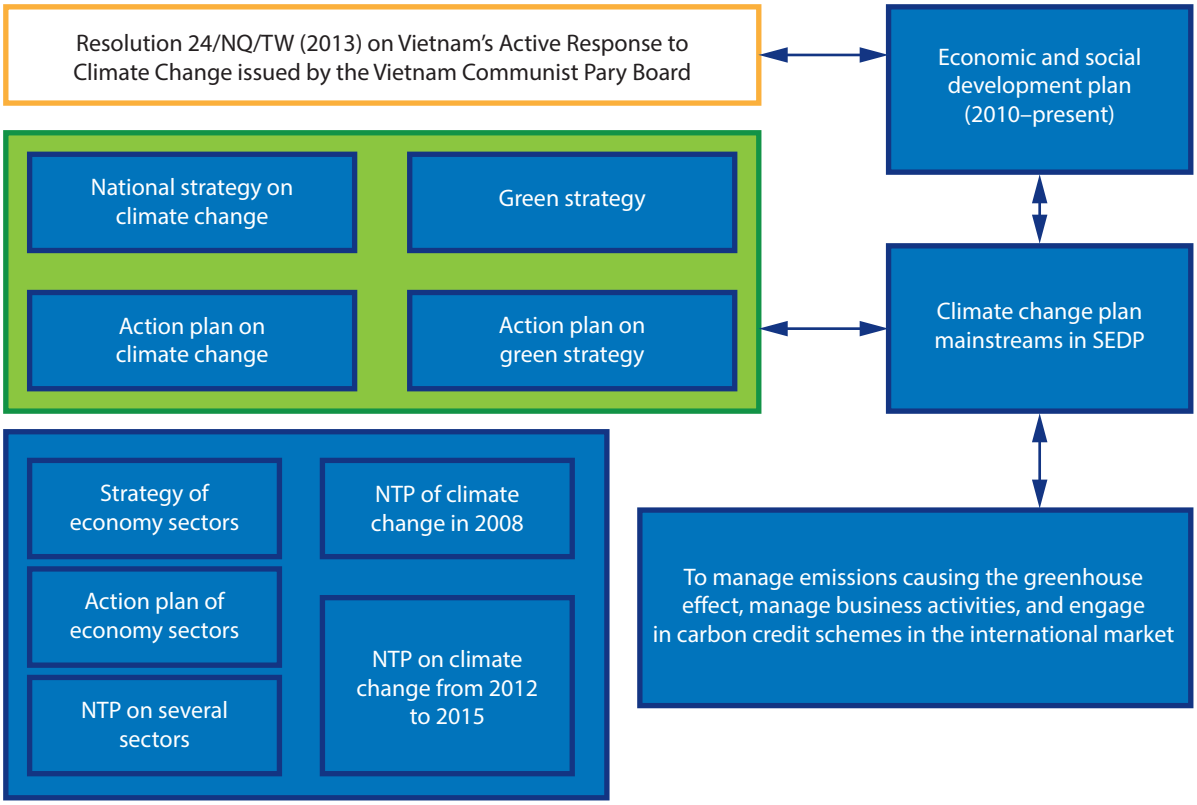

Figure 5. Diagram describing Vietnam's policy response to climate change. NTP = national target program; SEDP = socioeconomic development plan.

Policies on nutrition

There are two current decisions relating to nutrition:

- The national strategy on nutrition for the period 2011–20 with vision to 2030 (Prime Minister's Decision No. 226/QD-TTg dated 22 February 2012); and
- '10 tips on good nutrition to 2020' (Decision No. 189/QD-BYT dated 17 January 2013).

The main aim of the first of these decisions is that, by 2020, diets will be improved in both quantity and quality while ensuring safety and hygiene. Childhood malnutrition will be significantly reduced, and obesity and other chronic non-communicable diseases related to nutrition will also be controlled. Specifically:

- The percentage of households with average energy intake less than 1,800 kcal/person/day will decrease by 5%;
- Chronic calorie deficiency will be reduced among women of childbearing age to 12%; and
- The rate of children with low birth weight (below 2.5 kg) will be reduced to less than 8%.
- The 10 tips on good nutrition are given in Box 2.

According to statistics from the National Institute of Nutrition (Khan 2015), the proportion of underweight or malnourished children under 5 decreased by 7% in the period 1990–2000 (from 41% to 34%) and decreased by 16% in the period 2000–10 (from 34% to 18%). By 2013, the proportion of underweight or malnourished children under age 5 was 15%. With this reduced rate, currently Vietnam has reached and exceeded Objective No. 1 of the national strategy on nutrition for the period 2011–20 with vision to 2030 in 2015.

During 2000–10 the condition of underweight children under 5 was most improved in the South Central region (47% reduction), followed by the Red

River Delta and the Southeast (both 46%). The regions with the smallest change were Northeast (37%), Northwest (35%) and Central Highlands (32%). This achievement reflects both strong commitment by the Government and practical efforts in implementing nutrition programs across the country.

However, the proportion of underweight or malnourished children under 5 has not improved significantly in some regions (especially among ethnic minorities) and remains above 25%. Vietnam needs to continue efforts to improve nutrition for children under age 5 in a sustainable and equitable way over the country.

Box 2. Tips on proper nutrition to 2020.

Tip no. 1. Eat a variety of foods and ensure adequate intake of the four groups: carbohydrate, protein, fat, and vitamins and minerals.

Tip no. 2. Coordinate animal and vegetable protein foods; eat shrimp, crab, fish and beans.

Tip no. 3. Eat a mix of vegetable oil and animal fats; eat sesame and peanut.

Tip no. 4. Use iodised salt; do not eat very salty foods.

Tip no. 5. Eat fruits and vegetables every day.

Tip no. 6. Ensure food safety in selection, processing and preservation.

Tip no. 7. Drink enough water every day.

Tip no. 8. Breastfeed immediately after giving birth. Exclusively breastfeed in the first 6 months, then add complementary foods and continue breastfeeding to 24 months.

Tip no. 9. Children older than 6 months and adults should consume milk and dairy products as appropriate to the age group.

Tip no. 10. Undertake physical activity, maintain a healthy weight, do not smoke, and limit alcohol, carbonated water and sweet foods.

Source: Decision No. 189/QD-BYT dated 17 January 2013.

IMPROVING FOOD DISTRIBUTION SYSTEMS

The discussion in this section is presented in two parts:

- Policies on joint production; and
- Policies on rice exportation.

Joint production

In response to the policy encouraging cooperation, development and joint agricultural production based on large-scale fields (Decision No. 62/2013/QD-TTg of the Prime Minister dated 19 October 2003), MARD issued a set of guidelines for policy implementation (Circular 15/2014/TT-BNN dated 29 April 2014). It has been two years since the guidelines were released, and the number of large fields has increased significantly. From 2013 to the end of the winter–spring season harvest in 2015, an estimated 1,000 large fields have been developed totalling about 556,000 hectares. The Mekong Delta has the largest areas of large fields, some 450,000 hectares.

Initially the large-field model was mainly for rice, but the model has since been extended to many other crops. Some provinces have developed large fields for vegetables, fruit trees and industrial plants such as corn, peanuts, tea and coffee. Zucchini are planted in large fields in Hoa Binh, providing thousands of tonnes of safe product to market annually. The Nghe An province has developed 10 large fields for corn and eight for peanut, covering more than 1,000 hectares. Quang Binh province has developed 435 hectares of large fields for capsicum and 120 hectares for cassava.

Large fields become a place of collaboration, cooperation, and science and technology transfer, and provide public services and agricultural training. Agricultural extension activities are implemented within the fields, fulfilling a number of policies (Decree No. 02/2010/ND-CP on agricultural extension, and Decisions No. 1956/QD-TTg and No. 971/QD-TTg on vocational training for rural labourers).

Large fields have contributed to the development of farmers' organisations. Some enterprises that have large fields have linked in with JSC An Giang Plant Protection Corporation. The Southern Food Company supports farmers to establish agricultural cooperatives as intermediary organisations between enterprises and farmers. An Giang Plant Protection Corporation has

supported the establishment of hundreds of cooperative groups (471 groups in 2014), coordinating rice-cultivating households covering nearly 40,000 hectares in large fields of these companies in the Mekong Delta.

Rice exportation

The amount of exported rice increased from 2007, reaching over 8 million tonnes in 2012 with a value of over US$3.6 billion (Figure 6). In 2013 and 2014 rice exports fell in both volume and value, and 2015 was also forecast as a difficult year due to competition in the international rice market.

The Government has issued policies that provide regulations for the rice export business and import activities (Decree No. 109/2010/ND-CP dated 4 November 2010). The decree specifies the conditions for private companies to export rice, as well as MARD and provincial People's Committees, and adjustment of the price for rice exports by MOF.

In 2015 the Ministry of Industry and Trade (MOIT) issued a policy comprising a roadmap for setting up intensive paddy zones or implementing joint production and consumption of rice by rice export traders for the period 2015–20 (Decision No. 606/QD-BCT dated 21 January2015). The purpose of this policy is to bring together traders and farmers, to harmonise efforts and share risk and benefits. The production zones of traders in the period 2015–20 are determined by MOIT based on rice exports by traders in the period 2011–13 as follows:

- Traders who export under 50,000 t rice/year have to develop material zones of 500 ha in the first year and add 300 ha in each year thereafter;
- Traders who export 50,000–100,000 t/year have to develop material zones of 800 ha in the first year and 500 ha in each year thereafter;
- Traders who export 100,000–200,000 t/year have to develop material zones of 1,200 ha in the first year and 800 ha per year thereafter; and
- Traders who export more than 200,000 t/year have to develop material zones of 2,000 ha in the first year and 1,500 ha per year thereafter.

To increase the value of Vietnamese rice on the international market, the Prime Minister issued a policy on developing the Vietnamese rice brand (Decision No.

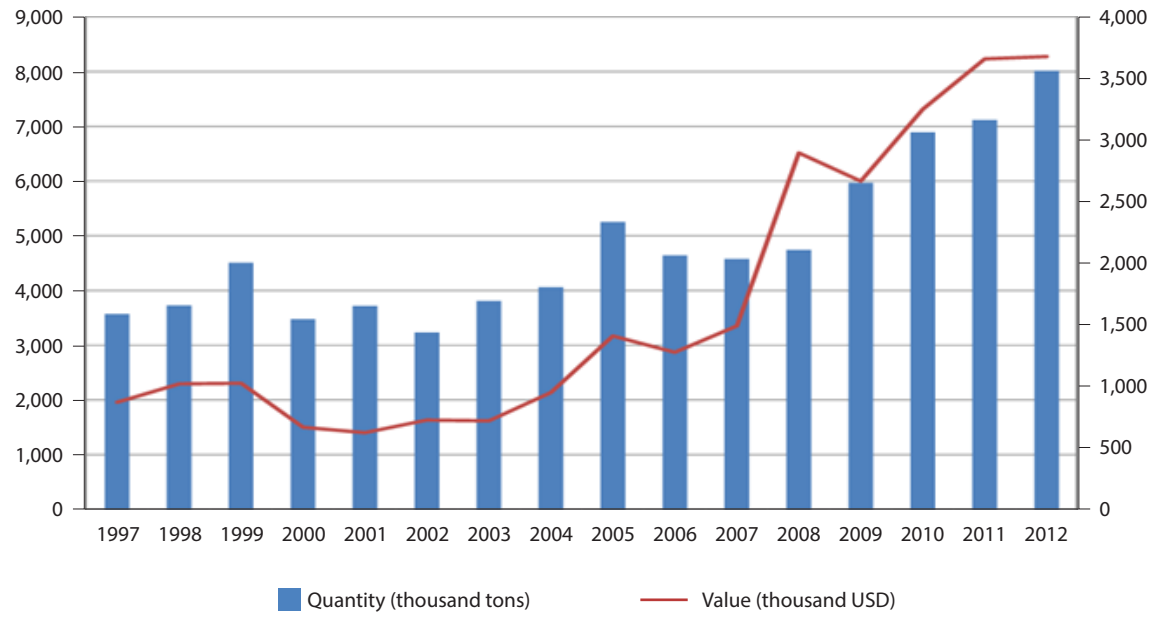

Figure 6. Quantity and value of Vietnam rice exports. Source: UN Comtrade (2014).

706/QD-TTg dated 21 May 2015). With a timeframe to 2020 and a view to 2030, Vietnam will aim to achieve 50% of rice exports under the Vietnamese brand (with certification), and exporting to at least 50 countries. The Government will prioritise investment in production, processing and packaging infrastructure in the regions developing the Vietnamese brand. Export enterprises using the Vietnamese rice brand will also receive investment and credit support.

Despite government efforts to regulate rice exports, some problems are evident. There is lack of cooperation between enterprises (especially in negotiating rice export prices), and also a lack of cooperation with input providers. Material zones have been required to be developed because enterprises otherwise would rely on the supplies available on the market. Exporters face high risk due to the unstable output market.

This series of policies has had impact, directly or indirectly, on the behaviour of partners in the rice market. Although they have had some positive effects, they also revealed many shortcomings and have not achieved expected results. For example, under the policy on conditions for rice export enterprises, Vietnamese traders must be certified and fulfil a range of conditions. They must, for example, have at least one specialised facility for rice storage and one for rice milling.

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APPENDIX A. SUMMARY OF VIETNAM'S FOOD SECURITY-RELATED POLICIES AND HOW THEY OVERLAP

Vietnam implements a comprehensive suite of policies relating to food security. These policies have evolved over time as need has arisen, and policy documents have been ratified by a number of different institutions. This evolution has resulted in a complicated collection of policies. Each policy document outlines a number of objectives, which are sometimes conflicting within as well as across policies; as well as a number of policy tools, which are also sometime conflicting within and across policy objectives and documents. This is leading to significant inefficiency and increased information and administrative costs (associated with redundant tools). A visual overview of how policies overlap with other policy areas is provided in the table on pages 64–66. Policies are categorised by topic and colour coded as shown on the right.

1. General planning
2. Paddy land planning
3. Infrastructure development
4. Science and technology development and application
5. Human resources training
6. Encouraging farmers/areas/enterprises to keep rice
7. Social policies
8. Consolidation of food distribution and export systems
9. Reforming production organisation
10. Developing food security information systems

Key:
□ = no policy overlap
▒ = moderate policy overlap
■ = significant policy overlap

Policy number	Policy name	Policy category overlap									
		1	2	3	4	5	6	7	8	9	10
1. General planning											
124/QĐ-TTg	Master plan to develop production										
1064/QĐ-TTg	Master plan of economic and social development of Northern Mountains										
1114/QĐ-TTg	Master plan of economic and social development in North Central region and Central Coast to 2020										
1874/QĐ-TTg	Master plan of economic and social development of key economic zones in Central regions to 2020, 2030 orientation										
245/QĐ-TTg	Master plan on economic and social development in Mekong River Delta region to 2020, 2030 orientation										
26-NQ/TW	Agriculture, farmers, and rural regions										
800/QĐ-TTg	National target program on rural renewal 2010–20										
2. Paddy land planning											
35/2015/NĐ-CP	Management and use of land for rice cultivation										
17/2011/QH13 (resolution)	Land use planning to 2020 and land use plan for 5 years (2011–15) at national level										
3367/QĐ-BNN-TT	Master plan on crops conversion in paddy land 2014–20										
580/QĐ-TTg	Seeding support policies on converting paddy to crops in Mekong River Delta										
	Agricultural tax application										
899/QĐ-TTg	Agricultural restructuring										
3. Infrastructure development											
79/2006/QH 11	Dyke law										
66/2000/QĐ-TTg	Policies and financial mechanism for irrigation upgrade implementation program										
13/2009/QĐ-TTg	Policies on using state investment credit to continue implementing irrigation programs, develop rural roads, fishery infrastructure and handicraft villages infrastructure 2009–15										
132/2001/QĐ-TTg	Financial mechanisms for development programs on rural roads, infrastructure, aquaculture, infrastructure for handicraft villages in rural areas										
2068/QĐ-TTg	Program system upgrade for river dykes 2020										
58/2006/QĐ-TTg	Investment program to consolidate, protect and upgrade the existing sea dykes in provinces from Quang Ninh to Quang Nam										
667/QĐ-TTg	Program for strengthening and upgrading the sea dyke system from Quang Ngai to Kien Giang										
17/2004/PL-UBTVQH11	State reserve										

Policy number	Policy name	Policy category overlap									
		1	2	3	4	5	6	7	8	9	10
2091/QĐ-TTg	State reserve program to 2020										
242/QĐ-BNN-CB	Master plan on reserve systems for 4 million tonnes of rice in the Mekong River Delta										
107/2008/QĐ-TTg	Support policies on safe production, transportation and consumption of vegetable, fruits, tea, and peppers to 2015										
69/2007/QĐ-TTg	Developing industries for agricultural production in terms of industrialisation and modernisation to 2010 and towards 2020										
146/2005/QĐ-TTg	Regarding acquisition of agricultural and forestry land for allocation to poor ethnic minority households										
67/2012/NĐ-CP	Amending and supplementing some articles of Decree No. 143/2003/ND-CP of 28 November 2003 detailing the implementation of the ordinance on exploitation and protection of irrigation works										
4. Science and technology development and application											
1831/QĐ-TTg	Program supporting the application and transfer of science and technology for economic development of sub-mountainous rural society										
11/2006/QĐ-TTg	Key program development and application of biotechnology in agriculture										
97/2007/QĐ-TTg	Program for biotechnology applications in the field of fisheries										
1895/QĐ-TTg	Approving programs for high technology applications for agricultural development under the national program for high-tech development 2020										
575/QĐ-TTg	Master plan for area and regional agricultural high technology application to 2020, 2030 orientation										
3246/QĐ-BNN-KHCN	Strategy for science and technology in agriculture and rural development										
5. Human resources training											
02/2010/NĐ-CP	Extension resolution										
162/2008/QĐ-TTg	Extension in disadvantaged areas										
1956/QĐ-TTg	Vocational training for rural workers to 2020										
2123/QĐ-TTg	Approval scheme for educational development for ethnic minorities 2011–15										
6. Encouraging farmers/localities/enterprises to keep rice											
68/2013/QĐ-TTg	Support policy in reducing agricultural losses/risks										
187/2010/TT-BTC	Regulation on seeds, livestock and fisheries to re-establish impacted regions following natural disasters and diseases										
120/2011/TT -BTC	Guides Decree No.20/2011/ND-CP of the Government dated 23 March 2011										
20/2011/NĐ-CP	Detailed guidelines for implementation of Resolution No. 55/2010 QH 2010 on tax exemption and agricultural land use										

Policy number	Policy name	Policy category overlap									
		1	2	3	4	5	6	7	8	9	10
115/2008/NĐ-CP	Amendment of Resolution 143/2003/NĐ-CP						■		■		
55/2010/QH12	Tax exemption and reduction on agricultural land usage						■		■		
142/2009/QĐ-TTg	Mechanisms and policies to support seeds, livestock and aquaculture production to restore damaged areas following natural disasters and diseases						■		■		
210/2013/NĐ-CP	Encourage enterprises to invest in agriculture and rural areas						■		■		
7. Social policies											
1199/QĐ-TTg	Approving the national target program on population and family planning 2012–15					■		■			■
2013/QĐ-TTg	Population and reproduction program 2010–20					■		■			■
06/2003/PL-UBTVQH11 (Ordinance)	Population							■			■
1489/QĐ-TTg	Approving the national target program on sustainable poverty reduction 2012–15		■			■		■			
30a/2008/NQ-CP	Resolution on the program to support rapid and sustainable poverty reduction for 61 poor districts		■	■		■		■			
551/QĐ-TTg,	Program 135 on supporting investment in infrastructure, in developing production for difficult communes, border communes, safe zones		■	■		■		■			
226/QĐ-TTg	National strategy on nutrition with a vision to 2030		■	■		■		■			■
8. Consolidation of food distribution and export systems											
109/2010/NĐ-CP	Rice exportation						■		■		
606/QĐ-BCT	Decision on the roadmap for the implementation of raw materials or to link production and consumption of rice, rice traders, rice export 2015–20								■		
9. Reforming production organisation											
23/2012/QH13	Cooperation groups										
62/2013/QĐ-TTg	Encouraging cooperation development, agricultural production linkages, large paddy fields						■		■	■	
10. Developing food security information systems											
1212/QĐ-TTg,	National target program on information to mountainous, remote, border and island areas, 2012–15								■		■
119/QĐ-TTg	Project on rural information and communication 2011–20								■		■
554/QĐ-TTg	Approving the scheme 'common law dissemination for rural people and ethnic minorities from 2009 to 2012'										■

Comparison of food security policies in Vietnam, Indonesia and Australia

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Abstract

There are a number of lessons to be drawn from Australia's food security experience (a country with high food security in the Asian region) that can provide learnings for Vietnam:

- Australia is a developed country with well-functioning markets and strong governance institutions that support these markets (including private, secure and tradeable property rights, enforcement of contractual obligations, and the rule of law).
- The government facilitates the functioning of markets, generally only intervening where markets fail, allowing the private sector to search out opportunities for which they will earn the highest net income.
- In general, capital is allowed to be allocated to its most efficient uses and land-use change is common as the economy adjusts to changes in domestic and international input and output prices.
- Australia does not strive for self-sufficiency; rather international trade is encouraged. Imports are encouraged with a view to establishing networks and markets for exports.

Similarly, there are a number of lessons to be drawn from Indonesia's food security experience (a country with poor to moderate food security in the Asian region) that can provide learnings for Vietnam:

- Indonesia's food security policy is not well defined or applied in a coordinated way across relevant government ministries. It is likely that some outcomes of policies implemented by the various institutions are counterproductive, inefficient and wasteful.
- Indonesia's policy direction is focused on self-sufficiency, which is an expensive and inefficient way of achieving food security compared with a mix of domestic production and international trade. Volatility in weather (such as floods, monsoons and drought) can lead to supply shocks, which lead to price volatility when food is largely obtained from domestic production alone.
- Indonesia's price stabilisation scheme—implemented through the public storage of rice and monopoly control over exports and imports—has resulted in higher domestic prices for rice and has exacerbated undernourishment.

Since the economic growth experienced after the 1986 *Doi Moi* reforms, Vietnam continues to strive to strengthen markets and international competitiveness. However, markets are stifled by significant land-use planning and other constraints to land-use flexibility such as property rights that are not fully secure, private and tradeable. Land is protected for rice production to ensure there are no shortages of rice. However, this has the effect of stifling agricultural productivity growth, in turn stifling farmers' abilities to earn profits from alternative enterprises.

INTRODUCTION

Food security is a priority of any government. The FAO World Food Summit in 1996 defined food security as ensuring that all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The aim of this paper is to compare Vietnam's food security policies with those of Indonesia and Australia, and to draw conclusions for food security policy reform in Vietnam. Indonesia is chosen for comparison as it is an emerging economy with similar attributes as Vietnam. Australia is chosen as it is a developed country in the Asian region.

The Economist Intelligence Unit publishes a Global Food Security Index (GFSI) across 109 countries. Figure 1 provides a global snapshot of food security in 2015 using the GFSI (all scores are normalised on a scale of 0–100 where 100 is most favourable). Vietnam's score is 53 which is a moderate food security rating. It is ranked 65 out of the 109 countries (where a ranking of one is the most food secure country; this is the United

States with a score of 89). Indonesia has a score of 47 which also gives it a moderate food security rating; it is ranked 74 of the 109 countries. Australia has a score of 84 (up from 82 in 2012) which gives it one of the best scores; Australia is ranked 9 of the 109 countries (EIU 2015).

Similarly, the International Food Policy Research Institute (IFPRI) publishes a Global Hunger Index (GHI) across 117 countries (IFPRI 2015). The GHI is measured on a 100-point scale where 0 is the best score (no hunger) and 100 the worst. Vietnam's score is 14.7 which is considered to be moderate, and Indonesia's score is 22.1 which is considered to be serious. Some high-income countries, including Australia, are not included in the GHI because the prevalence of hunger is very low.

This paper examines food policy across the three countries with their different levels of food security, to derive valuable lessons for food security policy development and direction in Vietnam. It is not intended to provide a comprehensive review of food security policy in these countries. The first three sections give brief overviews of food security policies in Vietnam, Indonesia and Australia, respectively. In the final section, conclusions are drawn for food security policy development in Vietnam.

FOOD SECURITY POLICY IN VIETNAM

In 2009, the Government of Vietnam issued Resolution No. 63/NQ-CP on national food security. The general aims of the policy are, by 2020 with a vision towards 2030, to:

- Ensure adequate food supply sources, with domestic output growth higher than population growth;
- Put an end to food shortage and hunger, and raise food quality; and
- Ensure that rice producers earn profits averaging more than 30% of production costs.

Specific objectives of the policy are provided in Box 1. The means by which the Vietnamese Government plans to achieve these goals are set out in many policy documents (decrees, resolutions, decisions and circulars). Yen (2016) reviews these documents. The policies focus on detailed planning solutions, infrastructure development, power generation goals and science and technology targets. From review of these policy documents, the overarching aims of Vietnam's food security policy are clear and relatively simple. The country has experienced strong economic growth since the *Doi Moi* reforms of 1986 and is keen to continue this process of market-oriented reform. It understands the potential for sustainable productivity growth to increase international competitiveness for its export markets and is investing in infrastructure, research and extension to facilitate this.

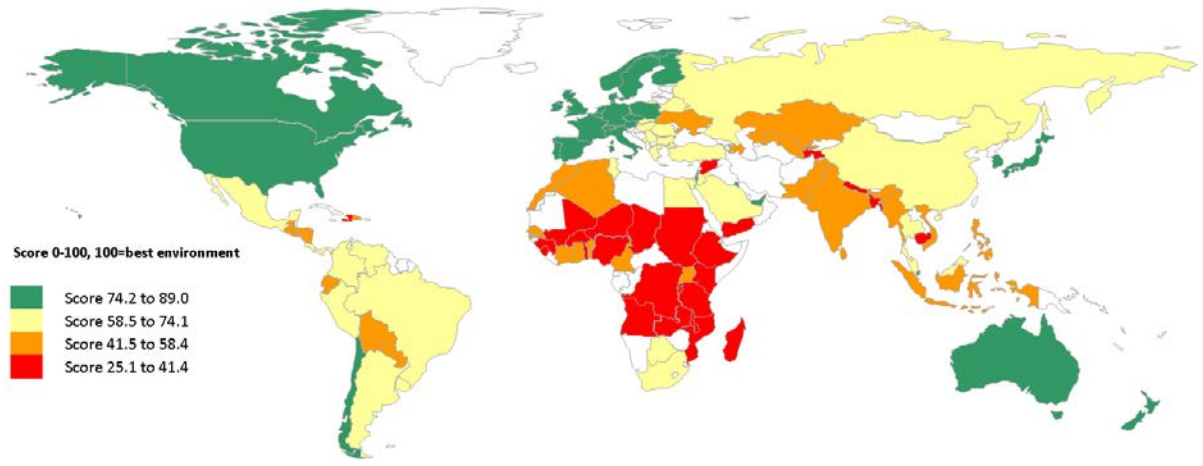

Figure 1. Food security across the world in 2015, as measured by the Global Food Security Index (EIU 2015).

Box 1. Specifics of Vietnam's food security policy.

1. **Ensure food supply sources**
   a. Step up intensive rice farming, particularly in the Mekong River and Red River deltas, creating stable supply for immediate and long-term national food security.
   b. By 2020, protect 3.8 million hectares (ha) of land so that rice production is 41–43 million tonnes (t) per year. This is expected to meet the total demand for domestic consumption and provide exports of about 4 million t/year.[1] Increased land allocations, and associated production forecasts, are also provided for other key agricultural commodities:
      i. Corn area to increase to 1.3 million ha for production of 7.5 million t;
      ii. Fruit tree area to increase to 1.2 million ha for production of 12 million t; and
      iii. Vegetable area to increase to 1.2 million ha for production of 20 million t.[2]

      The production of these crops is expected to increase by 30% from 2009 to 2020. Livestock meat production is targeted to reach 8 million t in 2020, fresh milk to reach 1 million t, eggs to reach 14 billion units, fish production to reach 2.4 million t, and aquaculture production to reach 4 million t.[3]
2. **Meet nutritional needs**
   a. By 2020, improve nutritional status and enhance calorie consumption with a target of 2,600–2,700 kcal/person/day, and reduce the proportion of malnourished children 5 years or younger to less than 5%.[4]
   b. Improve the structure and quality of food consumption, reaching the goal by 2020 of average consumption/person/year of 100 kg rice (i.e. reduced consumption), 45 kg meat, 30 kg fish, 50 kg fruit, 120 kg vegetables, increased consumption of eggs, and double the 2009 levels of consumption for milk. All agricultural and food products in the market are targeted to achieve food safety and hygiene standards.
3. **Guarantee access to food for all people**
   a. End hunger and food shortages by 2012.
   b. Increase income from food production in 2020 by 2.5-fold.

[1] Area planted to paddy rice in 2014 was approximately 7.8 million ha (GSO 2016). Vietnam's rice exports in 2014–15 were just over 8 million t (FAO 2015a).
[2] In 2014, corn area was estimated to be 1.2 million ha, corn production 7.5 million t/year; fruit tree area was approximately 0.8 million ha, with unknown fruit production (GSO 2016). Reliable estimates for area and production of vegetables are also unavailable.
[3] In 2014, livestock meat production was estimated to be 4.5 million t, fresh milk production 0.5 million t, egg production 8.3 billion units, fish production 2.9 million t and aquaculture 3.4 million t (GSO 2016).
[4] In 2011, energy supply per capita was estimated to be 2,700 kcal/person/day, and the proportion of children who were stunted, underweight or wasting was estimated to be 23%, 12% and 4%, respectively (FAO 2015b).

However, policy initiatives to improve markets and productivity growth are being stifled by the government's detailed land allocation plans. These plans allocate land area for rice and other significant food crops at a detailed geographic scale. Land rights in Vietnam are not fully privatised which, along with the government planning processes, is preventing farmers from changing land uses to those which allow them to maximise their incomes, i.e. preventing them from allocating capital to its most efficient uses. In addition, food security-related policy documents are numerous, with conflicting objectives and instruments. Implementation of these policies is conducted over a number of government ministries (such as the Ministry of Agriculture and Rural Development and the Ministry of Planning and Investment) in a number of different ways, risking counterproductive outcomes, inefficiency and wasted resources.

FOOD SECURITY POLICY IN INDONESIA

Food organisation in Indonesia is implemented through an increasingly nationalistic approach based on three concepts which are defined in the Food Law of 2012:

- Food sovereignty: the right of the state and nation to independently establish food policy that guarantees the right of food for the people and grants the right for society to establish food systems that are appropriate considering local resources.
- Food self-sufficiency: the ability of the state and nation to produce various foods domestically that can guarantee the fulfilment of food demand down to the individual level, using natural, human, social and economic resources and traditional knowledge.
- Food security: the provision of food at the state to the individual level, so that food is sufficient, in both quantity and quality, and is safe, diverse, nutritious and affordable, and does not conflict with religion, beliefs or culture, allowing people to live healthy, active and productive lives in a sustainable manner.

The Food Law of 2012 has as its objectives to:

- Increase production of food in a self-sufficient manner;
- Provide diverse food that fulfils safety, quality and nutrition requirements;
- Achieve food sufficiency levels, especially staple foods, and at reasonable and affordable prices;
- Facilitate or improve food access for people, especially those facing food insecurity and malnutrition;
- Increase value-adding and competitiveness of food commodities in domestic and foreign markets;
- Increase public knowledge and awareness of food safety, quality and nutrition;
- Improve welfare of farmers, fishermen, fish farmers and workers in food businesses; and
- Protect and develop the country's resources on which food production depends.

A number of Indonesian institutions are responsible for implementing the various aspects of the Food Law—the Ministry of Agriculture, BAPPENAS (the National Development Planning Agency), the Bureau of Logistics (BULOG), the Ministry of Trade, and the Ministry of Villages, Development of Disadvantaged Regions and Transmigration. The vision and strategies for food security differ across these institutions, with coordination of food security policies across the country being a significant weakness.

Self-sufficiency targets exist for five key staples: rice, maize, soybean, sugar and beef. The government hopes to achieve self-sufficiency in rice, maize and soybean in 2017 and in beef and sugar in 2019. To foster self-sufficiency, Indonesia provides market price support and fertiliser subsidies to agricultural producers.

A significant focus of Indonesia's food security program is on rice, the main staple which is also a nationally recognised symbol of prosperity. Natawidjaja and Rum (2015) argue that the government often demonstrates its ability to control the rice market in order to gain public confidence. The food security program for rice is pursued through:

- Self-sufficiently targets: currently, Indonesia imports approximately 10% of domestic rice consumption—it aims to reduce this to zero by 2017;
- Price stabilisation, implemented through two instruments simultaneously: (i) intervention in marketing through public storehouses managed at a local level, and (ii) monopoly control over international trade;
- The 'Rice for the Poor' (RASKIN) program, which delivers rice at subsidised prices to priority poor households; and
- Fertiliser and other input subsidies to stimulate domestic production.

A recent study from the Organisation for Economic Co-operation and Development (OECD) suggests that domestic rice prices were 60% higher than international prices in 2010–12 as a consequence of policy intervention, compared with 8% higher in 2000–02 (OECD 2015). Further, the current price support measures exacerbate undernourishment by between 2 and 22 percentage points depending on the degree of price transmission from the international markets. The RASKIN program does not offset the negative impact of price support on undernourishment, reducing it by an estimated 1.3 percentage points, driven in part by ineffective targeting with a significant proportion of subsidised rice going to non-needy households. Fertiliser and other input subsides have only minor effects on decreasing rates of undernourishment as they do not effectively decrease production costs and hence have limited effects on rice prices.

As a result of current policy settings, Indonesian food security is more susceptible to domestic economic and natural disaster risks that it is to international events. The OECD (2015) argues that policymakers in Vietnam should:

- Replace RASKIN with a targeted food voucher and cash transfer program;
- Refocus BULOG so as to reduce its commercial operations and instead have it focus on the neutral management of emergency food reserves;
- Phase out fertiliser subsidies and use these budgetary outlays for investments in infrastructure, innovation structures and the creation of risk management tools;
- Reform the administrative requirements for agro-food imports and exports, in particular import permits for rice and other licensing arrangements; and
- Promote a coordinated agreement within the Association of Southeast Asian Nations (ASEAN) to restrain the use of export restrictions.

FOOD SECURITY POLICY IN AUSTRALIA

Australia does not have a formal food security policy.[1] Any food security-related policies are contained within the Agricultural Competitiveness White Paper (CoA 2015) which is a policy paper released after a consultation process which included the Agricultural Competitiveness Issues Paper and Green Paper (CoA 2014a,b).

Australia currently has adequate quantities of high-quality food to feed its population. Food supply comes from both domestic production and imports. Unlike Vietnam and Indonesia imports are encouraged, subject to regulatory quarantine restrictions, to ensure market access to export markets. Low unemployment, an income support safety net and developed distribution networks mean that food is affordable and accessible for most Australians. Australians spend approximately 17% of their income on food (ABS 2010). For 90% of Australians, food prices are within 10% of those found in capital cities (BITRE 2009).

The National Health Survey 2004–05 estimated the number of people experiencing food insecurity in Australia as 2% of the general population, although this number was as high as 24% in some at-risk groups such as indigenous Australians and people living in disadvantaged areas (ABS 2006). The Australian Government has programs to facilitate the distribution of nutritious food to these areas, such as the Foodbank which acts as a conduit between the food industry's surplus food and the welfare sector's need. The Foodbank is a non-profit organisation, and receives financial support from the government.

A specific challenge to the Australian agricultural sector and food supply is a slowdown in agricultural productivity growth. This is the focus of the agricultural competitiveness policy. A summary of the policy's objectives and tool is provided below.

- Helping farmers achieve better returns through:
  - Fairer competition for farm produce through investing in engagement of the agricultural sector with the Australian Competition and Consumer Commission (to encourage fair trading and to strengthen competition in agricultural supply chains) and investing in knowledge and materials on cooperatives, collective bargaining and innovative business models;
  - Better regulation to reduce excessive bureaucracy or adherence to official rules and formalities through streamlining agricultural and veterinary chemical approvals, conducting Productivity Commission reviews into reducing regulation, and improving country of origin labelling to let consumers know where food is grown and processed; and
  - A better tax system for farm businesses to allow farmers to average income tax after 10 years and simplify on-farm infrastructure depreciation, to provide support for growing jobs and small businesses, and carry forward losses to subsequent years.

1 From 2010 to 2013, when the Australian Labour party was in government, Australia developed its first National Food Plan. The National Food Plan Discussion Paper (green paper) was released in 2012 (DAFF 2012) and a policy paper (white paper) was finalised in 2013 (DAFF 2013). During the 2013 elections, the Australian Labour Party was replaced by a coalition between the Liberal Party of Australia and the National Party of Australia. The National Food Plan was dropped for development of the agricultural competitiveness policy.

- Building infrastructure: the Australian Government is investing in planning and construction of national water, transport and internet infrastructure, in partnership with state and territory governments and the private sector.
- Strengthening the approach to drought and risk management: the agricultural competitiveness policy includes a number of initiatives to assist farmers to manage the risk of drought, including support to help farmers prepare for drought (through more accurate, frequent and local seasonal forecasts, tax deductions for water infrastructure, and grants for farm insurance advice and risk assessment), and support for farmers during drought (through drought concessional loans, farm household allowances, counselling services, additional advice and help from the Australian Taxation Office, local infrastructure projects for communities suffering due to drought, and management of pest animals and weeds in drought-affected areas).
- Farming smarter: the Australian government supports farmers to access technologies and practices through extension services (getting research onto the farm); funding for research through funding partnerships with industry (especially for small industries); improving research, development and extension priorities; reducing research and development administration costs; providing emergency pest and disease eradication capabilities; giving farmers tools and control methods against pest animals and weeds; investing in skill development training; investing in the seasonal worker program; and establishing a new Ministerial Advisory Council on Skilled Migration. The government supports farmers and other land managers to tackle practical environmental projects through the National Landcare Program and provides training in conservation management through the 'Green Army'.
- Accessing premium markets: the Australian Government considers improvements to international trade as key to growing farm businesses and increasing financial returns for farmers. In partnership with industry, the government assists in providing information and access to international markets. It plans to improve access to premium markets through funding programs to break down technical barriers to trade and improving biosecurity surveillance and analysis, and to modernise Australia's food export traceability systems to enhance food safety credentials.

LESSONS FOR VIETNAM'S FOOD SECURITY POLICY

There are a number of lessons to be drawn from experience in Indonesia and Australia that can provide learnings for Vietnam. Australia is a developed country with well-functioning markets and strong governance institutions that support these markets. These institutions include private, secure and tradeable property rights, enforcement of contractual obligations, and the rule of law. The government facilitates the functioning of markets, generally only intervening where markets fail.[2] Australia's focus on establishing well-functioning markets and intervening only where markets fail has allowed the private sector to search out opportunities for which they will earn the highest net income. In general, capital is allowed to be allocated to its most efficient uses and land-use change is common as the economy adjusts to changes in domestic and international input and output prices. Australia does not strive for self-sufficiency; rather international trade is encouraged. Imports are encouraged with a view to establishing networks and markets for exports.

As a result, Australia has a high level of food security and therefore does not need a specific food security policy. Rather, its policy is focused on supporting agricultural industries for economic growth. Its strategy is to focus on ways to increase sustainable productivity growth through increasing competition, reducing regulatory requirements, reducing taxes, building infrastructure, managing risks such as drought and the impacts of pests and diseases, building extension

2 Examples of where markets fail include where monopoly power exists, where markets are missing (i.e. public goods such as defence and roads), where markets are incomplete (such as education and healthcare), where the production of goods is deleterious (such as cigarettes and alcohol), where negative externalities exist (where consumers and producers may fail to take into the account their negative actions on third parties such as the environment), where property rights are poorly defined or held in common, where full information is not available to all parties, or where inequality exists.

networks, strengthening research, labour market reform, and improving food export traceability and food safety credentials.

Indonesia's food security policy is not well defined or applied in a coordinated way across relevant government ministries. It is likely that outcomes of policies implemented by the various institutions are counterproductive, inefficient and wasteful. Its policy direction is focused on self-sufficiency, which is an expensive and inefficient way of achieving food security compared with a mix of domestic production and international trade. Volatility in weather (such as floods, monsoons and drought) can lead to supply shocks, which leads to price volatility when food is largely obtained from domestic production alone. Indonesia's price stabilisation scheme—implemented through the public storage of rice and monopoly control over exports and imports—has resulted in higher domestic prices for rice and exacerbated undernourishment.

Since the economic growth experienced after the 1986 *Doi Moi* reforms, Vietnam continues to strive to strengthen markets and international competitiveness. However, markets are stifled by significant land-use planning and other constraints to land-use flexibility such as property rights that are not fully secure, private and tradeable. These block the ability of private enterprise to search out comparative advantages and allocate capital to its most efficient uses for income growth. Land is protected for rice production to ensure there are no shortages of rice; however, this has the effect of stifling agricultural productivity growth, in turn stifling farmers' abilities to earn profits from alternative enterprises. It is inclusive economic growth that will allow growers to raise themselves from poverty, making food more available. By allowing markets to function (by reducing land-use planning in this instance), individuals in Vietnam will have the opportunity to produce what they can most efficiently, and earn higher profits. Food security can be achieved by focusing on growing those foods which they can produce most efficiently, and building trade relations with a diverse range of countries from which to import the foods they produce least efficiently. Singapore has achieved its status of being the second most food secure country in the world (second to the United States) with this strategy (Economist 2015).

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Evaluation of Vietnam's food security policies

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Abstract

Vietnam has made significant strides in the past 30 years to provide food security at a national level. Dietary energy supply has increased by 42% over the last two decades. However, malnutrition and food safety remain significant problems. Vietnam's food security policy and regulations are evaluated in this paper against 10 policy principles. Strengths and weaknesses are suggested, with an associated strategy for policy reform. We find that these policies have a strong focus on promoting economic growth; are targeted at those who are food insecure; have good focus on the development of markets; encourage agricultural productivity and investment; and consider food safety issues. However, they lack transparency; are not easy to administer; have objectives of self-sufficiency; land rights are not private, transparent and fully tradeable; price support mechanisms for rice exist; social protection programs are underdeveloped; and policies do not fully address the nutrition and food safety issues the country faces. While well intentioned, a number of policies are more of a hindrance than a help at achieving stated goals. It is suggested that the government leave production decisions to farmers and focus its role on monitoring standards and addressing risks to ensure food safety is enhanced.

INTRODUCTION

Food security is a key goal of Vietnam's government. In 2009, Vietnam's National Assembly ratified a resolution on food security. Resolutions are one of the highest ranked documents in Vietnam's hierarchy of legal documents, after the Constitution and laws.

Food security can mean a number of things and the definition has evolved over time. It was defined at the FAO World Food Summit in 1996 as ensuring that all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. As a major rice exporter, Vietnam clearly produces enough calories for the whole population at a national level, yet significant problems remain. Malnutrition and food safety are not adequately addressed (FAO 2015; Thang and Linh 2015).

The nation's food and nutritional security has been improving over the past two decades (1990–2012), with dietary energy supply increasing by 42% (from 1,900 to 2,700 kcal/person/day) and undernourishment and stunting in children showing significant decreases (Figure 1) (FAO 2015). Currently, the Economist Intelligence Unit estimates that Vietnam has moderate food security (ranked 65 out of 109 countries it considers), and that its food security rating has been increasing since it started measuring it in 2012 (EIU 2015). In spite of this improvement, anaemia and malnutrition are persistent issues, especially among pregnant women and children under 5 years of age (FAO 2015).

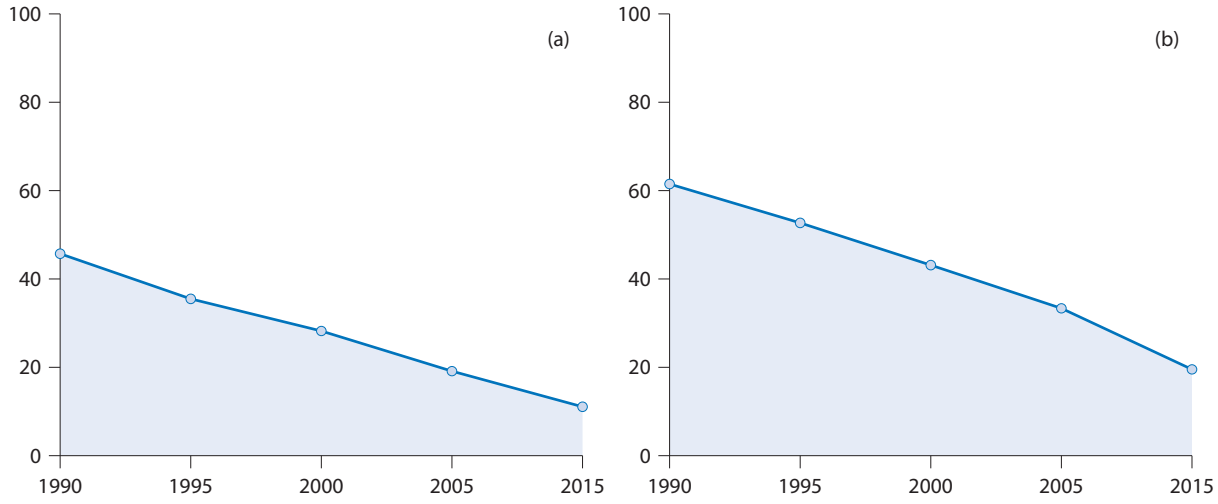

Figure 1. (a) The proportion of undernourished people in the population; and (b) prevalence of stunting in children under five years (%) in Vietnam (source: IFPRI 2015).

The purpose of this paper is to evaluate Vietnam's food security policy with a view to suggesting ways in which its reform could enhance food security. We assess current policies against the set of key policy principles proposed by Petersen (2016). These principles were developed after an extensive study of the literature on the causes of food insecurity. They are interrelated and synergistic in their impact on food security (i.e. each principle simultaneously affects food availability, affordability and nutrition), and are outlined as follows:

- Principle 1: Inclusive economic growth is key to food security;
- Principle 2: Self-sufficiency is an inefficient and expensive way of achieving food security and leads to domestic price volatility;
- Principle 3: Well-functioning markets lead to poverty alleviation and food distribution;
- Principle 4: Sustainable agricultural productivity growth increases food availability and household incomes;
- Principle 5: Private and tradeable property rights for agricultural land lead to productivity growth;
- Principle 6: Standards for food safety can reduce safety risk;
- Principle 7: Capital should be allocated to its most efficient uses;
- Principle 8: Price support mechanisms lead to market distortions and inefficiencies;
- Principle 9: Social protection programs provide safety nets during food crises; and
- Principle 10: An efficient food security policy has just one instrument for each objective.

Vietnam's current food security policy and suite of associated regulations are described in detail by Yen (2016). The next section gives a brief outline of Vietnam's food security policy. The evaluation of Vietnam's food security policies against the 10 policy principles is then presented. The strengths and weakness of these policies are summarised in the final section, with seven recommendations for policy reform.

OVERVIEW OF VIETNAM'S FOOD SECURITY POLICIES

In 2009, the Government of Vietnam issued Resolution No. 63/NQ-CP on national food security. The general aims of the policy are, by 2020 with a vision towards 2030, to:

- Ensure adequate food supply sources with growth in output greater than the population growth rate;
- Put an end to food shortage and hunger and raise food quality; and

- Ensure that rice producers earn profits averaging more than 30% over production costs.

Specific objectives, as outlined in the policy document, are to ensure food supply sources, meet nutritional needs and guarantee access to food for all people. Further details of these specific objectives are provided below.

Ensure food supply sources

a. Step up intensive rice farming, particularly in the Mekong River and Red River deltas, creating stable supply for immediate and long-term national food security.
b. By 2020, protect 3.8 million hectares (ha) of land so that rice production is 41–43 million tonnes (t) per year. This is expected to meet the total demand for domestic consumption and provide exports of about 4 million t/year. Increased land allocations, and associated production forecasts, are also provided for other key agricultural commodities:
   i. Corn area to increase to 1.3 million ha for production of 7.5 million t;
   ii. Fruit tree area to increase to 1.2 million ha for production of 12 million t; and
   iii. Vegetable area to increase to 1.2 million ha for production of 20 million t.

   The production of these crops is expected to increase by 30% from 2009 to 2020. Livestock meat production is targeted to reach 8 million t in 2020, fresh milk to reach 1 million t, eggs to reach 14 billion units, fish production to reach 2.4 million t, and aquaculture production to reach 4 million t.

Meet nutritional needs

a. By 2020, improve nutritional status and enhance calorie consumption with a target of 2,600–2,700 kcal/person/day, and reduce the proportion of malnourished children 5 years or younger to less than 5%.
b. Improve the structure and quality of food consumption, reaching the goal by 2020 of average consumption/person/year of 100 kg rice (i.e. reduced consumption), 45 kg meat, 30 kg fish, 50 kg fruit, 120 kg vegetables, increased consumption of eggs, and double the 2009 levels of consumption for milk. All agricultural and food products in the market are targeted to achieve food safety and hygiene standards.

Guarantee access to food for all people

a. End hunger and food shortages by 2012.
b. Increase income from food production in 2020 by 2.5-fold.

The specifics regarding how these policy objectives and targets will be met are outlined in over 60 food security-related policy documents, as outlined by Yen (2016).

EVALUATION OF VIETNAM'S FOOD SECURITY POLICIES AGAINST 10 POLICY PRINCIPLES

A critical evaluation of Vietnam's food security policy, and over 60 associated policy documents, is provided in this section against the 10 policy principles.

Principle 1: Inclusive economic growth is key to food security

Inclusive economic growth is central to achieving food security (World Bank 2008). Countries that become richer are less susceptible to food insecurity especially in the face of expanding population (FAO et al. 2015). Vietnam's gross domestic product (GDP) per person has increased by 275% since 1990, driven largely by the *Doi Moi* (renovation) reforms which were enacted in 1986 (FAO 2015; Trading Economics 2015; Luong 2016). However, concerns have been raised that the pace of poverty reduction has slowed in recent years and that the best route to sustained poverty alleviation is to exploit geographic variation in welfare outcomes (Lanjouw et al. 2013). International evidence suggests that transfers will have the largest impact on poverty when they are targeted to finely delineated communities and localities (e.g. Elbers et al. 2007). IFAD (2010) argues that the poorest people in Vietnam include:

- Members of the country's 53 ethnic minority groups, who depend mainly on forest resources for their livelihood (they constitute 13% of the population but account for approximately 30% of the poorest people);

- People living in remote upland areas with a poor natural resource base;
- People living in coastal areas that are more prone to adverse climatic events;
- Households headed by women;
- Households with disabled members;
- Migrants; and
- Landless people.

Economic growth is a priority of the Government of Vietnam, and many of its food security policies are targeted to regions in need. Some examples include:

- The country's master plans which are developed individually for four different regions in Vietnam (1064/QĐ-TTg, 1114/QĐ-TTg, 1874/QĐ-TTg, 245/QĐ-TTg);
- The resolution on the program supporting rapid and sustainable poverty reduction for 61 poor districts (30a/2008/NQ-CP);
- Infrastructure development policies which are region specific, including policy on rural roads and aquaculture infrastructure in rural villages (132/2001/QĐ-TTg), dyke development in key provinces (58/2006/QĐ-TTg, 667/QĐ-TTg), and a policy regarding land acquisition for agricultural production and forestry for allocation to poor ethnic minority households (146/2005/QĐ-TTg);
- Science and technology policies, including a policy for the application and transfer of science and technology for economic development in the sub-mountainous rural regions (1831/QĐ-TTg); and
- Human resources training, including a policy on agricultural extension specifically for disadvantaged areas (162/2008/QĐ-TTg) and vocational development for ethnic minorities (2123/QĐ-TTg).

The fact that these policies target food security in specific locations is evidence that the government is committed to inclusive economic growth and achieving food security for those in need.

Principle 2: Self-sufficiency is an inefficient and expensive way of achieving food security and leads to domestic price volatility

Self-sufficiency is the goal of meeting consumption needs from domestic production rather than a mix of production and international trade. An effective and efficient food security policy does not try to facilitate the supply of all the country's food needs domestically, but encourages an economy to do what it does best. This means specialising in production and trading the surplus to satisfy consumption rather than trying to produce everything itself. Self-sufficiency can also lead to domestic price volatility. Volatility in weather (such as floods, monsoons and droughts) can lead to supply shocks which cause significant price spikes if there are barriers to international trade. Openness to international trade allows a country to source food from a large market which spreads the supply risk.

Singapore is ranked as the second most food secure country in the world (behind the United States) (EIU 2015), despite importing 90% of its food and using less than 1% of its land for agriculture (The Diplomat 2015). Resilience of its food supply is attributed to Singapore's Agri-Food and Veterinary Authority (AVA) which has implemented policies that seek to diversify the source of food imports.

A number of Vietnam's food security policies have an orientation to determine amounts of land that should be allocated to different uses. These policies have a number of objectives, including:

- Changing the structure of agricultural production;
- Improving the efficiency of land use;
- Maintaining the area of paddy land;
- Ensuring national food security;
- Increasing income for local people;
- Contributing to the alleviation of poverty;
- Political and social stability;
- Environmental protection; and
- Adaptation to climate change.

Examples of these policies include:

- The country's master plan to develop production which determines that at least 3.812 million ha of land should be allocated to rice (of which 3.2 million ha should be irrigated and cropped at least twice per year) (124/QĐ-TTg);
- Specific regional master plans, for example, the master plan of the Mekong River Delta region which specifies that rice area should be stabilised in 2020 at 772,200 ha, fruit tree area at 68,000 ha, brackish

water aquaculture at 345,000 ha and freshwater aquaculture at 68,000–78,000 ha (245/QĐ-TTg); and

- The master plan on crops conversion in paddy land, which overlays these master plans and is specific about the amount of paddy land that can be cultivated for other uses (3367/QĐ-BNN-TT).

It is unclear how many of these policies are binding. For example, as of January 2014, there were 4.08 million ha sown to paddy rice (GSO 2015). As farmers seem happy to plant a greater area than the policy specifies, the policy of at least 3.81 million ha allocated to rice appears not to be binding, i.e. farmers are not being forced to grow more than they want to grow. However, the allocation by region and crop may well be binding, and the requirement to potentially allocate the land to paddy rice in the future may be preventing farmers from investing in infrastructure for alternative, more profitable, land uses.

Maintaining the area of paddy land and other crop types is an inefficient and expensive way of achieving food security and is likely to be counter to the goal of national food security. An article by Giesecke et al. (2013), using a region-specific single country CGE analysis, suggests that removing the policy would increase national income by an estimated 0.35% per year while improving food security, reducing poverty and improving diet diversity.

An ACIAR-funded study on the topic by Vanzetti and Pham (2015) comes to a similar conclusion by different means. This paper examined the potential impact of removing the designated rice area policy on the grains–oilseed–livestock sector and the implications for producers in eight regions of Vietnam over a 10-year period. Rice consumers were found to be largely unaffected because rice prices are internationally determined and unresponsive to changes in supply in Vietnam. However, a shift into producing goods sold in the domestic market drives down domestic prices, offsetting the increase in yields in some instances. Livestock producers were found to benefit from lower feed costs. Food security was expected to improve because of a more diversified diet.

Relaxing constraints on rice area and production will allow farmers to invest in commodities which they can produce with highest income, which is likely to lead to a reduction in poverty and an increase in food security. The results of a survey reported by Thang et al. (2016) show support for this amongst policy stakeholders in Vietnam. The government can foster an economy to reach high levels of food security quicker by seeking to diversify sources of food imports, rather than seeking self-sufficiency of rice production.

Principle 3: Well-functioning markets lead to poverty alleviation and food distribution

Participation in open markets creates jobs, supports local economies, contributes to raising living standards, and helps food surpluses reach areas of deficit. Policies that help people who are food insecure to reach markets will empower them to find food, and job opportunities, and the latter will lead to increased incomes and therefore food affordability. A government can strengthen the function of markets through supporting a rules-based trading system (e.g. ensuring enforcement of contractual obligations, the rule of law, and security of property rights), encouraging private sector participation in food production and trade, building and maintaining domestic and port infrastructure, and removing barriers to trade (such as tariffs, quotas, subsidies and other trade restrictions).

Since the national government began implementing its *Doi Moi* program in 1986, Vietnam has made significant progress in strengthening law and governance (Asia Foundation undated). This has led to greater transparency, accountability and citizen participation in public decision-making and development planning. However, obstacles still remain to removing fundamental imbalances in access to information, to strengthening civic participation, enhancing accountability, and reducing corruption (Wold Bank 2010).

Examples of these obstacles include problems accessing credit and the dominance of state-owned enterprises (SOE). The Organisation for Economic Co-operation and Development (OECD 2015) notes that difficulty accessing credit from banks and high interest rates are the two most serious constraints for the survival and development of enterprises. Problems accessing credit stem from the concentrated and

localised nature of financial markets in rural areas, and the lack of sufficient collateral by small-scale farmers. The World Bank (2015) argues that structural reform regarding SOEs is slow (only 29 SOEs were equitised in the first quarter of 2015 out of the annual target of 289). SOEs enjoy preferential access to land, credit and export quotas. As a result, less of these factor inputs and market opportunities are left for the private sector (Berthold 2009). Implementing the legal and regulatory framework for management and corporate governance issued in 2014 and increasing percentage of ownership that can be acquired by the private sector should remain key priorities (World Bank 2015). Progressing with these goals will significantly strengthen the function of markets within Vietnam's economy.

The facilitation of well-functioning markets is a specific objective of a number of Vietnam's food security policy documents, including:

- The master plans (124/QĐ-TTg);
- The policy to encourage enterprises to invest in agriculture and rural areas (210/2013/NĐ-CP);
- The national target program on sustainable poverty reduction (1489/QĐ-TTg);
- The policy to reform the structure of agricultural production in Vietnam (23/2012/QH13); and
- The policy to encourage cooperative development, agricultural production linkages and large paddy fields (62/2013/QĐ-TTg).

Overall, Vietnam's food security policies are striving for well-functioning markets. This objective provides opportunities for economic growth if it is well implemented and targeted to those who are food insecure. Removal of land-use planning (as suggested in Principle 2) will further facilitate the market, allowing private producers to respond to market signals (see also Principle 7).

Principle 4: Sustainable agricultural productivity growth increases food availability and household incomes

The majority of food-insecure households in Vietnam are in rural areas, where family farming and smallholder agriculture prevail (IFAD 2010). Labour and land productivity increases have positive effects on the livelihoods of the poor through increases in food availability and incomes. Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs and is usually measured on value. It does not arise with increased area of agricultural land, but can come in the form of mechanisation, adoption of higher yielding varieties, efficient use of inputs (such as feed, fertilisers, herbicides and pesticides), improved infrastructure (such as irrigation) and adoption of other new innovations. Governments can facilitate sustainable agricultural productivity growth through adaptive strategies to appropriately invest in agricultural research, development, extension and infrastructure (World Bank 2012).

Vietnam's food security policies have a strong focus on increasing agricultural productivity with significant investment in research, development, extension and infrastructure. These policy instruments are included in almost all of the 60 policy documents reviewed by Yen (2016):

- All general planning policies;
- Most of the paddy land planning policies;
- All infrastructure development policies;
- All scientific and technological development and application policies;
- All human resource training policies;
- The resolution to support rapid and sustainable poverty reduction for 61 poor districts (30a/2008/NQ-CP);
- Program 135 on supporting investment in infrastructure, in developing production for special communes, border communes, safe zones (551/QĐ-TTg);
- All policies to reform the structure of agricultural development in Vietnam; and
- All policies to develop food security information systems.

The government's initiative to invest in research, development, extension and infrastructure, both from domestic and foreign sources, is commendable. Some policies encourage overseas development assistance (ODA) for developmental infrastructure projects. As long as Vietnam does not form a reliance on ODA for ongoing maintenance and recurrent expenditure, this

openness to ODA is likely to fuel economic growth without forming an aid dependency. Careful and targeted implementation of these policy objectives is central to maximising their benefits.

Principle 5: Private and tradeable property rights for agricultural land lead to productivity growth

Property rights can be held in common, collectively or privately. The issue of property rights for agricultural land is critical for poverty reduction, economic growth and food security (Kompas et al. 2009). Conditions attached to land rights alter the incentives by which the user of the land behaves. Generally, private ownership of agricultural land leads to agricultural growth and development as it allows the trading of land, provides security and incentive for investment, allows the land to be used for collateral for credit, encourages sustainability, and allows people to act benevolently (Kishtainy et al. 2012).

The Vietnamese Government's land policy is outlined in the latest revision of the Land Law in 2013. All land in Vietnam is held as common property, with the State as the administrator. Private ownership of land is not permitted. The Vietnamese Government considers land to be a very important resource, the ownership of which remains central to the Communist Party's control over the direction of Vietnam's development (Hansen 2013). 'People's ownership' and 'State management' are cornerstones of the Communist Party's ideology. The State owns and controls land, assigns its purpose (agricultural, forestry or residential) and decides who has the right to use it and for how long. Land use rights can be allocated by the State or leased from the State:

- Allocated by the State: Generally, these rights may be sold, leased, donated or mortgaged, and they may also contribute as capital into a joint venture. Foreign-invested entities and foreign individuals cannot be allocated land, although in July 2015 Vietnam relaxed its foreign land ownership laws making it possible for foreigners with a valid visa, as well as foreign companies and international organisations operating in Vietnam, to purchase houses and apartments. Generally, land allocated for residential purposes will be for an indefinite period. However, land allocated to a domestic enterprise to implement an investment project (other than a residential development) or to construct business facilities such as a factory will be for a definite period, with generally a maximum 50-year term. Extension of the term may be permitted but is not guaranteed. Bribery and an absence of transparency commonly appear in this process.
- Leased from the State: Land can be leased from the State by both domestic and foreign-invested entities and by Vietnamese individuals for a maximum 50-year period (although in certain cases a 70-year term is permitted) but must not exceed the duration of the relevant investment project. If the leased land is under an agriculture land fund, it cannot be taken for longer than a 5-year term. Extensions are possible at the end of each leased period but are not guaranteed, and the extended term must not exceed the original term (Allens 2012).

Secure, tradeable and private land use rights (where land is owned by the State but allocated for the long term to users) can often provide the same incentives as private property rights. However, the timeframe for which current land use rights are allocated and the security of these rights are still posing a problem to food security in Vietnam. Land fragmentation is still stifling progress of mechanisation in Vietnam and therefore international competitiveness (Anh and Chanh 2015; Petersen et al. 2013), with land consolidation constrained by the dominance of state-owned or state-connected farms and forest enterprises, as well as poor security due to land seizure by government (Wells-Dang et al. 2015). According to the Land Law 2013, paddy land or annual cropping land is limited to only 3 ha per household or individual, while perennial crops are limited to 10 ha. This regulation is flexible in terms of specific conditions for each locality and in each period. This fact creates unclear and vague interpretations by provincial and local authorities (OECD 2015).

The general planning policies of government mention facilitating farmers to contribute their share of the value of land rights, with little detail as to how this might happen. Some policies aim to encourage farm size to reach an 'appropriate' size (e.g. 1064/QĐ-TTg, the master plan of economic and social

development of Northern Mountains) or to encourage and support farmers to implement production planning, land consolidation and specialisation (e.g. 69/2007/QĐ-TTg, developing industries for agricultural production in terms of industrialisation and modernisation). However, the likelihood of achieving these policy objectives is constrained by the land planning policies and weaknesses of land property rights already mentioned.

van Dijk et al. (2014) stress the importance of developing land markets for food security and the mitigation of and adaption to climate change, the effects of which are especially felt by poor households. Vietnam has a policy of acquiring agricultural and forestry land for allocation to poor ethnic minority households (146/2005/QĐ-TTg). While it is a laudable objective to target support for specific groups who have issues with food insecurity, the acquisition of land can create significant uncertainty for producers. Moreover, acquiring land may not be the most efficient solution to solving food insecurity. Providing a strong social security system targeted at those in need will allow these people to take actions to achieve food security. These actions may be through the purchase or production of alternative foods, training, purchasing of land or other measures. By implementing social security measures and security of private and tradeable property rights, these people can be supported without creating uncertainty in the market place and inefficiencies in the use of government funds.

Policies and laws that strive to eventually achieve secure, private and tradeable property rights are essential to reverse the problems of land fragmentation which are stifling agricultural productivity and rural development in Vietnam.

Principle 6: Standards for food safety can reduce safety risk

While many types of economic activity can best be left to the market, food safety is one area where government intervention may be required. This is because of asymmetric and imperfect information. In many cases, consumers are concerned about food safety and will avoid products they consider unsafe. A reputation mechanism will help ensure producers provide an efficient level of safety. With information asymmetry, however, consumers will not be able to judge, either before or after consumption, whether foods are safe. Therefore, unsafe (low cost) producers will drive out safe (high cost) producers. In such cases the government can usefully intervene by providing standards and product certification to inform consumers. Information asymmetry is likely to occur where there are long lead times between consumption and any detrimental effects.

A second problem is information uncertainty, where neither producers nor consumers know whether foods are safe. Tests to determine whether contaminants are over a certain level may not be available, or the long-term effects, for example of growth hormones in pork or chicken, may not be known.

Food safety has been a priority in Vietnam since 1990 but the number of food poisoning outbreaks has barely diminished. In 2010 there were 175 outbreaks reported involving over 5,000 people with 51 deaths, similar to levels in 2000.[1] Most (61%) food poisoning episodes occur in the family home. The melamine milk crisis in China in 2008 raised awareness in Vietnam about the importance of food safety, particularly as Vietnam imports much of its food from China and this is often smuggled across the border with minimal regard for quality.

Food-borne disease and chemical contamination are areas where information problems and market failure are most likely to arise. Common pathogens found in Vietnamese food include *Salmonella*, *Campylobacter*, *Listeria* and *Escherichia coli*. These pathogens cause gastrointestinal diseases that are generally not fatal but are debilitating nonetheless. Many *Salmonella* and *E. coli* strains are resistant to common antibiotics, such as tetracycline. This resistance may be at least partly attributable to overuse of antibiotics in livestock production.

Contaminants in food include non-food colour additives, pesticides and fungicides, antibiotics, heavy metals such as cadmium and mercury, and 3-monochloropropane-1,2-diol (3-MCPD) found

1 See Sarter et al. (2012). Since underreporting is a problem, it is difficult to determine whether the situation is improving or getting worse.

in soy sauce. Imports from China are one source of contamination, including thiram pesticides used in fruit production and clenbuterol in meat.

The adoption of science-based international food safety standards can help manage food safety risk and improve the predictability of and access to domestic and global food and feed supply chains. An example is the international food standards developed by the Codex Alimentarius Commission which are set from the perspective of allowable residues and contaminants. Note that the use of standards should be balanced, as enforcing overly strict standards can reduce access to markets.

A number of food security policies in Vietnam have objectives of food safety, including:[2]

- The master plan of economic and social development in North Central region and Central Coast (1064/QĐ-TTg);
- Support policies on safe production, transportation and consumption of vegetables, fruit and tea—including proportion of different commodities to reach good agricultural practices (VIETGAP) and hazard analysis and critical control point (HACCP) (107/2008/QĐ-TTg);
- Developing industries for agricultural production in terms of industrialisation and modernisation (69/2007/QĐ-TTg); and
- Resolution on the program supporting rapid and sustainable poverty reduction for 61 poor districts (30a/2008/NQ-CP).

In spite of these regulations, more needs to be done to improve hygiene. The lack of clean water for cooking and for cleaning kitchen utensils is a major problem that leads to the spread of food-borne pathogens. Traditional practices of preparing food are usually not hygienic, according to the Vietnam Food Administration.[3] The lack of refrigeration limits the ability of many vendors and consumers to store food at safe temperatures, outside of the 5–60° range. In addition to providing clean water and infrastructure that improves refrigeration, the government has a role in educating producers, consumers and others in the supply chain about good practices. It could also set and improve standards in the livestock industry, such as vaccination and limits on certain feed additives. Vietnam needs a warning system for pathogens and environmental contamination. It also needs a system of traceability so that meat contaminants can be traced back to the individual producer if not the individual animal.

Part of the problem lies in the division of responsibilities within government. The Ministry of Agriculture and Rural Development is responsible for production, including chemical residue levels in meat, fish, and fruit and vegetable products. The Ministry of Health is responsible for safety during the processing and retail chain. There is also a lack of coordination between central and local governments. This leads to a slow response in identifying potential outbreaks.

Finally, Vietnam has laws relating to food imports that are inconsistent and arbitrarily applied. One example is imports of pork offal from the United States. Boyer (2012) lists three such measures: (i) the pork offal ban implemented in 2010; (ii) maximum residue limits on pork offals; and (iii) zero tolerance for pathogens in pork products. These laws seemed to be aimed at protecting producers rather than consumers.

Careful and targeted implementation of policies relating to food safety, without over-regulating, is likely to increase the safety of food consumed domestically, as well as opening opportunities for international trade which will also lead to food security through poverty alleviation.

Principle 7: Capital should be allocated to its most efficient uses

An effective and efficient food security policy does not try to facilitate the supply of all its food needs domestically, but encourages an economy to do what it does best. This means facilitating the allocation of capital to its most efficient uses, specialising in production in these areas and trading the surplus to satisfy consumption. The question then is what to specialise in. The theory of comparative advantage provides some guidance. Comparative advantage is the ability of an individual/group to carry out a particular economic activity (such as making a specific product)

2 The OECD (2015) states there are over 400 central government regulations relating to food safety.

3 http://www.who.int/features/2015/food-safety-interview/en/

more efficiently than another activity. Countries will profit most by focusing on the things they do best (comparative advantage), and trading surplus production for goods they would like to consume but produce less efficiently.

It is tempting for a government to try to determine their comparative advantages and then invest in these industries. However, comparative advantage is not static but is fluid. It can change quickly as relative global input and output prices change. A government's overwhelming responsibility is not to determine and invest in products or services in which they have comparative advantage, but to create an institutional environment in which private enterprise can seek and search out an economy's changing comparative advantage. They can do this by focusing on institutions of good governance (such as rule of law, ensuring enforcement of contractual obligations and securing property rights) and facilitating well-functioning markets.

The Vietnamese Government has a number of food security policies with strong planning objectives. These objectives include determining the proportion of GDP contributed by various agricultural, fisheries and forestry commodities; the amount of land to be sown to various crops or planned to forest area; the annual production of various crops; forest cover; export turnover; the productive value of agricultural land; rice processing capacity; reduction of post-harvest losses; and value added from processing. Setting targets for a number of these indicators assumes static comparative advantage and is misguided. The focus should be to increase productivity without prescribing what should be produced where.

The Vietnamese Government implements a number of policy instruments to improve food security which are laudable. They include trade promotion, research, science and technology transfer, and training. These instruments, if targeted appropriately to areas of greatest need, are likely to lead to inclusive economic growth, well-functioning markets and sustainable agricultural productivity, which are all key to poverty alleviation and food security.

Being prescriptive about output and land allocation to various crops is prone to failure, no matter how sophisticated the planning processes. Economic forecasting is not an exact science, as comparative advantage is a fluid matter, depending on season and market price conditions for inputs and outputs of production. It depends on unpredictable global human behaviours which change quickly through time. Governments all over the world are notoriously bad at picking winners to support. Very often, government-supported industries become unprofitable, allowing bad debts to accumulate. Providing capital to maintain poorly performing industries limits the availability of credit to more profitable enterprises. Rather, governments should work to create an institutional environment in which private enterprise can seek and search out an economy's changing comparative advantage (Principle 3).

The allocation of land area to rice production is one policy instrument that is counter to its goals of national food security. Relaxing constraints on rice area and production will allow private enterprises to search out comparative advantages. Allowing farmers to choose what they produce will allow them to be flexible if production of a different commodity will increase their profits. Creating a free and diverse market for regional and international trade will allow Vietnam to improve its food security efficiently. Kompas et al. (2012) provide evidence that both rural and urban households stand to benefit from free trade, but that rural households, where poverty is most pervasive in Vietnam, would gain more than urban households.

Principle 8: Price support mechanisms lead to market distortions and inefficiencies

Vietnam has several policies to support producers and stabilise prices. Price support mechanisms include the Price Law of 2012 and the policy on implementation of the price law (regulation 177/NĐ-TTg of 2013). These documents outline general definitions, responsibility for each agency, and state role in price regulation (including price stabilisation). Products listed for stabilisation include liquid petroleum gas, milled rice, electronics, petroleum, vaccinations for livestock and poultry, salts, fertiliser, plant protection chemicals, sugar, and milk for children under six years of age.

The Price Law states that price stabilisation will be applied when an "abnormal fluctuation" occurs or fluctuations in market prices create negative impacts on social–economic development. Abnormal fluctuation is defined in Circular 15/2004/TT-BTC. For example, paddy prices are considered abnormal if they fall at least 15% over a 30-day period. For commercial rice, a fall of more than 25% over a 30-day period is required.

The aim of price stabilisation is to regulate demand and supply of domestic products among regions and provinces by moving products from one place to another or by buying or selling goods from the state reserve. When necessary, a price stabilisation fund (PSF) is set up with funds sourced from goods and services tax, voluntary contributions from individuals or organisers, ODA, or other financial sources.

For rice specifically, Vietnam applies several policies:

- Farm gate prices are set by the government to provide farmers with a 30% profit from rice. The cost of production is estimated by the Ministry of Finance and the Ministry of Agriculture and Rural Development. Local governments use this information to set the paddy rice floor price in their areas. Enterprises are encouraged to buy rice at this price. However, the task of price determination is difficult. In fact, there is no meaningful way of measuring costs of production because farms are not homogeneous. If prices are set well above costs, over time average costs will rise to meet the floor price.
- There are tariffs on imports of rice. The 'most favoured nation' applied tariff on rice is 40%. This applies to World Trade Organization (WTO) members that do not have a preferential trade agreement with Vietnam.
- In 2008, Vietnam applied an export tax on rice with the aim of suppressing domestic prices.
- The government controls the export of rice through the operations of SOEs, Vinafood I and II. This encourages smuggling. The value of rice smuggled to China may be as high as US$400 million annually, according to unofficial estimates. This compares with official estimates of US$600 million in 2014.
- The government provides subsidised credit for the export of rice. It sets the time and the price, and the amount of rice to be stored.
- On the input side, the Government provides subsidies on irrigation, credit to purchase machinery and materials, seed, and insurance.
- Other income support measures include full or partial exemption from land tax.

For agriculture as a whole, the OECD (2015) estimates a producer subsidy equivalent for Vietnamese agriculture of 7%, which is relatively low by Asian standards. Most of the subsidy is market price support for rice. This support is paid for by consumers through higher prices. The bulk of the budgetary support for the sector is attributed to the provision of irrigation infrastructure.

Price support mechanisms cause economic inefficiencies. While producers may gain in the short run, consumers have to pay a higher price and can be priced out of the market. Also, it is easy for a government to mismanage these mechanisms causing irreversible damage to the industries they are trying to protect. Government should be aware that assistance they provide can be capitalised into land or other asset prices, making the policy difficult to reverse. Rather than implementing price support mechanisms, governments should focus on social protection programs which reduce risk (Principle 9).

Principle 9: Social protection programs provide safety nets during food crises

When a food crisis hits the vulnerable (such as food price spikes or household-level emergencies such as illness of an income earner), people often resort to coping strategies which have long-term and potentially irreversible consequences. As a result, nutrition may worsen, use of health and education services may decline, and productive assets may be sold. Social protection can alleviate short-term suffering and help disadvantaged families avoid making choices that push them further into poverty.

Social protection mechanisms can be targeted or untargeted, and conditional or unconditional (AusAID 2011). Social protection programs that provide cash to those in need are generally considered to be superior to programs that provide rice or other food commodities. This is because the storage and provision of food causes distortions in the price of the food, which may be detrimental to local producers. Food security issues

for Vietnam are centred on malnutrition, which means that social protection mechanisms that focus on the provision of rice may not be providing the nutrients required, especially by children, to ensure they can live an active and healthy life.

Providing cash-based, rather than food-based, support in Vietnam will allow the food insecure to purchase their nutritional requirements without market distortions. Extending the program to focus not only on food security but also on maximising people's welfare, will allow them to further invest in training, education, skills, infrastructure or whatever they require to rise above poverty, especially if they face other pressures such as adaption to climate change or natural disasters. While social protection programs are a cost to government, they are also investments in the poor to help strengthen economic growth in the medium to long term (OECD 2009).

Principle 10: An efficient food security policy has just one instrument for each objective

A basic rule of economic policy is that for each policy objective (goal or aim) there should be one policy instrument (the method used to achieve the desired policy objective). This policy rule is often called 'the Tinbergen rule' (Tinbergen 1952). Having more than one policy instrument per objective leads to potential economic inefficiency from clashing policy instruments, and increased information and administrative costs (associated with redundant tools). The ideal policy instrument for a policy objective is one which effectively achieves the policy objective directly with efficiency, equity, simplicity and transparency.

Vietnam implements a comprehensive suite of food security policies. These policies have evolved over time as need has arisen. Policy documents have been ratified by a number of different institutions. This evolution has resulted in a complicated array of policies. Each policy document outlines a number of objectives, which are sometimes conflicting within as well as across policies. Each policy document also has a number of policy tools, which are also sometime conflicting within and across policy objectives and documents. This is leading to significant inefficiency from clashing policy instruments and increased information and administrative costs (associated with redundant tools). An extensive survey of stakeholders involved in food security policy development in Vietnam concludes that a major perceived problem of Vietnam's food security policy is lack of effectiveness and administrative complexity due to ineffective decision-making processes, unreasonable roles among agencies, groups who seek to control policy outcomes for private benefit, corruption, poor monitoring and assessment, late issuing of guidance documents, and unrealistic policy documents (Thang et al. 2016).

For example, the master plan on crop conversion in paddy land (3367/QĐ-BNN-TT) aims to change the structure of rice cultivation with the following objectives:

- Improve the efficiency of land use;
- Maintain paddy land area;
- Ensure national food security;
- Increase income to local people;
- Contribute to alleviating poverty;
- Contribute to political and social stability;
- Protect the environment; and
- Facilitate adaptation to climate change.

The second objective (maintain paddy land area) is likely to be in conflict with most other objectives. The policy is regionally focused, with plans outlined separately for seven agroecological zones (the Mekong Delta, the Red River Delta, the mountainous north region, the north central region, the south central coast, the highlands and the southeast region). Policy instruments include land-use planning, investing in science and technology, investing in improved infrastructure, and encouraging cooperatives and other types of systems for restructuring production. These instruments are likely to be in conflict with the suite of general planning policies (for example, the master plans, regional master plans, agricultural plans, and national target program plans), the suite of infrastructure development plans (such as the Dyke Law, river and sea dyke policies, irrigation programs, rice storage policies, and transport infrastructure policies), and the scientific and technology development polices (for example, specific policies for science and technology in

certain regions, biotechnology in agriculture, and high technology application policies).

An overview of how 60 policies overlap is provided by Yen (2016). It is suggested that policies be carefully reviewed to clearly outline their objectives and instruments, with a view to removing redundant and overlapping policy objectives in various policy documents. This process is likely to take some time, but is also likely to have significant efficiency benefits. Refocusing planning policies away from land-use planning to risk-management planning will significantly reduce the number of policies and implementation costs and would be a good start to this process.

SUMMARY AND RECOMMENDATIONS FOR POLICY REFORM

The overarching aims of Vietnam's food security policy are clear and relatively simple. The country has experienced strong economic growth since the *Doi Moi* reforms of 1986 and its policymakers are keen to continue this process of market-oriented reform. They understand the potential for sustainable productivity growth to increase international competitiveness for export markets, and the importance of investing in infrastructure, research and extension to facilitate this.

This evaluation of Vietnam's food security policies has highlighted a number of strengths:

- A strong focus on promoting economic growth;
- They are targeted, in part, at those who are food insecure;
- A good focus on development of the market;
- Strong investment objectives to increase agricultural productivity through infrastructure, research, extension and training;
- They encourage investment domestically by both the private and public sector, as well as internationally through foreign direct investment and ODA; and
- They consider food safety issues.

However, the means by which the Vietnamese Government plans to achieve these objectives is set out in over 60 policy documents (decrees, resolutions, decisions and circulars). The policy instruments include detailed planning solutions, infrastructure development, power generation goals and science and technology initiatives. However, implementation is conducted over a number of government ministries (Ministry of Agriculture and Rural Development, Ministry of Health, Ministry of Planning and Investment) in a number of different ways, risking counterproductive outcomes, inefficiency and wasted resources. Policy initiatives to improve markets and productivity growth are being stifled by the government's detailed land allocation plans. These plans allocate land area for rice and the other significant food commodities at a detailed geographic scale. Land rights in Vietnam are not fully privatised which, along with the government planning processes, is preventing farmers from changing land uses to those which allow them to maximise their incomes; that is, it prevents them from allocating capital to its most efficient uses.

Vietnam is also continuing with self-sufficiency goals for most foods, and is implementing a rice price stabilisation scheme. Policy stakeholders in Vietnam perceive the rice stabilisation scheme to be one of the least effective of Vietnam's food security policies (Thang et al. 2016). Unfortunately, six years after the Vietnamese Government issued the food policy resolution, the policy goals are not being achieved.

This evaluation has also highlighted a number of weaknesses in Vietnam's food security policies:

- There is an implication that food security is ensured through self-sufficiency of rice, which is incorrect.
- Production decisions are directed through specific government-developed land-use plans rather than allowing the private sector to determine production decisions based on comparative advantage.
- Property rights for land, which is owned by all Vietnamese people and administered by the State, do not provide incentives for the trade of land to those who can most efficiently use it. This is stifling the growth of land consolidation, agricultural productivity and international competitiveness of the agricultural sector.
- Quantitative trade restrictions exist (such as import and export quotas, and input subsidies).
- Price support for rice production is causing market inefficiencies.

- Underdeveloped social protection programs and reliance on the allocation of rice to food-insecure households is distorting the market and is not addressing nutritional requirements of food security.
- Nutritional and food safety issues are not fully addressed.
- Complex and overlapping suites of policies are resulting in conflicting and undesired outcomes at significant administrative cost.

Given these strengths and weaknesses, we propose the following recommendations for policy reform.

- Recommendation 1: Embark on policy reform to change the objectives and sub-objectives of Vietnam's resolution on national food security by: (a) moving away from a self-sufficiency paradigm to one that can facilitate a diversity of domestic and international sources of food; and (b) giving greater emphasis to nutrition and food safety. (A suggested change of wording for the reform is provided in Table 1.)
- Recommendation 2: Embark on a reform process of related food security policy documents to simplify them and remove significant overlaps in terms of objectives, instruments and coordination.
- Recommendation 3: Refocus planning activities away from land-use planning to risk-management planning (for example, managing the risk of natural disasters and containment of pests and diseases).
- Recommendation 4: Remove price support mechanisms to minimise market distortions and inefficiencies, and instead develop strong social protection programs such as cash transfer programs (to provide safety nets during food crises) and education programs for nutrition.
- Recommendation 5: Continue striving for sustainable agricultural productivity through improved governance and investing in targeted infrastructure construction, research and extension.
- Recommendation 6: Continue land reform to facilitate well-defined, secure and tradeable private property rights to reduce land fragmentation and encourage mechanisation and economies of size and scale.
- Recommendation 7: Invest in food safety accreditation and export traceability systems to enhance food safety credentials.

Implementing these recommendations is no easy feat. Estimates of the expected impact, difficulty and timeframe of achieving each recommendation are provided in Table 2.

These recommendations cover a comprehensive set of changes that are required for strengthening food security policy in Vietnam. There are a number of more short-term small steps that can be taken in pursuit of this goal. Policy documents that have expired, or are soon to expire, could be reviewed according to the 10 policy principles here, with reforms suggested. An example of this is the policy document approving the scheme on improvement of the capacity for quality management of agricultural, forestry and fishery products and salt which applied from 2011 and expired in 2015 (Decision 809/QĐ-TTg). This policy could be reformed to address issues of chemical contamination of agricultural soil and water resources as a consequence of inappropriate planning and management (in pursuit of Recommendation 1b for food security policies to have a greater emphasis on food safety issues). Other policies may be reformed if only small amendments need to be made. An example of this is the policy on promulgating the principles, criteria and norms for allocation of state budget funds for development investment during 2016–20 (Decision 40/2015/QĐ-TTg). This decision could be relatively easily updated to address agricultural safety issues.

Further analysis into the economic impacts of current and proposed policies will help guide the reform process. Developing the capacity for, and tools to aid, evidence-based policy analysis is required to build a strong policy framework in Vietnam for improved and sustained food security policy review and analysis (Vanzetti et al. 2016; Trewin 2016).

Table 1. Current and proposed change of wording of Vietnam's Resolution 63/NQ-CP of 23 December 2009 on national food security.

Current wording	Proposed change of wording
General objective: By 2020 with a vision towards 2030, to: • Ensure adequate food supply sources with an output higher than the population growth rate; • Put an end to food shortage and hunger and raise meal quality; and • Ensure that rice producers earn profits averaging more than 30% over production costs.	**General objective:** By 2020 with a vision towards 2030, to: • Put an end to food shortages, hunger and malnutrition; and • Facilitate an increase in food safety of domestic production to international food safety standards.
Specific objectives of the policy are to ensure food supply sources, meet nutritional needs and guarantee access to food for all people.	**Specific objectives** of the policy are to ensure food supply sources, meet nutritional needs, facilitate improved food safety and strengthen approaches to food security risk.
• **Ensure food supply sources** a. Step up intensive rice farming, particularly in the Mekong River and Red River deltas, creating stable supply sources for immediate and long-term national food security. b. By 2020, protect 3.8 million ha of land so that rice production is 41–43 million t /year. This is expected to meet the total demand for domestic consumption and provide exports of about 4 million t/year. Increased land allocations, and associated production forecasts, are also provided for other key agricultural commodities: i. Corn area to increase to 1.3 million ha for production of 7.5 million t; ii. Fruit tree area to increase to 1.2 million ha for production of 12 million t; and iii. Vegetable area to increase to 1.2 million ha for production of 20 million t. The production of these crops is expected to increase by 30% from 2009 to 2020. Livestock meat production is targeted to reach 8 million t by 2020, fresh milk to reach 1 million t, eggs to reach 14 billion units, fish production to reach 2.4 million t, and aquaculture production to reach 4 million t.	• **Ensure food supply sources** a. Facilitate domestic agricultural productivity growth through: i. Strategic and targeted investment in infrastructure, research and extension; ii. Improved governance; and iii. Agricultural land reform. b. Facilitate a diversity of sources for imported food.
• **Meet nutritional needs** a. By 2020, improve nutritional status and enhance calorie consumption with a target of 2,600–2,700 kcal/person/day and reduce the proportion of malnourished children 5 years or younger to less than 5%. b. Improve the structure and quality of food consumption, reaching the goal by 2020 of average consumption/person/year of 100 kg rice, 45 kg meat, 30 kg fish, 50 kg fruit, 120 kg vegetables, increased consumption of eggs, and double 2009 levels of consumption for milk. All agricultural and food products in the market are targeted to achieve food safety and hygiene standards.	• **Meet nutritional needs** a. By 2020, improve nutritional status and enhance calorie consumption with a target of 2,600–2,700 kcal/person/day and reduce the proportion of malnourished children 5 years or younger to less than 5%. b. Achieve this through targeted nutrition education programs.

Current wording	Proposed change of wording
• **Guarantee access to food for all people** a. End hunger and food shortages by 2012. b. Increase income from food production in 2020 to 2.5 times current income from food production.	• **Facilitate improved food safety** Facilitate an increase in food safety of domestic production to international food safety standards through: a. Targeted food safety education programs throughout the supply chain (producers through the retailers); b. Targeted extension programs on good agricultural practices (VIETGAP) to be included in extension programs; and c. Facilitate HACCP certification for all major food distributers in the domestic and export market.
	• **Strengthen approaches to food security risk** Strengthen the private sector's approach to managing risk (such as natural disasters and pest/disease epidemics) through: a. More accurate, frequent and local seasonal forecasts; b. Tax deductions for water infrastructure; c. Grants for farm insurance advice and risk assessment; and d. Implementation of a social protection program.

Table 2. Expected impact, difficulty of achieving, and timeframe for achieving each recommendation.

Recommendation	Impact	Difficulty	Timeframe
1. Embark on policy reform to change the objectives and sub-objectives of Vietnam's resolution on national food security	High	Moderate	Long term
2. Embark on a reform process of related food security policy documents to simplify them and remove significant overlaps in terms of objectives, instruments and coordination	High	Difficult	Medium term
3. Refocus planning activities away from land-use planning to risk-management planning (for example, managing the risk of natural disasters and containment of pests and diseases)	High	Difficult	Medium term
4. Remove price support mechanisms to minimise market distortions and inefficiencies and instead develop strong social protection programs such as cash transfer programs (to provide safety nets during food crises) and education programs for nutrition	Moderate	Moderate	Medium term
5. Continue striving for sustainable agricultural productivity through improved governance and investing in targeted infrastructure construction, research and extension	Already achieved		
6. Continue land reform to facilitate well-defined, secure and tradeable private property rights to reduce land fragmentation and encourage mechanisation and economies of size and scale	High	Difficult	Long term
7. Invest in food safety accreditation and export traceability systems to enhance food safety credentials	High	Moderate	Medium term

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Evidence-based policy analysis

Stakeholder perceptions on the development and effectiveness of food security policies in Vietnam

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Abstract

This paper presents the results of a survey of 221 stakeholders on ways in which food security policy and its development framework can be improved in Vietnam. The biggest perceived issue of food security is low income, caused by limited and precarious livelihoods and small-scale production. Other significant perceived causes of food insecurity include natural disaster risk, poor agricultural infrastructure, inadequate food safety net programs, and poor access to credit. The policy development process is perceived to be moderately effective, with identification of policy issues as the strength of the process and monitoring of policy impacts its main weakness. Non-government stakeholders were more pessimistic than government staff about the policy development process. Overall, stakeholders perceive that the major problems of Vietnam's food security policy are lack of effectiveness and administrative complexity due to ineffective decision-making processes, unreasonable roles among agencies, groups who seek to control policy outcomes for private benefit, corruption, poor monitoring and assessment, late issuing of guidance documents, and unrealistic policy documents. The reserve fund on food circulation and specific infrastructure policies targeted at food-insecure regions are considered to be the most effective policies for improving food security, and the price stabilisation policy the least effective. Stakeholders suggest that government could improve food security by removing itself from land-use planning and allowing farmers to use market mechanisms for land-use and production decisions.

INTRODUCTION

Food security is a priority of any government. The definition of food security is evolving over time and can mean different things to different governments. The FAO World Food Summit in 1996 defined food security as ensuring that all people at all times have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

The Economist Intelligence Unit (2015) uses this definition when publishing its Global Food Security Index (GFSI) across 109 countries. Vietnam's score on the GFSI is 53, which is a moderate food security rating. It is ranked 65 out of 109 countries (where 1 is the most food-secure country in the world, which is the United States with a GSFI score of 89). The GFSI is disaggregated by the three pillars of food security. Vietnam's strongest food security pillar is food availability (GFSI score 58), followed by quality/safety (51) and affordability (49).

Vietnam's food security has improved significantly since 1990. Dietary energy supply has increased by 42%, undernourishment has declined by 83%, child stunting due to malnutrition has declined by 62%, and the proportion of children underweight has declined by

67% (FAO 2015). Despite this admirable improvement, anaemia is a persistent issue, especially among pregnant women and children under 5 years of age, and 23% of children are stunted due to malnutrition (FAO 2015).

Acknowledging this situation, in 2009 Vietnam's National Assembly ratified a resolution on food security. The general objectives of the resolution are, by 2020 with a vision towards 2030, to ensure adequate food supply sources with an output higher than the population growth rate; to put an end to food shortage and hunger and raise meal quality; and to ensure that rice producers earn profits averaging more than 30% over production costs (Resolution No. 63/NQ-CP). An evaluation of this policy, and 60 related implementation documents, is provided in Petersen et al. (2016). It is found that, while policies have a strong focus on promoting inclusive economic growth as well as agricultural productivity growth, they lack transparency and are not easy to administer. They have objectives of self-sufficiency; land rights are not private, transparent and fully tradeable; price support mechanisms for rice exist; social protection programs are underdeveloped; and policies do not fully address the nutrition and food safety issues the country faces. It is concluded that the government should leave production decisions to farmers and focus its role on monitoring standards and addressing risks to ensure food safety is enhanced. Developing capacity and tools for evidence-based policy analysis is also required, to build a strong policy framework in Vietnam for improved and sustained food security policy development, review and analysis. The present paper is intended to provide some evidence on policy analysis and review in Vietnam as a step towards pursuing a strong food security policy framework in Vietnam.

While policymaking can be represented in many ways, Althaus et al. (2013) suggest that generally a policy cycle is likely to begin with issue identification, and then proceed through policy analysis, policy instruments, consultation, coordination, decision, implementation and evaluation (including monitoring) (Figure 1). These stages can be hard to identify, often because the policies are under continual development, because stages overlap or because stages are skipped or fast-tracked due to time pressures.

In practice, policymaking is more complicated than outlined in Figure 1. There are a number of different types of policy document in Vietnam, each with a specified process for development and approval (Table 1). Of considerable concern in Vietnam is that groups that attempt full regulatory compliance with policy rules face an extremely costly and time-consuming process. The groups are often able to sidestep these rules through deals such as bribes or favours through political connections (Hallward-Driemeier et al. 2010). Policy implementation variability and uncertainty stifles business growth. These deals are in part due to problems with governance, such as weaknesses in the rule of law, bureaucratic quality, government effectiveness and the control of corruption (Hallward-Driemeier and Pritchett 2015). Simplifying policy rules and strengthening governance will result in an increase in groups adhering to policy rules rather than making deals.

Policies can often be improved quickly in response to findings from evidence-based policy analysis. Policy changes that can be made quickly can deliver large economic benefits. In these cases, research rates of return can be very large with significant potential to improve food security in Vietnam.

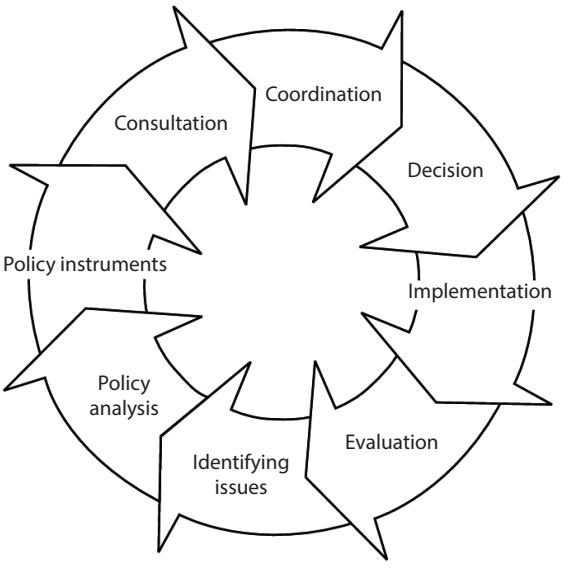

Figure 1. The generalised policy cycle (Althaus et al. 2013).

Table 1. Hierarchy, content, and numbering and coding of legal documents in Vietnam.

Hierarchy of legal documents

1. Constitution, laws and resolutions of the National Assembly (NA)
2. Ordinances and resolutions of the Standing Committee of the NA
3. Orders and decisions of the State President
4. Decrees of the Government
5. Decisions of the Prime Minister
6. Resolutions of the Justices' Council of the Supreme People's Court and circulars of the Chief Justice of the Supreme People's Court
7. Circulars of the President of the Supreme People's Procuracy
8. Circulars of ministers or heads of ministry-equivalent agencies
9. Decisions of the State Auditor General
10. Joint resolutions of the Standing Committee of the NA or the Government and the central offices of socio-political organisations
11. Joint circulars of the Chief Justice of the Supreme People's Court and the President of the Supreme People's Procuracy; those of ministers or heads of ministry-equivalent agencies and the Chief Justice of the Supreme People's Court, the President of the Supreme People's Procuracy; those of ministers or heads of ministry-equivalent agencies
12. Legal documents of People's Councils and People's Committees

Content of relevant legal documents

- Laws of the NA address fundamental issues across a wide range of fields as well as rights and obligations
- Resolutions of the NA focus on socioeconomic development tasks and state budget issues
- Ordinances of the Standing Committee contain regulations explaining the Constitution and laws
- Resolutions of the Standing Committee provide interpretation of the Constitution, laws and ordinances
- Decrees by the Government provide guidelines on the implementation of higher legal documents including specific action to implement policy, allocation of specific tasks to ministers, and identifying areas which are not mature enough to develop into laws or ordinances
- Decisions of the Prime Minister focus on ways to lead, manage and administer the Government's operations and public administration system
- Circulars of the Ministers provide detailed guidelines on the implementation of higher legal documents, regulations on technical processes and standards, and ways to exercise management of the sector/area

Numbering and coding

Alphabetical letters at the end of each policy's name include two parts connected by a hyphen (-). They represent the abbreviated names for the type of document and the promulgating agency in Vietnamese. For example, in the case of Resolution No. 63/NQ-CP of 23 December 2009 on national food security, NQ is the abbreviation for resolution in Vietnamese (*Nghị định*), and CP is the abbreviation for the Government. The following is a list of abbreviations for official documents and select issuers.

NQ (*Nghị quyết*)	Resolution	QH13	National Assembly
PL (*Pháp lệnh*)	Ordinance	UBTV	Standing Committee of NA
ND (*Nghị định*)	Decree	TW	The Communist Party of Vietnam Executive Committee
QD (*Quyết định*)	Decision	CP	Government
TT (*Thông tư*)	Circular	TTg	Prime Minister
TTLP	Joint Circular	BCT	Ministry of Industry and Trade
		BNN	Ministry of Agriculture and Rural Development
		BTC	Ministry of Finance
		BTNMT	Ministry of Natural Resources and Environment
		BYT	Ministry of Health
		NHNN	State Bank of Vietnam

Source: Law No. 17/2008/QH12 on the Promulgation of Legal Documents dated 3 June 2008 (cited in OECD 2015).

The main objective of the research presented in this paper is to elicit stakeholder views about ways in which specific food security policy documents and their development framework could be simplified and reformed for improved food security. The results are not intended to direct policy reform, but to understand stakeholder views about reform. Quantitative results from semi-structured interviews and a survey of 221 food security policy stakeholders in Vietnam are provided. The data collection and analysis processes are described in the next section. Survey results are then presented, and a discussion and conclusions are provided in the final section.

DATA COLLECTION METHODOLOGY

Primary data were collected through face-to-face semi-structured interviews and an online survey. The same questionnaire was used for the interviews and survey, and is available from the authors on request. The survey sample size was 221, which involved 141 face-to-face semi-structured interviews (64% of the sample) and 80 online surveys (36%). The respondents were made up of local government stakeholders, farmers, central government stakeholders, research institution staff, business owners and others, as shown in Table 2. The interviews were jointly conducted by two Vietnamese ministries—the Ministry of Planning and Investment (MPI) and the Ministry of Agriculture and Rural Development (MARD) (through the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD)). Survey results were jointly analysed by IPSARD and University of Western Australia staff.

The questionnaire included three sections. Section 1 related to the development and effectiveness of food security policies at the central (national) government level. These questions were completed by central and local government officials, research institutions and business enterprises but not by farmers. Respondents were from a range of provinces located across Vietnam and from a range of central government ministries, research institutions and enterprises (Table 2). Section 2 related to the development and effectiveness of food security policies at the local government level. These questions were completed by local government officials only unless the interviewee had specific expertise in this area. Again, these local government staff were located in a range of provinces across Vietnam. Section 3 related to stakeholder views on the major issues of food security in Vietnam, their causes and the effectiveness of government in addressing them. All respondents completed this section. The farmers who were surveyed only completed Section 3 and were located in two provinces with poor food security—Dak Lak and Gia Lai. These are adjacent provinces in Vietnam's central highlands.

Table 2. Details of the survey sample.

Interviewees	Quantity	Distribution (%)	Notes
Local government	91	41	Provinces: Thanh Hoa, Hau Giang, Thai Nguyen, Can Tho, Vinh Long, Vinh Phuc, Dong Nai, Lao Cai, Quang Tri, Hai Duong, Hung Yen, Son La, Bac Giang, Dong Thap, Ninh Thuan, Thai Binh, Long An
Farmers	46	21	Provinces: Dak Lak and Gia Lai
Central government	37	17	Ministry of Industry and Commerce, Ministry of Planning and Investment, Ministry of Health, Ministry of Finance, Government Office, Committee for Ethnic Minority Affairs
Research institutions	19	9	Institute of Policy and Strategy for Agriculture and Rural Development, University of National Economics, National University, Central Institute for Economic Management
Business enterprises	15	7	Tam Duong tea company, Tay An Company, BM Company, Tien Nong Company, Quang Binh input company, Chan Hung Nghe An company
Other	13	6	Food and Agriculture Organization in Vietnam, Food and Agricultural Policy Research Institute (FAPRI)—University of Missouri, Oxfam
Total	221	100	

SURVEY RESULTS

Survey results are presented here in three sub-sections: results regarding stakeholder perceptions of food security issues in Vietnam, perceptions regarding central government policies, and perceptions regarding local government policies.

Perceived issues of food security in Vietnam

Survey respondents were asked what they perceived to be the five major issues relating to food security in their country. The percentages of respondents who indicated each of the major food security issues in Vietnam are presented in Figure 2. Low income is perceived to be the biggest threat to food security in Vietnam, cited by 70% of respondents. The next biggest perceived issues were cited by approximately half that number of respondents or less, and are disaster risk (37%), poor agricultural infrastructure (not including road or port infrastructure) (32%), inadequacies of the food safety net program (25%), and poor access to financing by famers (20%).

Respondents were asked their views on the main causes of these food security issues. Responses were quite diverse, and the most common (provided by more than 10% of respondents) are summarised here separately for each issue.

Low income per capita is perceived to be caused by limited and precarious livelihoods, as well as the small-scale nature of production (Table 3). This suggests that providing opportunities to diversify production and consolidate land size are considered to be key issues for increasing food security.

Disaster risk is perceived to be caused by a decreasing number of water sources leading to drought, climate change, poor weather forecasts,

Table 3. Most common perceived reasons for low income per capita.

Most common perceived reason	% of respondents
Limited, precarious livelihoods	31
Small-scale production	15

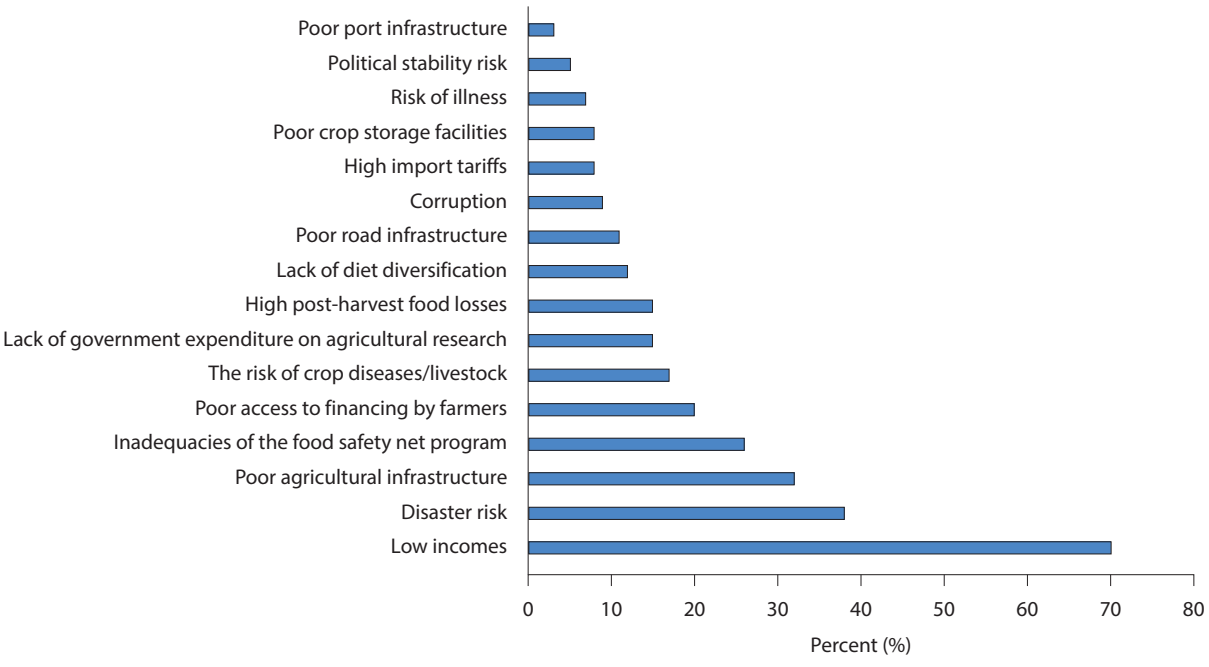

Figure 2. Perceptions of the major food security issues in Vietnam.

and unfavourable locations for types of production (Table 4). This suggests that improving water infrastructure, addressing climate change, improving forecasting technology and extension, and allowing flexibility of land use could ease food security issues due to natural disaster risk. These results support the findings of van Dijk et al. (2014) that investment in agriculture, land markets, and climate change mitigation and adaptation is important for food security.

Poor agricultural infrastructure is perceived to be caused by lack of capital; scattered, inefficient and wasteful investment; and a lack of investment policy (Table 5). Yen (2016) suggests there are a significant number of agricultural investment-related policies, but that many of these policies are overlapping creating inefficiencies. Improved capacity for evidence-based analysis of returns to investment from alternative investment options (such as benefit–cost analysis) could prevent these perceived inefficiencies in agricultural investment.

Inadequacy of the food safety net program is perceived to be caused by ineffective policy enforcement, inspection neglect, weak sanctions, lack of monitoring and evaluation, and poor program awareness (Table 6). This largely indicates poor administration of the program, rather than weaknesses in program design.

The poor access to credit by farmers is perceived to be caused by complicated loan procedures, lack of collateral, poor investment and credit policy, inability to repay loans, and reluctance of banks to pay loans due to the risky nature of the investments (Table 7). This indicates that the greatest barriers to access to credit for agricultural production remain mostly administrative as the state and local authorities have issued a number of policies to support credit for agricultural production. Policy reform for land consolidation (through the allocation of private and tradeable land rights) and removing the planning of land use is likely to increase collateral and the scale of production, eventually leading to reduced riskiness of agricultural land use.

Respondents perceived that the strengths of government policy lie in policies that maintain agricultural land, advance production technology, and

Table 4. Most common perceived reasons for natural disaster risk.

Most common perceived reason	% of respondents
Decreasing water sources leading to drought	24
Climate change	20
Unpredictable weather and poor weather forecasting	13
Production in unfavourable geographical location/natural conditions (weather, water, soil)	11

Table 5. Most common perceived reasons for poor agricultural infrastructure.

Most common perceived reason	% of respondents
Lack of capital for infrastructure construction	27
Agricultural investment is scattered, inefficient and wasteful	18
Lack of investment policy	18

Table 6. Most common perceived reasons for inadequacy of the food safety net program.

Most common perceived reason	% of respondents
Ineffective policy enforcement, inspection neglect, weak sanctions	48
Lack of monitoring and evaluation	14
Poor program awareness	10

Table 7. Most common perceived reasons for poor access to credit by farmers.

Most common perceived reason	% of respondents
Complicated loan procedures causing credit to be inaccessible	39
Small production, no collateral	18
Investment policy, credit policy are not satisfactory, efficient	14
Cannot repay the loan or interest	14
High risk, banks are reluctant to lend	12

provide technical support. Generally, respondents perceived that the weaknesses of government policy lie in its limited market policy, agricultural product sale support, and provision of infrastructure (such as electricity, roads and warehousing). A number of respondents suggested that the government would have a greater impact on food security by not providing production assistance (through subsidies) and planning, but letting farmers make land-use and production decisions based on market mechanisms. This suggests that there is support amongst landholders for removal of land planning and allowing land-use and production decisions to be made by landholders, as recommended by Giesecke et al. (2013) and discussed in Petersen et al. (2016).

Perceptions regarding central government policies

Results regarding stakeholder perceptions of central government food security policies are provided here in two sections: perceptions regarding the central government's policy development process, and perceptions regarding the effectiveness of central government's food security policies.

Perceptions regarding the central government's policy development process

Stakeholder views regarding central government policymaking in Vietnam were based on the stages of policy formulation outlined by Althaus et al. (2013) (see Figure 1). Respondents were asked what aspects of agricultural policymaking the central government does well, and what aspects are problematic. Respondents were asked to rate each stage in the generalised policy cycle on a scale of 0 to 7, where 0 is very problematic and 7 is very successful. Respondents were asked to rate only the aspects of policymaking with which they were familiar. Results are provided in Figure 3, disaggregated by respondents from the central government, local government and experts (the latter including research institutions, business enterprises and other experts).

Considering the overall scores, respondents considered the national government to have moderate success in developing food security policies. Stakeholders perceived that identification of policy issues is the strongest of the policy development stages (with an average score of 5.0), and monitoring was perceived to be the weakest of the policy development stages (with an average score of 3.9).

These perceptions did not differ significantly across the interview groups of central government, local government and other experts. However, overall the experts scored each stage of the policy development process lower than the central and local government officials. It seems that government staff who are involved in the process of policymaking have a more positive view of the process than those who are not directly involved.

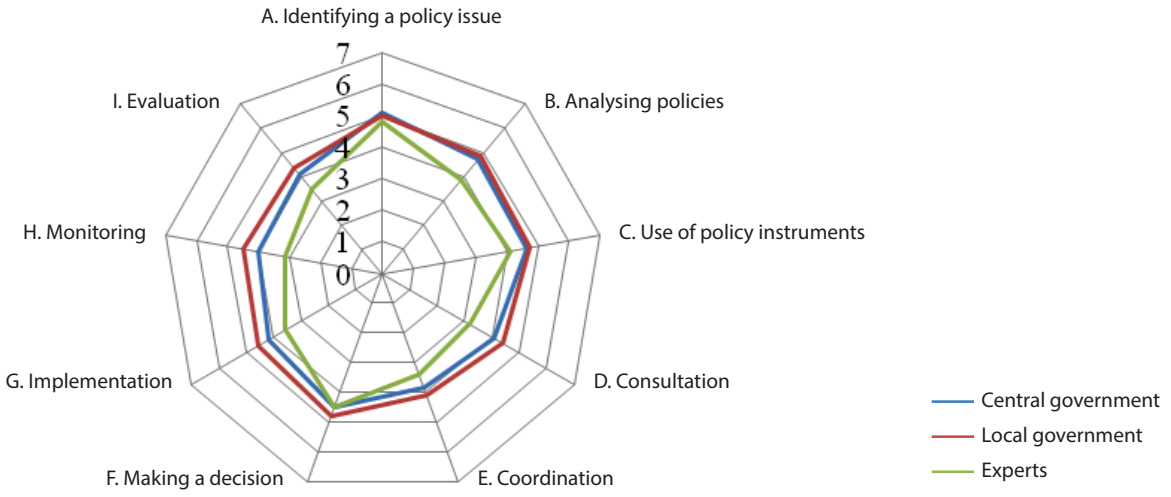

Figure 3. Assessment of national government policy development as provided by respondents from central government, local government and other experts.

Stage C in the generalised policy cycle—the use of policy instruments—includes different tools that allow a government to achieve its policy objectives. Perceptions regarding the use of these policy instruments are analysed in Figure 4. These tools include:

- Advocacy: educating or persuading, using information available to government;
- Networks: cultivating and leveraging relationships within and across government and with external partnership bodies to develop and implement desired goals and behaviours;
- Taxes and subsidies: using spending and taxing powers to shape activity beyond government;
- Direct government action: delivering services through public agencies; and
- Law: legislation, regulation and official authority.

Results suggest that the use of policy instruments by government is perceived to be moderately successful (with most ratings between 4 and 5 out of 7). Perceptions of experts about the use of these tools (especially the use of advocacy) were more pessimistic than the perceptions of central or local government officials.

Respondents were asked to indicate how the stages of policy development that they perceive to be problematic could be solved. A summary of the most common suggested solutions for each stage of the generalised policy cycle is provided in Table 8. Common solutions expressed by respondents are greater consultation at the local level; improving the quality, transparency and extension of evidence-based policy analysis; and establishing policy monitoring systems.

Perceptions regarding the effectiveness of the central government's food security policies

To consider the impact (and therefore success) of the central government's policies on food security, respondents were provided a list of policies and were asked to rate the impact of each policy on food security using a scale of 0 to 7, where 0 is no impact and 7 is a very high impact. The list of food security policies was provided to respondents under the headings used by the GFSI which summarise the general objectives of Vietnam's resolution on national food security: affordability, availability, and quality and safety (if the respondent had no specific knowledge about a policy document, then the question was skipped). Results are presented below for each of these categories of policies, and then perceptions about why specific policies are problematic are explored.

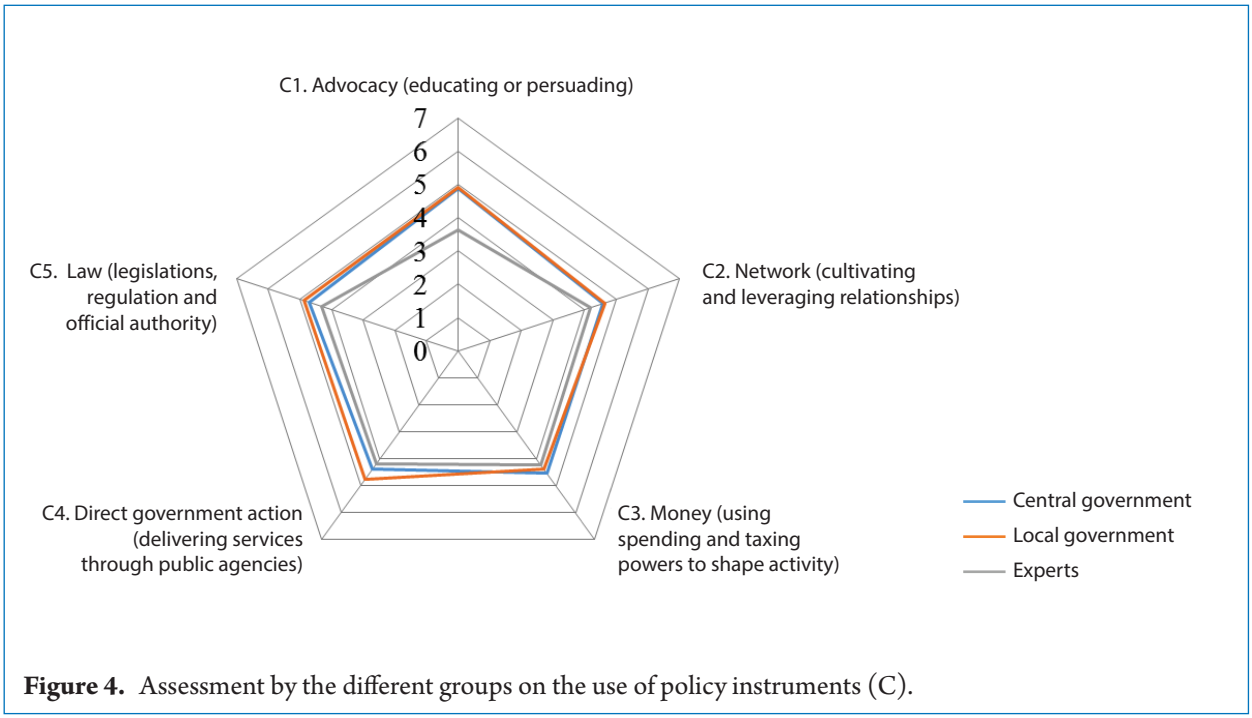

Figure 4. Assessment by the different groups on the use of policy instruments (C).

Table 8. Solutions for 'unsuccessful' aspects in policymaking.

Stage of the policy cycle	Suggested solutions for solving problems in policy development
A. Identifying a policy issue	Consult local government Research: consult different stakeholders Improve monitoring system and forecasting
B. Analysing policies	Demand-based research: specify the priorities Quantify policy research Set up policy monitoring systems Provide policy analysis/assessment transparently and disseminate results
C. Use of policy instruments	
C1. Advocacy	Advocate in both policymaking and implementation Diversify different mass media from policymaking, implementing and assessment Transparent information, advocacy documents
C2. Networks	Better cooperation among policymakers and related agencies Develop networks (domestic and international) for policymaking and implementation Transparent information, policy documents
C3. Money	Focus priorities More budget for policy advocacy Reduce fees on input–output agricultural products
C4. Direct government action	Provide a larger budget for policy implementation Enhance implementation and monitoring More direct support for the poor Admin reform
C5. Law	Reduce time to issue the under law document More detailed guides for local level Reduce intermediaries
D. Consultation	More consulting of government at local and regional level (not only at central agencies) Need to be based on survey/field research More consultation with people
E. Coordination	Policies should be issued for long-run, resource-based policymaking Reduce number of agencies involved Enhance coordination among related agencies: clear roles/responsibilities
F. Making a decision	In time under policy/law publication More implementable policies (in hand with budget distribution)
G. Implementation	Need a package of policies More realistic in policymaking Implementation assessment Public–private partnerships
H. Monitoring	Develop monitored indicators from the beginning Improve policy monitoring: clear roles/responsibilities Encourage the role of community in policy monitoring
I. Evaluation	Develop assessment indicators Participation of communities Transparent assessment process Research-based assessment/stakeholder analysis

Food affordability policies

A list of food security policies relating to food affordability is provided in Table 9. In general, stakeholders perceive them to be moderately effective, as shown in Figure 5. The policies that are considered to have the biggest effect on food security are Decision 565-TTg on management of the reserve fund on food circulation (with an average rating of 5.5) and Decision 551/QĐ-TTg approving supporting infrastructure investment and production development assistance for food-insecure regions (with an average rating of 5.5). The policy document that is considered to have the least effect on food security is the price stabilisation policy (with an average rating of 4.9). When comparing stakeholder groups, local government respondents responded relatively positively in respect to the effectiveness of central government policies relating to food affordability, and the other experts responded relatively negatively.

Table 9. Food security policy documents specifically relating to affordability.

Type of policy document	Number	Name of food security policy
Law	22/2012/QH13	Law on national reserves
Decision	565-TTg	About management of the reserve fund on food circulation
Circular	50/2015/TT-BTC	Instructions on loans interest subsidy to buy winter–spring rice for temporary storage in 2014–2015
Decision	57/2010/QĐ-TTg	About land rent exemption for construction projects of storage for 4 million tonnes of rice, corn, cold storage for seafood, fruit and vegetables and temporary storage for coffee
Circular	69/2012/TT-BTC	About instruction on management and use of Japanese non-refundable aid to the project on ensuring food security for marginalised farmers (Project 2KR)
Decision	03/1999/QĐ-CDTQG	About regulations on tender, purchasing or selling national reserve food
Decision	30/1998/QĐ-CDTQG	Promulgation of regulations for buying national reserve food
Decision	498/TTg	About establishment of the National Committee on Food Security
Decision	241/QĐ-TTg	About buying winter–spring rice in 2014–2015 for temporary storage
Decision	551/QĐ-TTg	Approving program 135 on supporting infrastructure investment, production development assistance for especially difficult communes, bordering communes, secure communal areas, particularly difficult villages
Decision	134/2004/QĐ-TTg	About policies to support production land, residential land, housing and clean water for poor ethnic minorities households
Decision	3242/QĐ-BNN-CB	Approving the planning for storage system of 4 million tonnes of rice in Mekong Delta
Policy	Price stabilisation	Price stabilisation

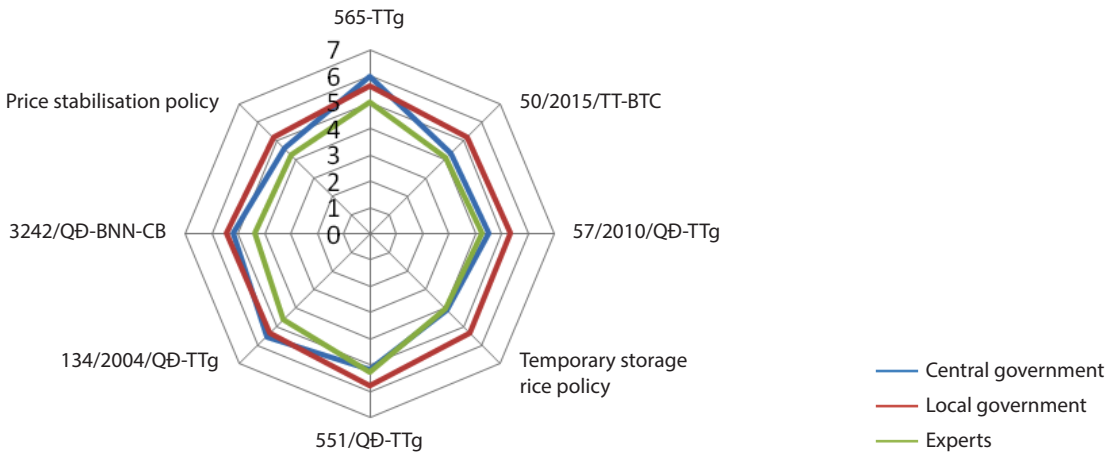

Figure 5. Perceptions regarding the impact of central government food affordability policies.

Food availability policies

A list of food security policies relating to food availability is provided in Table 10. Stakeholder perceptions regarding these policies are mixed, as shown in Figure 6. Policies with the highest average rating are Resolution 26-NQ/TW on agriculture, farmers and rural areas and Decision 606/QD-BCT on setting up raw material zones or implementing joint production and consumption of rice by rice export traders. The policy with the lowest average rating is Decision 2243/QĐ-BNN-KH on building food security information systems. Generally, respondents from the central government were more pessimistic about the effectiveness of central government policies than respondents from local government. Responses from other experts were more variable, but generally more pessimistic than government respondents.

Table 10. Food security policy documents specifically relating to availability.

Type of policy document	Number	Name of food security policy
Decision	432/QĐ-TTg	Approving the strategy for sustainable development of Vietnam in the period 2011–2020
Resolution	26-NQ/TW	About agriculture, farmers and rural areas
Decision	124/QĐ-TTg	Approving the master plan on development of agricultural production to 2020 and vision for 2030
Decision	635/QĐ-TTg	Approving the project 'Improving productivity and quality of agricultural products by 2020'
Resolution	63/NQ-CP	About ensuring national food security
Resolution	48/NQ-CP	Mechanisms and policies for reducing post-harvest losses of agro-fishery products
Decision	606/QĐ-BCT	About the plan for setting up raw material zones or implementing joint production and consumption of rice by rice export traders
Decree	35/2015/NĐ-CP	About management and use of land for rice cultivation
Decision	2243/QĐ-BNN-KH	Approving the scheme on 'Building food security information systems' issued by the Minister of Agriculture and Rural Development
Decision	564/QĐ-BNN-XD	Approving adjustment of the project: developing rice varieties in central region and central highlands (2006–2010)
Decision	2765/QĐ-BNN-KHCN	Approving the scheme for developing 'Vietnam rice products with high quality, high productivity'
Decision	68/2013/QĐ-TTg	About supported policies to reduce losses in agriculture

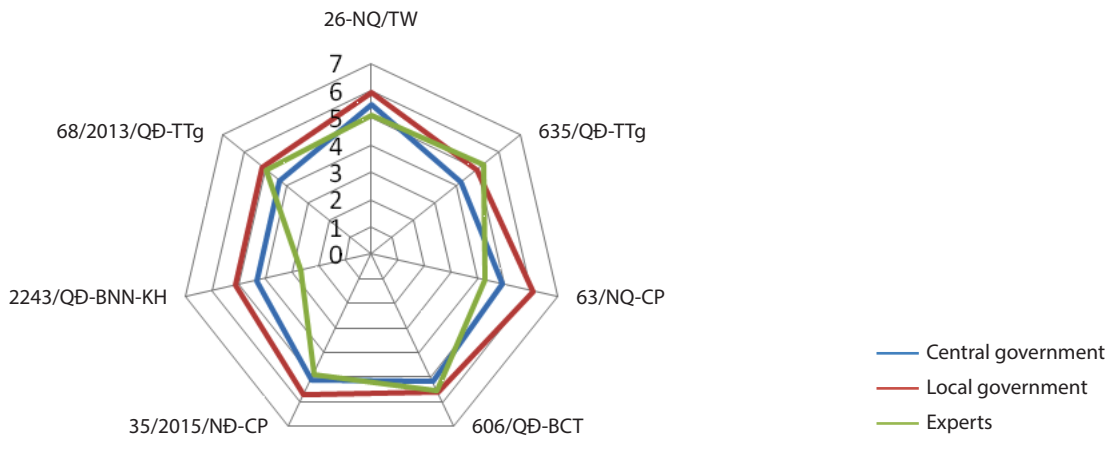

Figure 6. Perceptions regarding the impact of central government food availability policies.

Food quality and safety policies

A list of food security policies relating to quality and safety is provided in Table 11. Stakeholder perceptions regarding these policies are mixed, as shown in Figure 7. Averaging results of all respondents, the food quality and safety policy considered to be the most effective is Directive 1311/CT-BNN-TT on accelerating the application of good agricultural practices in crop production, and the policy that is considered to be least effective is Circular 48/2013/TT- BNNPTNT about provisions on inspection and certification of food safety of export fishery products. Local government respondents were relatively positive about the effectiveness of central government policies compared with central government respondents and researchers.

Table 11. Food security policy documents specifically relating to quality and safety.

Type of policy document	Number	Name of food security policy
Law	55/2010/QH12	Law on food safety
Decision	226/QĐ-TTg	Approving 'National strategy on nutrition for the period 2011–2020 and vision to 2030'
Decision	362/QĐ-BNN-QLCL	Plan on quality management of agricultural inputs, and food safety, of the Ministry of Agriculture and Rural Development
Decision	187/QĐ-QLCL	Approving content, criteria, methods and forms for reviewing legal documents and administrative procedures for food safety management of agricultural, forestry, aquaculture products
Circular	48/2013/TT-BNNPTNT	Provisions on inspection and certification of food safety of export fishery products
Decision	567/QĐ-BNN-QLCL	Approving the plan on checking conditions of ensuring food safety in the production and trading of agricultural products in 2011
Directive	1311/CT-BNN-TT	About accelerating the application of good agricultural practices in crop production

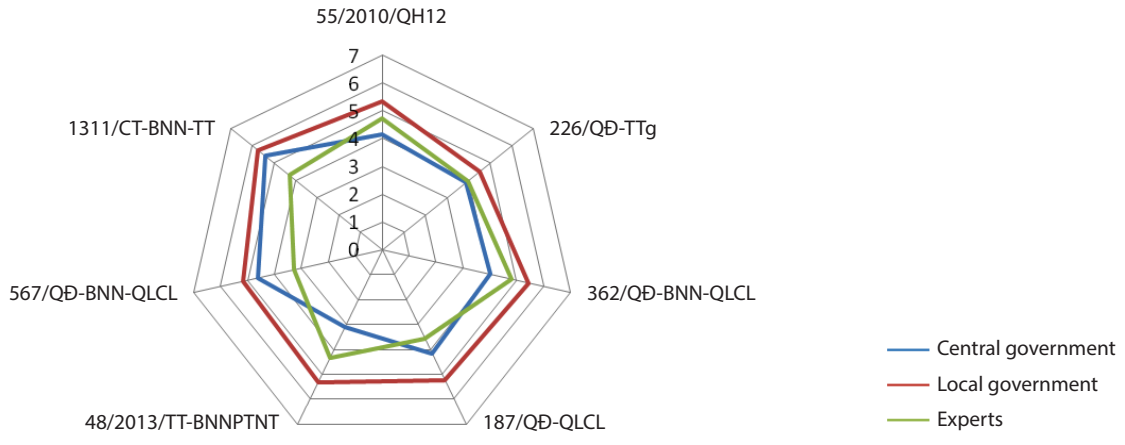

Figure 7. Perceptions regarding the impact of central government food quality and safety policies.

Reasons why specific policies are problematic

After each respondent had been asked to identify the three most problematic food security policies, they were asked to indicate why each policy was problematic from the checklist in Table 12. Generally, respondents considered policies to be problematic because they were not perceived to be effective in impacting food security, or they were not administratively simple. When asked why these problems arose, the most common answers included:

- Ineffective decision-making processes;
- Unreasonable expectations regarding the roles of various agencies;
- Groups who seek to control policy outcomes for private benefit;
- Corruption;
- Poor monitoring and assessment, and lack of monitoring/assessment indicators;
- Late issuing of guidance documents;
- Policy documents are unrealistic; and
- Policy procedures are complicated.

Respondents provided a number of suggestions to improve central government policies on food security, including:

- More public–private partnerships in infrastructure;
- Improve the planning process and implementation, especially in specialised production areas;
- Develop more affordability/accessibility and nutritious policies rather than concentrating on food availability;
- Enhance regional cooperation on food security; and
- Continue to mitigate the impact of climate change and integrate food security into climate change adaptation programs.

Perceptions regarding local government policies

Respondents with expertise in local government policies were asked to rate the impact and success of local government food security policies on a scale of 0 to 7, where 0 is no impact/success and 7 is very high impact/success.

As local government policies are different across local government regions, the policies were not listed in advance. Instead, local government officials were asked to describe their policies that relate to local food security problems before rating them. These policies were then categorised according to the following five topics: credit, production subsidies, value chain linkages, science and technology, and infrastructure and planning.

In general, local government respondents indicated that their food security policies have a large impact on food security in their locality (Figure 8). This was reflected in the very high scores when assessing the impact of the policies, which averaged 6–7 points. However, the degree of success of these policies was very much lower than expected. Policy success was assessed medium or low by many respondents.

Respondents were asked to identify the three most problematic local government food security policies, and why each policy was problematic. Results are presented in Figure 9. The most common policy problem cited by respondents was that policies are not administratively simple. Negative impacts on the environment were not considered to be a problem by any local government respondents.

Respondent suggestions for improving food security in Vietnam at the local level included:

- Allowing more flexibility in the use of paddy land and supporting paddy land conversion;

Table 12. Reasons why specific policies are problematic (% of respondents).

Policy problem	Central government	Local government	Experts	Weighted average
Not effective	27	23	24	24
Not administratively simple	23	20	17	21
Not economically efficient	19	15	16	18
Not equitable	14	19	15	17
Not transparent	15	15	18	16
Detrimental to the environment	2	8	10	4
Total	100	100	100	100

- Enhancing agricultural restructuring;
- Improving land consolidation to improve productivity and then value chain linkages;
- Implementing policies to encourage business enterprises through improving the business environment and supporting policies;
- Continuing agricultural input support, especially in the case of natural disasters;
- More support for good agricultural practices;
- Introducing policies to address climate change, specifically in the central region of Vietnam, and the Mekong River delta;
- Enhancing food safety control; and
- Providing food safety information and advocacy.

DISCUSSION AND CONCLUSIONS

A number of key points can be drawn from the results of the stakeholder survey of perceptions regarding central and local government food security policies in Vietnam. The biggest perceived issue affecting food security is low income, and therefore lack of food affordability. This supports the GFSI, which estimates that Vietnam is strongest at food availability, followed by food quality and safety, and weakest at food affordability (EIU 2015).

Stakeholders considered that low incomes are largely due to limited and precarious livelihoods, and small-scale production. The Vietnamese government has a number of policies that plan for the allocation

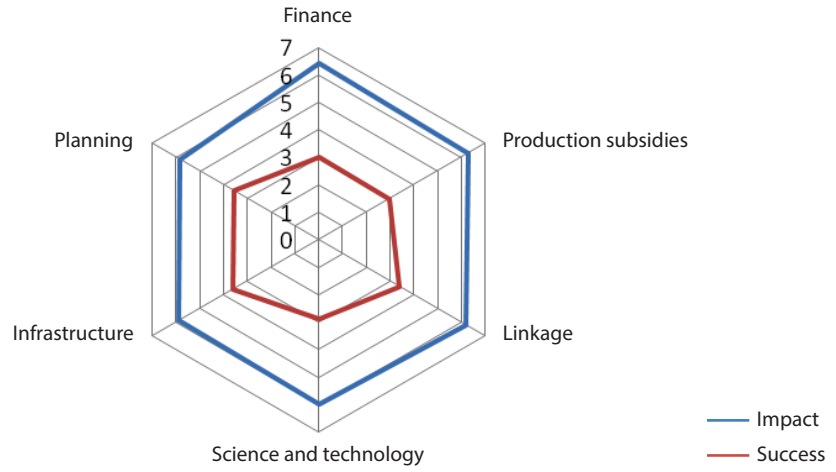

Figure 8. Stakeholder perceptions of the impact and success of local government food security policies.

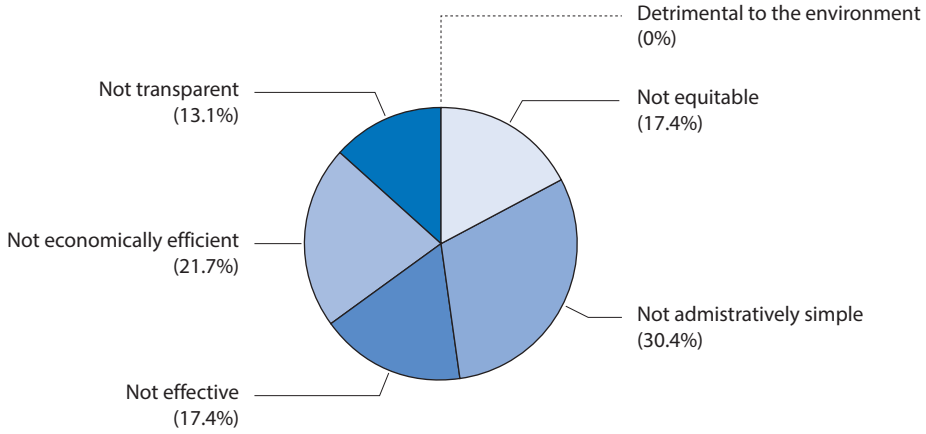

Figure 9. Perceived problems of local government food security policies (% of respondents).

of land in different regions for different types of land uses, and especially for growing rice. For example, the country's master plan to develop production (124/QĐ-TTg) determines that at least 3.812 million hectares of land should be allocated to rice (of which 3.2 million hectares should be irrigated and cropped at least twice per year). Specific regional plans also determine land allocation. Although well intentioned, these plans assume each region has comparative advantage[1] in specific land uses. However, comparative advantage is not static but is fluid. It can change quickly as relative global input and output prices change. A government's responsibility is not to determine and invest in products or services in which they have a comparative advantage, but to create an institutional environment in which private enterprise can seek and search out an economy's changing comparative advantage. Giesecke et al. (2013) and Vanzetti and Pham (2015) argue that removal of the rice land designation policy will reduce poverty, improve food security and contribute to more nutritionally balanced diets among Vietnamese households. By removing itself from land-use planning, the Vietnamese Government can help farmers diversify their livelihoods and increase incomes. There is support for this amongst policy stakeholders who indicated that the government would have a significant impact on food security by reducing production planning and assistance, and encouraging market mechanisms for land-use and production decisions.

Small-scale production is largely caused by land fragmentation which is stifling progress of mechanisation in Vietnam and therefore international competitiveness (Petersen et al. 2013). Land consolidation is progressing, but slowly due to state ownership of land, the Land Law 2013 which limits cropping area per individual or household, the dominance of state-owned or state-connected farms and forest enterprises, and poor security of land due to seizure by government (Wells-Dang et al. 2015; OECD 2015; Anh and Chanh 2015). Petersen et al. (2016) argue that moving from state to private property rights for land, and ensuring they are secure and fully tradeable, will stimulate land consolidation and encourage agricultural productivity and rural development in Vietnam.

Other significant perceived causes of food insecurity include natural disaster risk (considered to be caused by poor water infrastructure, climate change, poor weather forecasting, and poor matching of land use to land-use type), poor agricultural infrastructure, inadequate food safety net programs, and poor access to credit. Vietnam's suite of food security policies has a strong infrastructure focus. However, infrastructure objectives are spread across many policy documents which creates confusion, difficulties in implementation and inefficiency (Yen 2016). Policy reform to remove overlapping infrastructure objectives, and improving capacity for evidence-based analysis of returns to investment from alternative investment options (such as benefit–cost analysis), could increase food security through improving the efficiency of agricultural infrastructure investment.

With respect to the policy development process in Vietnam, our results suggest that policy stakeholders perceive the strongest stage of the process to be the identification of policy issues, and the monitoring of the effectiveness of policies to be its main weakness. Government stakeholders perceive that the central government policy development process is moderately effective. However, non-government stakeholders who were surveyed (including university staff, business entrepreneurs, and other experts) were more pessimistic. Stakeholders felt that the policy development process could be improved through greater consultation at the local level; improvement to the quality, transparency and extension of evidence-based policy analysis; and establishing policy monitoring systems.

Considering the effectiveness of specific food security policies, respondents considered the reserve fund on food circulation and specific infrastructure policies targeted at regions with greatest food insecurity to be most effective at improving food security. The price stabilisation policy was considered to have the least effect on food security. Price support mechanisms are known to cause inefficiencies and distortions, have a history of poor

1 Comparative advantage is the ability of an individual/group to carry out a particular economic activity (such as making a specific product) more efficiently than another activity. It differs from absolute advantage which is the ability of an individual/group to carry out a particular economic activity more efficiently than another individual/group. Countries will profit most by focusing on the things they do best (comparative advantage), and trading surplus production for goods they would like to consume but produce less efficiently.

management, and are difficult to reverse (Gouel 2013; Petersen et al. 2016). Moving the government focus from price stabilisation to social protection programs is more likely to improve food security.

Policies regarding inspection and certification of food safety of specific products (especially fishery products) were considered by stakeholders to be one of the central government's least effective food security policies. Thang and Linh (2015) suggest that there are significant policy gaps in this area, as well as overlap in management, licensing and inspections between the Ministry of Health, Ministry of Industry and Trade, and the Ministry of Agriculture and Rural Development. They argue that inspections are limited resulting in significant violation of regulations on food hygiene and safety. Improvement in food safety inspections and enforcing compliance with current food safety standards are likely to increase the security of food consumed domestically, as well as open opportunities for international trade which will also lead to food security through poverty alleviation.

Policy stakeholders perceive that the major problems of Vietnam's food security policy are lack of effectiveness and administrative simplicity due to ineffective decision-making processes, unreasonable roles among agencies, groups with vested interests, corruption, poor monitoring and assessment, late issuing of guidance documents, and unrealistic policy documents. Many of these problems are administrative, and this finding is supported by Yen (2016) who identifies significant overlapping of food security policies and outlines the difficulties of coordinating such a complex set of food security policy documents. Stakeholders suggested a number of solutions to these problems, the most common being enhancing public–private partnerships in infrastructure, improving the policy planning process and implementation, enhancing regional cooperation, and integrating food security into climate change adaptation programs.

Acknowledgments: The authors thank colleagues at the Ministry of Planning and Investment (Nguyen Hong Nhung, Tran Anh Dung, Cao Lam Anh, Luu Ngoc Luong, Nguyen Gia Hiep and Uong Dinh Hoang) and the Institute of Policy and Strategy for Agriculture and Rural Development (Vu Huy Phuc, Nguyen Le Hoa and Dinh Bao Linh) for administering the surveys.

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Methods for analysing food security in Vietnam

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Abstract

Vietnam has made significant progress towards food security in the last 30 years. It satisfies its national calorific requirements, although in some areas food and nutrition deficiencies remain. The purpose of this paper is to review the broad analytic methods available to Vietnam policymakers who wish to conduct evidenced-based policy analysis to address the issue of food security. We provide a taxonomy of model types and features, examining models publicly available in Vietnam with respect to theoretical foundations, available data, and institutional issues. We attempt to identify gaps in model coverage and draw on the experience of other countries. Our specific recommendations suggest Vietnamese institutions develop further capacity in a suite of models to allow both simple and more complicated analysis of food security issues. The suite of models provides capacity in international trade analysis as well as within-country regional production, consumption and trade analysis for different agricultural products, allowing for investigation of poverty, equity and nutritional issues.

INTRODUCTION

Recent volatility in food prices, especially rice, has highlighted concerns about food security. Vietnam satisfies its national calorific requirements at present, although not every citizen may have adequate access to food or a sufficient range to provide the necessary micronutrients, such as vitamin A, iron or folic acid. Malnutrition is a concern, particularly among children. Food shortage, particularly just before harvest, remains a problem for people living in poor households or in mountainous and remote areas with poor connections to commercial paddy producers. More recently, there is increasing concern about food safety. Given a growing global population, the growing demand for meat products, environmental concerns and trade distortions, food security is an ongoing concern.

Evidence-based policy (public policy informed by rigorously established objective evidence) requires reliable data and a method of analysis. The purpose of this report is to review the broad analytic methods available to Vietnam policymakers who wish to address the issue of food security. The aim is to identify where the methodology is deficient and assess the scope to improve capacity, particularly in providing evidence-based policy analysis.

In assessing alternative methods and models, we examine theoretical foundations, available data and institutional issues. We first provide an overview of simple tools for policy analysis, then outline a taxonomy of more sophisticated model types and features, list

the models publicly available or in use in Vietnam, and attempt to identify gaps in the coverage. Our approach is to look at how other countries have analysed the same issues and consider whether Vietnam could usefully adopt or improve upon these methods. Obviously, crops, data, institutional capacity and existing models differ between countries, but there are enough similarities to consider adaptation of similar models. Finally, we make some specific recommendations about modelling needs for evidence-based policy advice on food security within institutions in Vietnam.

SIMPLE TOOLS FOR POLICY ANALYSIS

The International Food Policy Research Institute (IFPRI)'s food security portal lists a number of useful policy analysis tools.[1] These tools can be used to assess the impact of changes in world prices, production, exchange rates, tariffs and export taxes and subsidies on domestic production and consumption, imports, domestic prices, producer and consumer welfare and tariff revenues. The tools are relatively simple to use, and provide an initial estimate of the likely effects prior to more complicated and data intensive analysis.

Basic tools include:

- Adjusting price changes for inflation (shows the trends in the commodity price after removing the effect of general inflation);
- Measuring price movements due to seasonality (uses monthly price data of a commodity to measure the seasonal pattern in prices); and
- Assessing terms of trade effects (determines the effect of a change in the world price of a commodity on the value of a country's exports and imports as a percentage of GDP).

More intermediate tools include:

- Short-term net benefit ratio analysis (uses household survey data to estimate the short-run impact of a price change on the welfare of different types of households);
- Short-term analysis of the impact of releasing food stocks (shows the proportional change in price resulting from an increase in supply of a commodity);
- Short-term impact of tariff reduction (estimates the effect of a change in import price, such as changes in prices when tariffs are reduced, on the domestic price of a commodity); and
- Supply–demand model of an imported commodity (a simple one-commodity model of supply and demand to estimate the impact of various changes in the market for an imported commodity (such as world price changes, supply shifts and changes in income) on production, consumption, imports and prices for consumers, producers and the overall economy).

Advanced tools include:

- Tracking official development assistance (to understand whether the necessary investments are available to accomplish a country's food security goals); and
- Price transmission analysis (which measures the effect of prices in one market on prices in another market; this can be used to study the relationship between world and local prices for a given commodity, local prices for a commodity in different regions, prices of two related commodities in the same market channel (e.g. wheat and flour), and prices of two competing commodities).

These various tools provide a useful first indication of what to expect from an external or domestic shock or a policy change. However, the analyses are limited because they assume there is no interaction between commodities or sectors, and domestic and imported goods are perfect substitutes. For this reason, if initial estimates indicate substantial impacts, more sophisticated modelling is required. These more sophisticated models are the focus of the remainder of this paper.

MODEL TAXONOMY

In this section, we lay the theoretical foundation of modelling as a tool that can be used to inform evidence-based policymaking. We consider topics that may define how useful various models can be, including conceptual issues, data considerations, parameter estimates and institutional characteristics.

1 http://www.foodsecurityportal.org/policy-analysis-tools

Conceptual issues

Partial versus general equilibrium

Partial equilibrium models focus on one commodity or a subset of commodities rather than the whole economy. This allows greater policy detail, and is most suitable where the commodity or sector does not influence the whole economy, such as dairy products in Vietnam. Hertel (1992) points out that partial equilibrium models do well when the shocks are sector specific, but not so well when reforms affect both agricultural and non-agricultural sectors. Typically, partial equilibrium models do not include factor markets. Hence, the results may be overstated because interactions with other sectors are ignored.

By contrast, general equilibrium (GE) models (also known as computable general equilibrium (CGE) models) cover the whole economy at varying degrees of detail. The number of sectors may range from one or two to more than 100. Likewise, the number of consumers (households) may range from one to thousands. CGE models contain various constraints, such as expenditure cannot exceed incomes, employment cannot exceed available labour, etc.

GE models have a number of drawbacks, such as lack of detail on particularly policies or sectors, or specific function forms. For example, every sector is treated in a similar fashion, often with identical parameter values. The Armington elasticities that determine the substitutability between imports from different sources are the same across all countries. This works well in most instances, but not for some commodities such as Japanese rice, where tastes are very particular. The appropriateness of a GE model depends on the issue being addressed.

Deterministic versus stochastic

In deterministic models, the output is fully determined by the parameter values and initial conditions of the model. Stochastic models include elements of randomness or uncertainty, such as prices, or crop yields which are influenced by rainfall, pests and other conditions hard to predict. Most models are deterministic, but stochastic models may be useful where storage is involved, when the aim is to make forecasts, or when the value of specific parameters is unknown. Sensitivity analysis may involve stochastic simulation.

Regional versus global coverage

Where trade is involved, it is useful for a model to cover the whole world, although the rest of the world apart from the focus country may be aggregated into one region. At the other extreme, some models cover 200 countries with each country treated as a single entity. For some purposes it is useful to divide a country up into several regions. The limitation here is often availability of macro-economic data, which tend to be collected only at a national level.

Dynamic versus comparative static

Comparative static models have no time dimension and are useful for policy analysis where the time profile is not of interest. The comparison is made between two different states with and without the policy change, and assumes the effects of a policy change have worked through the economy or system of interest. The elasticities reflect whether the impacts are short run or long run. Where policies are phased in over time, or there is a lagged effect of the policy, dynamic models may be used. One example is climate change where decisions taken now have an effect decades later. Another example is a model which includes storage. These are usually dynamic to account for expectations. In dynamic models each variable is traced over time, often annually. Most models are recursive dynamic, which are solved one period at a time. This implies agents are not looking into the future.

Homogeneous versus heterogeneous products

Homogeneous products are completely substitutable. Historically, agricultural goods such as wheat, rice and sugar were considered homogeneous. This implies that consumers do not differentiate between domestic and imported products, nor between imports from different countries. This approach has fallen out of favour in recent years because of the observation that some countries both import and export the same product. It is now more fashionable to treat goods from different sources as imperfect substitutes (heterogeneous) using the so-called Armington approach. The Armington elasticity allows the user to specify the degree of substitutability or heterogeneity. Product differentiation can also be introduced at the firm level, following Krugman (1980) or Melitz (2003), but this approach

is not common for agricultural products because of the nature of its production.

Bilateral trade versus global pool

Where products are homogeneous, the product is subject to the law of one price (differentiated by transport costs) and the source or destination of the product is not important. Such models do not need to trace the bilateral trade flows, so international trade can be treated as a global pool, where exporters contribute to the pool and importers withdraw from it. With the growth of preferential trade agreements, it is necessary to specify bilateral trade flows because the tariffs are bilaterally differentiated.

Policy variables

Models can be solved most readily when they are linear and have no constraints. Thus, policies of quantitative restrictions such as quotas can be a problem. Modellers prefer to work with ad valorem equivalents, which can be treated as a simple price change. Non-tariff barriers tend to be ignored when they cannot be readily measured. Quotas also generate rents, and it may be difficult to determine where these rents accrue.

Food security is a long-term issue. This means projecting some variables exogenously, including policy ones, outside the model. Such variables might include population, income, productivity growth and (set) exchange rates, not only for Vietnam, but for other countries with which it trades. These projections, for example on population growth, can significantly affect the results and the policy implications.

Data considerations

All models require data, for example on quantities such as production, consumption, imports and exports, and on prices paid and received. Policy variables, such as tariffs and taxes, are particularly important. These data should be as up to date as possible, particularly if the economy is growing rapidly or is restructuring. However, the base year should be representative, perhaps avoiding the global financial crisis or other outliers. Trade models require data from many countries. These data are often collected by large international organisations, such as the World Trade Organization (WTO) or the United Nations, and may be two or three years out of date. The amount of data and the cost of collection depend on the aggregation (countries and commodities) and the model specification. The data need to be consistent, so for example global exports equal imports, and production equals consumption. This is often not the case, and the data need to be reconciled. CGE models require input–output tables from the national accounts, but these are often years old. These can be updated somewhat by projecting forward with more recent values of exogenous variables such as GDP, labour and capital. This is more important when the economy is growing rapidly.

Domestic data in Vietnam are available from a number of sources, most of which are provided by the General Statistics Office of Vietnam:

- The Vietnam Household Living Standards Survey (carried out every 2 years since 2002);
- AgroCensus data (collected every 5 years);
- Land use survey data (published annually);
- Trade, price, population and tourism statistics (published annually);
- Input–output table (published about every 5 years); and
- Health, nutrition and food safety data provided by the National Institute of Nutrition under the Ministry of Health.

Parameter estimates

Elasticities

The responsiveness of consumers and producers to price changes drives the results of any economic model, and the elasticities represent the response. The key parameters are price and substitution elasticities. Budget shares and cost shares are also required for some specifications. Parameters can be econometrically estimated if the model is small enough, but typically elasticities are taken from the literature. Alternatively, parameters can be calibrated to generate the initial dataset. This is often done with large models.

Functional form

Functional form refers to the curvature of the relationships such as supply and demand, which may be linear or non-linear. Standard utility functions used to describe consumer preferences are almost ideal demand system (AIDS), Cobb–Douglas (CD),

linear expenditure system (LES), constant elasticity of substitution (CES) and, less common, constant difference elasticity (CDE). These have different properties (Burfisher 2011, p. 84), possibly leading to different policy implications.

There is also a variety of functions describing the production process. The standard CGE approach is to allow some degree of substitution among factors of production, but to fix input–output ratios in the use of intermediate inputs and between the bundles of intermediates and factors. This is the Leontief production function. The elasticity of substitution is zero.

An important functional relationship is the substitution between imports and domestically produced goods, as it is this that determines trade flows. CGE models typically use an Armington function where imports depend on the ratio of imported to domestic prices, raised to an elasticity. This helps explain two-way trade and implies domestic and imported goods are not perfect substitutes.

Institutional characteristics

Models can be expensive to develop, maintain and apply. Where previously it was common for models to be developed by single academics within universities, the trend is towards large models within an institution. Sometimes there are ongoing links between academia and government institutions (e.g. the Australian Productivity Commission and Monash University). Large models can be used for many applications. This ensures some consistency in approaches to different problems. The downside is complexity and a lack of flexibility. More recently, international organisations share databases and modelling frameworks. Examples are the GTAP (Global Trade Analysis Project) consortium centralised at Purdue University, and AGLINK, based at the Organisation for Economic Co-operation and Development (OECD) but contributed to and used by many member governments. The World Bank provides WITS (World Integrated Trade Solution), a data retrieval system that integrates trade and tariff data from different sources. The WTO provides an online database on applied and bound tariffs. While these databases are useful, they rely on data provided by national agencies, and such data may be of variable quality or out of date.

Institutional issues include where models are based, who pays the cost to develop and maintain them, who can use them, the sharing of results, and intellectual property. Individuals who develop the models, by providing the code or the data, may be understandably reluctant to make their work available to others, as they hope to capture rents from future applications. This is a reason for an institution, such as Vietnam's Ministry of Agriculture and Rural Development (MARD), to own the property rights to the models. Ideally, models should be open source, so outsiders can provide scrutiny and contribute to improving the code.

In Vietnam there is a lack of collaboration between MARD and the Ministry of Health. The first is responsible for agricultural production, whereas the second overseas health, nutrition and food safety. While data are collected on nutrition and malnutrition, they are not connected to data on income and expenditure collected as part of the Vietnam Household Living Standards Survey. Therefore it is difficult to econometrically estimate the relationship between malnutrition and variables such as income, employment and consumption. Hence, it is difficult to make policy recommendations to address the problems.

MODELS AVAILABLE IN VIETNAM

There are several models available in Vietnam that may be used to inform evidence-based policy on food security issues in Vietnam, for example GTAP, several MONASH type single country CGE models, IMPACT (International Model for Policy Analysis of Agricultural Commodities and Trade) and its variants, and VAST (Vietnam Agricultural SecTor model). Features of these models are listed in Table 1.

Computable general equilibrium

In Vietnam policymakers have access to GTAP, a global, static, CGE model with bilateral trade and tariffs.[2] This is useful for analysing regional trade agreements and other trade policy issues. It can also handle productivity shocks such as droughts and floods. The drawback is it treats the country as one region with one representative consumer so nothing can be said about income distribution and related poverty issues. Although static,

2 The GTAP model is described in Hertel (1997).

Table 1. Characteristics of models that inform evidence-based policy analysis of food security issues in Vietnam.

Feature/Model	GTAP	MONASH type CGE models	IMPACT	VILASEM	VAST
Partial or general equilibrium	GE	GE	PE	PE	PE
Coverage	Global	National, 7–8 regions	Global	National, 8 regions	National, 8 regions
Aggregation	57 sectors	Up to 113 sectors	20 commodities	13 commodities	13 commodities
Dynamics	Static, recursive dynamic	Recursive dynamic	Recursive dynamic	Recursive dynamic	Recursive dynamic
Product substitutability	Armington	Armington	Homogeneous	Homogeneous	Homogeneous
Data	Consortium	CoPS	IFPRI	MARD	IPSARD
Policies	Bilateral tariffs or tariff equivalents	Bilateral tariffs or tariff equivalents	National tariffs	Breeding, marketing, feed and animal nutrition, trade restrictions	Tariffs, domestic margins, conversion ratios, population dynamics, productivity improvements, other
Institution	Purdue, available for purchase	CoPS, available for purchase, ex-CIEM, CSPP[a]	IPSARD	IPSARD	IPSARD
Cost	High maintenance, but database easily purchased	High maintenance, although for only one country, GEMPACK and RunDynam licence	Moderate. GAMS licence	Available in IPSARD. Data requires updating. GAMS licence (MILES solver)	Low cost. GAMS licence (PATH or CONOPT)
Ease of use, training required	Moderate	Difficult. GEMPACK and RunDynam training required	Moderate. GAMS training required	Moderate. GAMS training required	Moderate. GAMS training required
Applications	Free trade agreement	Rice land allocation, external price shocks, climate change, productivity improvements	Climate change, productivity, tariff reform	Rural income diversification and growth	Rural–urban migration, tariff reform, feed conversion improvement

[a] Pham Lan Huong, formerly of CIEM, developed VIPAG, a variation of the ORANI model. Later, CoPS developed MONASH-VN. Pham Van Ha at the CSPP has yet another version.

CoPS = Centre of Policy Studies, Victoria University, Australia; IFPRI = International Food Policy Research Institute; MARD = Vietnam's Ministry of Agriculture and Rural Development; IPSARD = Vietnam's Institute of Policy and Strategy for Agriculture and Rural Development; CIEM = Vietnam's Central Institute for Economic Management; CSPP = Crawford School of Public Policy at the Australian National University.

the model can be run in a recursive dynamic fashion. This is useful for issues with a long time horizon, such as climate change. Several staff from Vietnam's MARD have had training in GTAP, and MARD has a licence for the database and underlying GEMPACK software.

More useful for regional issues is a single country CGE model. One such model is MONASH-VN, which is based on MONASH.[3] This has been used by the World Bank in Vietnam and by the Ministry of Finance. It has seven regions and can be linked to a micro-simulation model with more than 9,000 households. It is recursively dynamic, which allows the time profile of policy impacts to be observed. A variation of this model is run out of the Crawford School at the Australian National University (ANU), but lacks the micro-simulation link (Kompas et al. 2012).[4] Yet another variation is VIPAG, previously used within the Central Institute for Economic Management (CIEM). IFPRI also has a suite of single country CGE models, run in GAMS (the General Algebraic Modelling System is a high-level modelling system for mathematical programming problems). Single country CGE models are useful for looking at how consumers and producers in different provinces may be affected by policy changes. The aggregation is also much finer than GTAP, with perhaps 113 sectors (some of which are further disaggregated by region) versus 57, so it may be possible to focus on a particular sector in a region of concern, say coffee in Central Highlands. However, the links between the regions are not so well specified because of data limitations. Good data on trade flows between regions do not exist.

Single country CGE models are not widely used across institutions, just run by a few researchers. The models are difficult to develop and maintain. In Vietnam training has been conducted on demand for researchers of the Institute of Policy and Strategy for Agricultural and Rural Development (IPSARD; MARD's think-tank), the Institute of Labour Science and Social Affairs (ILSSA), CIEM (a think-tank of the Ministry of Planning and Investment), the Ministry of Industry and Trade, and the Ministry of Finance; but due to the complicated nature of the models, coding and the software, the duration of the training (maximum of 5 days) is not sufficient for participants to master the models, just to run simple shocks, and thus they are not capable of applying the models in research for policy advice.

Single and global CGE models have their limitations. This involves lack of policy detail. For many applications, particularly when the whole economy is not affected, a partial equilibrium model is more useful.

Partial equilibrium

Partial equilibrium models include multi-commodity and single commodity models. One example is IMPACT. IMPACT is a multi-region, multi-commodity dynamic model that captures the interaction between commodities. This is important where commodities are substitutes in production or consumption. Most commodities are substitutes in production because there is a limited amount of land. In addition some products, such as livestock, require feed as an input. Recently, IMPACT has been attached to a hydrological model that separates crops into irrigated and non-irrigated in individual catchment areas. This is helpful in analysing climate change, but makes the model difficult to solve readily. This limits its use. It has not been widely used within IPSARD or MARD. The Center for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Sciences has developed the China's Agricultural Policy Simulation and Projection Model. They have also developed a variant of this CCAP model modified for Vietnamese agriculture. It has similarities to the IMPACT model. IPSARD has only an executable version of the original CCAP model but cannot alter the code or modify the structure of the model to fit Vietnamese agriculture.

VILASEM (Vietnam Livestock Spatial Equilibrium Model), an extension of VASEM (Vietnam Agricultural Spatial Equilibrium Model) adding livestock also supplied by IFPRI, is a multi-market model of the food/feed and livestock sectors (IFPRI 2001). The model has 13 commodities and eight national regions. It is written in GAMS. The model is recursive dynamic. It solves quite readily using mixed complementarity

3 The MONASH model is described in Dixon and Rimmer (2002). The modifications to the model for Vietnam are described in Giesecke et al. (2013).

4 Since 2012 the model was made dynamic and solved using a singly bordered block diagonal ordering method that permits parallel processing. This allows large models to be solved very quickly.

programming and is relatively transparent. However, the model has not been updated recently and is now out of date. It has been applied to livestock issues such as breeding, marketing and animal nutrition.

Another partial equilibrium multi-commodity model is VAST, recently developed within IPSARD with ACIAR funding (Brennan et al. 2012). This is a single country multi-region model. It has eight regions and 13 commodities. An advantage of VAST, especially regarding food security policy, is its detailed interactions between crop production (for trade, domestic consumption and feed), livestock production, and domestic food demand. It can be run in GAMS in a recursive dynamic fashion. IPSARD has a GAMS licence. GAMS is widely used but requires a certain amount of training. IPSARD staff have received training in GAMS and VAST at an introductory level. VAST has not yet been used independently by IPSARD.

Partial equilibrium models may also cover just one commodity. IPSARD also has a rice sector model written in GAMS by Nic Minot from IFPRI (Minot and Goletti 2000). VASEM in fact has four staple products (rice, maize, sweetpotatoes, and cassava), although the focus is rice. There are seven agro-climatic zones linked by transport costs. Given the interest in rice and food security, it is not clear why the model has not been maintained and used more broadly. A limiting factor is the absence of land and labour in the model.

The Centre for Agrarian Systems Research and Development (CASRAD) of the Vietnam Academy of Agricultural Science has used since 2002 a farm-level non-linear-programming model called Multi-level Analysis Tools for Agriculture (MATA), developed by the French agricultural research and international cooperation organisation CIRAD. In MATA, farms in each region are classified by several types. Each farm is a basic cell of the 'agricultural production unit', which owns assets (land, equipment, animals, cash and savings). Constraints at the farm level are factor endowments (land, labour, capital), and the economic situation of the farm (cash flow, savings, investment). Farms are engaged not only in cultivation and livestock, but also in non-farm activities. In their decision-making, farms face risk, which depends on the wealth portfolio of activities and assets held. The model gives thorough micro-economic behaviours of individual stakeholders (farmers, processors and consumers), and simulates their responses to policy changes (e.g. price of agricultural products), which can be aggregated to the regional or national level. The model runs in GAMS, and its database is the Vietnam Living Standards Survey. MATA was used to simulate policies for households, their choice of diversification and specialisation, and impacts of farm size on farming households. CASRAD no longer uses MATA as those who ran it have moved to other jobs.

IPSARD also has several farm-level programming type models, which use optimisation methods such as linear or mixed integer programming, non-linear programming, MCP (mixed complementarity problem) or CNS (constrained non-linear systems). These are used to provide insights into how a typical producer may respond to a price or policy change.

IPSARD lacks any single commodity forecasting models.

The National Institute for Agricultural Planning and Projection is mainly responsible for applying geographic information systems to establish thematic agricultural maps.

Another type of modelling is agent-based modelling, where individual decision-making is modelled and aggregated to industry level. There are not very many applications to economics, but in Vietnam there are examples in land-use/cover change models. See Castella et al. (2005) for examples.

SCOPE FOR IMPROVEMENT

Food security issues require analysis at three levels of aggregation—national, regional and household. Thus, it may be sensible to have three types of models, one which deals with trade, another with production and consumption at a regional rather than national level, and a third which looks at food security issues at the household level. Dynamic GTAP is perhaps the most suitable trade model, as it can be obtained off the shelf. IPSARD staff have received training in running the dynamic.

With respect to the agricultural sector specifically, what is needed is a regional model that captures the interaction between agricultural outputs and intermediate and factor inputs. Rice is the major crop. This is well covered in most CGE models, although such models lack storage. For livestock, which will be

in increasing demand as incomes rise, feed is an input, as are factors land, labour and capital. What seems to be lacking is a feed livestock model that takes into account constraints in land and labour. These factors of production are likely to diminish or move out of agriculture in coming years.

Ideally, the agricultural sector model would also be able to consider issues of availability and access to food through the inclusion of interactions along the supply chain, inter-regional trade and household level income differences (to consider poverty issues), transportation costs across regions, nutritional components of food demand, and stochastic elements of input and/or output prices and/or storage (price stability).

MONASH-VN, IMPACT and VAST all capture some of these elements. MONASH-VN is not available for use by IPSARD staff, but is used by staff of Monash University as a consultancy service. VASEM (which is now out of date) and VAST are available, but have not been adopted by IPSARD. Requests for simple policy advice from senior decision-makers to IPSARD staff often have urgent timeframes (1 or 2 days), which does not allow analysts the time to generate evidence from these reasonably complex modelling tools. Hence, it may be useful to provide two types of modelling tools for the agricultural sector—one which deals with complex systems which can be used for detailed policy advice with longer timeframes, and another more user-friendly policy tool that can be used to provide policy advice with shorter timeframes.

User-friendliness may be achieved by preparing a graphical user interface on IMPACT or VAST that makes the model easy to use, although this may limit its flexibility. The 1990s version of IMPACT had a useful interface. Alternatively, these models could be developed in Excel, which is widely understood and used by IPSARD staff but which still has significant capabilities for this type of modelling using the Solver Add-In (there is a version of GTAP in Excel).

Because of the importance of rice, and its price volatility, it would be worthwhile developing a single commodity model devoted to this product. The model should incorporate storage. The Minot model VASEM (Minot and Goletti 2000) provides a suitable framework, but does not include storage.

Given the land constraint and a food shortage at household level, a single CGE model such as MONASH combined with a micro-simulation model covering various household aspects (production, consumption, income, expenditure, saving, etc.), similar to but simpler than MATA, could be a useful tool for detailed policy advice with longer timeframes.

Issues concerning nutrition require household data linking nutritional outcomes to income and expenditure. Some aspects of food safety can be handled with national and regional models. Vietnam has quarantine and sanitary and phytosanitary rules that are aimed to protect people and animal health. It is not so difficult to show the impacts of such rules on trade and prices, but it is difficult to show the benefits in preventing outbreaks and avoiding illness and death. Food safety regulations can be too strict as well as too lax, but often the problem is poor implementation of existing rules and regulations.

RECOMMENDATIONS

Based on the above review of the models available in Vietnam, and the advantages and disadvantages of using them for evidence-based policy on food security issues, our recommendations about modelling needs within institutions are as follows.

- Establish a set of simple policy tools for measuring the impact of various indicators on food security. A number of these simple tools are listed in IFPRI's food security portal and include changes in world prices, production, exchange rates, tariffs and export taxes, subsidies on domestic production and consumption, imports, domestic prices, producer and consumer welfare and tariff revenues.
- Maintain GTAP as the prime tool for trade analysis.
- Link a micro-simulation model to GTAP (to consider poverty and equity issues).
- IPSARD should purchase MONASH-VN as the prime tool for complex policy issues relating to regional production and consumption, and link it with a micro-simulation model (including household production, consumption, income, expenditure, saving, etc.).
- Develop VAST within Excel and establish it as the prime tool for IPSARD to provide internal policy advice on regional production and consumption, which has a short to medium timeframe for delivery.

- Develop and apply a storage model for rice to understand the impact of rice policies on food security.
- Examine the Chinese CCAP model and IFPRI's Indonesian model to see whether a version can be modified for Vietnam.
- Link nutrition data to household income and expenditure data to better understand the spatial nature of food-insecure households, and their vulnerability to economic shocks.

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Applying and disseminating evidence-based policy analysis

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Abstract

This paper illustrates the need for evidence-based policy analysis and appropriate dissemination for policy that addresses the political economy surrounding stakeholders. The important steps in evidence-based policy analysis are set out in the paper, and include identifying the policy problem and appropriate evaluation criteria, identifying policy alternatives (including no policy at all), gathering information and available data on policies, evaluating alternatives and recommending the best suite of policies, and monitoring performance following implementation. Institutions and approaches are as, if not more, important than the various methodological tools used in evidence-based policy analysis. Often very simple quantitative approaches (like graphics) rather than sophisticated economic models can provide sufficient evidence for appropriate policy analysis which can then be easily disseminated to key stakeholders. The most relevant modes for disseminating results (ranging across briefs, submissions, reports, research papers, newspaper articles, blogs and presentations) targeting the various stakeholders (which may include ministers, government officials, professionals, business and the public) are discussed.

INTRODUCTION

Evidence-based analysis is needed for proper assessment of Vietnam's food security policies[1]. Without analysis of policy options, the desired objectives may not be achieved. Generally, evidence-based policy analysis is low cost and can deliver large benefits in a short period, preventing poor decisions based on little information. There are many practical examples in developed countries like Australia where successful evidence-based policy analysis has been applied. These are discussed in this paper, along with the important component of disseminating the outcomes of the analysis. Dissemination can use a variety of methodological tools to inform various stakeholders, addressing political economy aspects.

Evidence-based policy analysis involves a number of steps, including most importantly:

1. Identifying the policy problem and appropriate evaluation criteria;[2] [3]
2. Identifying policy alternatives (including no policy at all);
3. Gathering information and available data on policies;
4. Evaluating alternatives and recommending the best suite of policies;[4] and

1 Food security is a broad policy that has four aspects (FAO 1996): availability (facilitated by, for example, open trade), access (facilitated by, for example, social safety nets, or open trade which has been shown to alleviate poverty and distribute incomes more equally than tariffs), utilisation (facilitated by, for example, nutritional information and policies allowing diversity in production), and stability (facilitated by, for example, stockholdings or future contracts).

2 Often there will be a preceding step of selecting from a number of policy problems, for example on the basis of the greatest return from the research dollar (see Ryan 2013).

3 The Australian Productivity Commission has an objective of economic efficiency written into their brief.

4 Although Tinbergen (1952)'s rule applies, namely that there should be one policy instrument for each policy objective, and the best policies are direct ones (e.g. address environmental problems with environmental policies like taxes rather than with trade policies), when you have a broad policy there will be spillovers from some policies and a suite of interconnected policies will generally be best.

5. Monitoring performance following implementation (for feedback into another cycle of policy development).

Many inquiries into Vietnam's agricultural policies, including food security policies, fall short of a full evidence-based policy analysis. This is especially true for the fourth step of evaluating alternatives and recommending the best suite of policies. An example of policy analysis that has completed this step well is provided in OECD (2015), where it is stated "The set of reforms suggested below are derived from analysis undertaken in the Review and are designed as key building blocks to support increased agricultural productivity, competitiveness and sustainability. These recommendations are not exhaustive and should be interpreted as a *starting point for government consideration, refinement and elaboration*. In particular, choices will need to be made across this wide range of recommendations as to which policy action should and can be implemented quickly and which might be acted upon more gradually."

Some formal, specific (modelling) tools for evidence-based analysis of Vietnam's food security policies are discussed in Vanzetti et al. (2016). These range in their level of sophistication. It should be borne in mind that a tool should not be the driver of the analysis. The task of evidence-based analysis is to undertake the most appropriate analysis, which may not be complex—for example it may be a simple graph—so it can be disseminated appropriately to key stakeholders such as ministers, officials, businesses and the general public. It is generally more important to consider how the tools are used rather than what tools are used. Providing a narrow choice of policy alternatives or analysis without rigor results in poor policymaking that may be ineffective.

This paper complements Vanzetti et al. (2016) by focusing on the policy analysis tools used in practice, and how the analysis can be disseminated to stakeholders. The paper first considers features of good methodology with some focus on the important component of associated institutions. Then the modelling tools described in Vanzetti et al. (2016) are outlined with some comments on the proper role of econometrics. Predominantly non-modelling methodologies (such as graphics, sectoral level analysis, simple ratios, and cost–benefit analysis), the main methodological approaches used in practice, are then presented in some detail. The paper concludes with discussion of a number of practical evidence-based policy analysis case studies and their dissemination to specific stakeholders by various modes.

FEATURES OF GOOD METHODOLOGY

The following are a number of key features of good methodology that are worth bearing in mind when considering methodologies to be applied in evidence-based policy analysis.

- Tests the effectiveness of policy action propositions (e.g. against economic efficiency) in promoting community well-being, in contrast to that of vested interests;
- Undertakes comparative analysis (could be with or without models) against a serious counterfactual (could be over different periods of time or over other countries);
- Quantifies impacts where possible;
- Assesses both direct and (often more) significant indirect effects;
- Sets out uncertainties and controls for other influences;
- Designed to avoid sources of bias (e.g. from self-selection);
- Allows for sensitivity testing; and
- Can be tested and replicated by third parties.

Institutions are an important element in a good methodology. Newer, large and complex models are expensive to develop, maintain and apply so they tend to be housed in institutions (e.g. the ORANI CGE model and its variants are housed in a Melbourne university). This allows them to be applied consistently across many and varied applications but at the same time raises intellectual property issues in terms of their use and the sharing of results. It has also been suggested that there should be dedicated evaluation units with strong links with academic and other research bodies to ensure the proper application of such models.

The issue of the use of models within institutions encouraged a discussion at an ACIAR workshop on plausible agricultural futures which raised the following points:

- Can models be developed with the flexibility and robustness to address urgent policy analysis requests?
- Would these have to be small models and use familiar software like spreadsheets?
- Is the promotion of senior staff with model expertise to managerial positions beneficial in terms of dissemination, or an insurmountable problem; and can junior staff, with appropriate supervision and time, understand and be confident to run models?
- How can the issue of high relevant staff turnover be best addressed (e.g. better career structure, or continual training of new recruits)?
- Are modelling staff being paid appropriately for their experience and efforts (say as might be reflected in the private sector), and if not, how might this be achieved?
- Would a dedicated policy modelling group be useful?

MODELLING METHODOLOGIES

Concepts that distinguish between various types of models are covered in some detail in Vanzetti et al. (2016), but are also summarised here to establish a framework for further elaboration. The key concepts are:

- Partial equilibrium (PE) versus general equilibrium (GE) models (or the level of detail for example commodities covered vs spillovers such as between the agricultural and other sectors);
- Deterministic versus stochastic models (the error terms that may represent the distribution of stock levels and chances of stockouts say, are important in the latter and require different estimation approaches);
- Regional versus global models (international trade is considered in the latter and attracts mainly international trade policy applications);
- Dynamic versus static (or point in time) models (dynamics are often important, such as how long it might take for a policy to be fully implemented);
- Homogeneous versus heterogeneous products ('rule of thumb' adjustments between Armington elasticities (measuring substitution between domestic and imported versions of a product that can be seen to be different, e.g. japonica and other strains of rice);
- Bilateral versus global trade (directions of trade can be important); and
- Policy variables (significant ones determine the usefulness of the model in evidence-based policy analysis, in contrast to some fixed-effect gravity models that are mainly made up of non-policy dummy variables).

Econometrics has sometimes been considered as an approach to overcoming the limitations of poor data but there is a limit to its contribution here. It is more about making the most of the raw data, abstracting to the main features to make these clearer, in contrast to scientific models that try to capture reality regardless of the number of variables. Econometrics adds empirical content to economic theory, allowing its testing and use in forecasting and policy analysis. The provision of parameter estimates for large models, like CGE models, has tended to be its main use in evidence-based policy analysis.

There are some warnings on the application of econometrics, such as needing sufficient observations for application to sophisticated models to be appropriate. Some sophisticated models are so data demanding that they are only really applicable to rich datasets, for instance financial variables that are available continuously. A second warning is that when developing software, there is a real danger that the analysis will be largely data mining without any feel for the underlying features of the data and their veracity. There are many documented cases of econometric results having been driven by one extremely influential incorrect data entry or an incorrect application of relative scales between data variables.

NON-MODELLING METHODOLOGIES

Four methodologies that do not rely solely on modelling are discussed in this section, namely graphics, sectoral-level analysis (that incorporates some modelling in an integrated methodological approach), simple ratios, and cost–benefit analysis.

Graphics

Even the simplest of graphics can have significant impact in relation to evidence-based policy analysis. For example, the graphic of Asia–Pacific Economic Cooperation (APEC) trade liberalisation in terms of unweighted average actual tariffs (not the more readily available most favoured nation (MFN) tariff rates) and non-tariff barriers (NTB) incidences over time (Figure 1) shows that East Asia and western Pacific have been liberalising more quickly than North America (PECC 1995). This was not the impression from analysis of the more readily available but less informative MFN rates, which was putting pressure on the APEC agreement in terms of the eastern Pacific countries feeling they were the ones doing all the liberalisation.

Sectoral-level analysis

Sectoral-level analysis is an integrated approach made up of different but complementary individual methodologies. An example of this is contained in MUTRAP (2010) which analyses the impacts of various Vietnamese free trade agreements. The sectoral analyses were undertaken in conjunction with CGE modelling and more micro-partial equilibrium gravity modelling. The sectoral analysis was useful not only in collaborating some aspects of these ex-post and ex-ante more formal quantitative analyses, but also in providing input to these analyses (e.g. guidance on the choice of CGE parameters) and finer details, especially at the sectoral level, which was not possible with the more macro-analyses.

Specific individual sectoral analysis methodologies include:

- Summary indicators of trade potential (for example, the revealed comparative advantage ratio measures a country's export potential);
- A tariff revenue approach (measuring the cost of the tariff by import quantity—unless tariffs are set so high as to stop all imports);
- SMART model simulations (single market partial equilibrium models); and
- Interviews/surveys with industry associations (e.g. asking future intentions such as whether they would stay in the industry, become more specialist building off cheaper imported inputs, etc.).

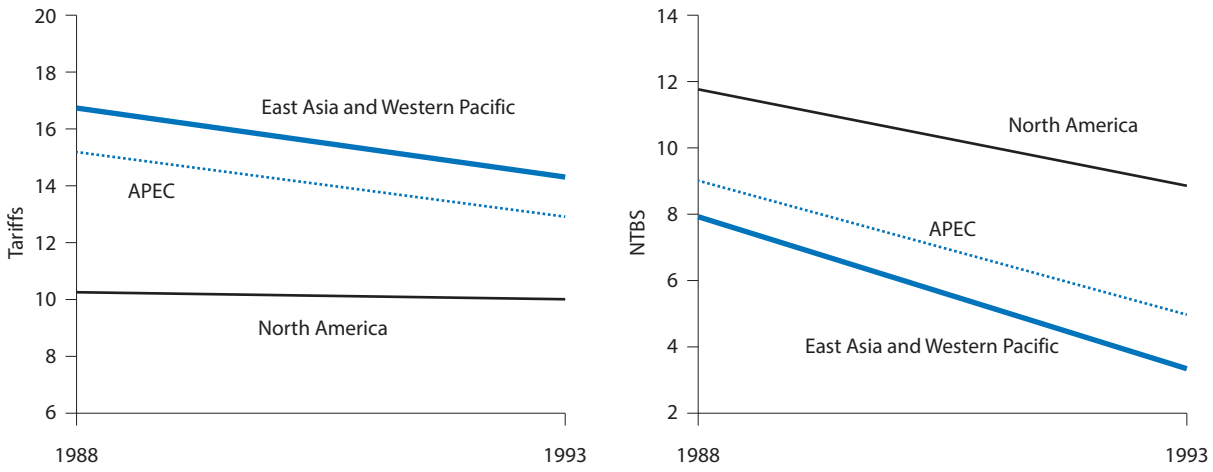

Figure 1. Unweighted average tariff rates and non-tariff barrier (NTB) incidence in Asia–Pacific Economic Cooperation (APEC). Notes: These figures are derived from simple averages of the unweighted tariffs and the incidence of NTBs. Because of the different souces of the data making up the averages, as well as the inherent difficulties associated with these estimates, unweighted values are preferred as a means of examining trends over time in tariff assistance. Source: PECC (1995).

Simple ratios

The third non-modelling methodology is an extension of the simple ratios mentioned in the sectoral analysis (MUTRAP 2010). The following are examples of such ratios, which taken as a whole provide a useful insight into the suite of characteristics that indicate the potential of Vietnamese trade:

- Relative growth rates—industry growth rates;
- Revealed comparative advantage (RCA)—a product's export potential;
- Export specialisation—similar to RCA for particular markets;
- Export similarity—between specific export markets;
- Trade complementarity—prospects for intra-regional trade;
- Trade intensity—bilateral trade larger/smaller than world trade; and
- Index of intra-industry trade—industry trade growth due to exchange of similar products.

Cost–benefit analysis

The final non-modelling methodology is cost–benefit analysis (CBA). CBA is a systematic process for calculating and comparing the benefits and costs of a project or policy. It can determine if a policy choice is sound based on determination of whether the broad benefits (which can be more than revenues, but do not include transfers) exceed the costs (which can include benefits forgone as well as opportunity costs but not sunk costs). Policy alternatives can be compared based on how much the benefits exceed the costs. In CBA, benefits and costs are expressed in money terms and adjusted for the time value of money (social discount rate) to obtain a common net present value. Generally, accurate CBA identifies choices (based on lowest cost–benefit ratio) that can increase social welfare. CBA is related to, but distinct from, cost-effectiveness analysis where the lowest cost is sought for a decision where the benefits are difficult to value (for instance, for public goods related to health such as heart disease). The CBA approach is broad ranging and accounts for direct as well as indirect (e.g. externalities) impacts.

An example of the application of CBA for evidence-based food security policy in Vietnam is provided by Trewin (2015) on the safe pork trade. This case study was very topical with Vietnamese news articles on its importance to consumers, many of whom were paying significant sums of money for kits that test for residue levels. The outcome of the research was that economic welfare was optimised for countries, whether importers or exporters, when uniform international standards in safe food trade were used. It showed that standards that are stricter than international standards (some are over 20 times stricter) have costs in terms of constraining cheaper imports for consumers and encouraging smuggling that raises disease risks to producers. Comparing the costs and benefits of the safe food trade standards policy drew on evidence similar to that on higher EU sanitary and phytosanitary (SPS) standards, which were estimated to save only two lives in a billion but cost African trade nearly a A$1 billion (money which could be used to save many more lives in Africa). A more cost-effective approach was found to be internalising the externalities through food labelling.

DISSEMINATION

This section is focused on the targets for the evidence-based policy analysis, such as ministers, government officials, professionals, business and the public. There are various modes for disseminating the evidence-based policy analysis, including briefs, submissions, reports, research papers, newspaper articles, blogs and presentations. Generally, certain modes will be relevant to each stakeholder, with some more for one stakeholder than for others. Examples for each stakeholder group are discussed below, mainly in relation to aspects of food security.

Ministers

Effective ways to disseminate evidence-based policy analysis to ministers include all of the above-mentioned modes, although the more significant ones are policy briefs (often developed from research reports), submissions to formal inquiries, newspaper articles and blogs. Examples include AFR (2013), PECC (1995), Trewin and Bosworth (2000) and Vanzetti et al. (2010).

Multiple modes are the norm here. Some of the dissemination to ministers refers to requested formal reports, but there is still a need to provide dissemination material that they can use in relation to their target audience (e.g. farmers). Effective direct dissemination is the more formal and accessible mode, for example

submissions and policy briefs. Effective informal dissemination such as blogs and newspaper articles can put pressure on the minister from stakeholders such as business and the public. International targets are more effective when the research involves in-country researchers, diminishing the claim that the research is based on vested interests rather than their own society interests. Multilateral targets, such as APEC ministers, can draw pressure from some members for specific positions (for example, that anti-dumping is not a trade constraint which needs to be resisted), so the position needs to be supported by strong research.

Government officials

The more significant modes of disseminating research findings to government officials (referred to here as public servants, ministerial advisors and other members of government, excluding ministers, who are influential in the policy development processes) are at the more formal end of the spectrum, namely research reports, submissions, policy briefs and presentations based on these written pieces. Examples include various submissions to government inquiries (Bosworth and Trewin 2010; Trewin 2011, 2012), plus journals (Trewin 1999) and newspaper articles (AFR 2010, 2013) aimed at influencing government officials' thinking.

Sometimes publishing a professional article protects the professional standing of the research which can be attacked by those trying to protect their own position. Research reports and submissions are necessarily more formal than policy briefs, being aimed at more technical audiences, and can benefit from having associated professional articles. Informal disseminations (like blogs and newspaper articles) put less pressure on government officials than ministers who are more answerable to their public stakeholders.

Professionals

Methods for disseminating evidence-based policy analysis to professionals (referred to here as people qualified in a profession, including academics) are at the more academic end of the spectrum, although the role of professionals is changing such that they are more readily influenced by public modes (namely publicly available research reports, submissions, newspaper articles, blogs and presentations). Examples include Trewin (1999, 2015).

Transparency and professional endorsement through professional modes of dissemination can overcome vested interests exerted by some senior officers. Professional disagreements, which can be minor in relation to the main policy debate, can still undermine economic reforms unless they are properly addressed. Professional disseminations like research articles often follow more pressing modes like submissions and can capture professional peer endorsement and recognition. Moreover, professional disseminations can be the basis of informal disseminations like newspaper articles and blogs.

Business

Disseminating research results to business is best done through private, and on occasion more public modes, such as presentations and opinion pieces for newspapers. They can be commissioned by influential stakeholders (like business) yet represent the interest of the majority of the public (Trewin 1997). More often than not, dissemination involving business is private as it might involve specific forecasts of a market situation or research relevant to a dispute such as on anti-dumping action. Still, aspects of the research such as some methodological development or public interest aspect can be disseminated in professional journals or opinion pieces in newspapers.

Public

Disseminating evidence-based policy research to the public is most effective through informal means such as blogs, newspaper articles, and presentations that might be captured in the modes just mentioned. It is best if all of these are built off an underlying research report and/or submission. Examples of this type of dissemination include AFR (2004), MUTRAP (2010) and Trewin (2008, 2012).

Perhaps a valuable lesson can be learned from the MUTRAP study of Vietnam free trade agreements (FTAs) (MUTRAP 2010). Findings were disseminated to a diplomatic officer with an involvement in the research aid agency who had hired the consultants to do the research. The diplomat did not like the estimated lack of impacts found in the study, but transparency

through public presentations and newspaper articles ensured the results were disseminated to the key stakeholders. Moreover, a senior ex-minister on the advisory committee became convinced of the appropriateness of the result, especially from the public presentations which involved researchers from key agencies such as the Central Institute for Economic Management, and defended them. Often resistance to research outcomes is driven by vested interests rather than other research outcomes. Faster and less technical modes of dissemination are necessary and more effective in such situations, but in some situations, key stakeholders (like poor consumers) may not have access to modes such as journal articles or even newspaper articles (online or in print). E-versions of all modes are becoming increasingly available and an outcome is that some individual articles can appear in a multitude of regional, national and international newspapers.

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