CAPSA Working Paper No. 101

The Impact of Support for Imports on Food Security in Indonesia

I Wayan Rusastra
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United Nations
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ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

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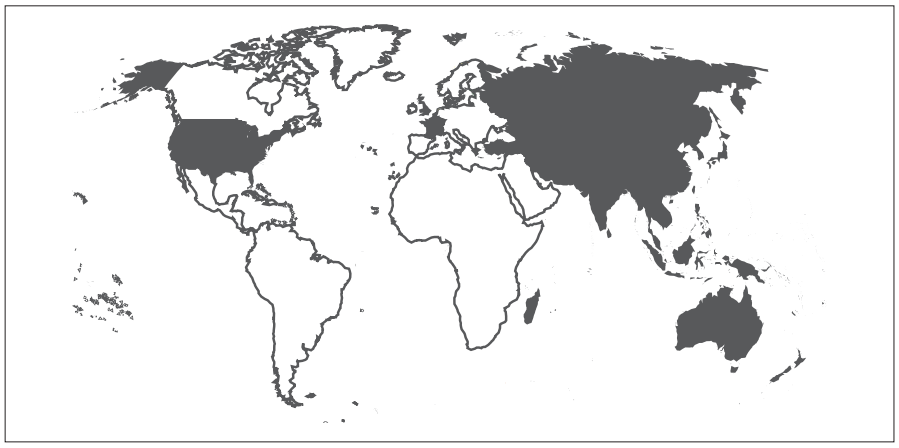

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Objectives

CAPSA promotes a more supportive policy environment in member countries to enhance the living conditions of rural poor populations in disadvantaged areas, particularly those who rely on secondary crop agriculture for their livelihood, and to promote research and development related to agriculture to alleviate poverty in the Asian and Pacific region.

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United Nations
New York, 2008

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

UNESCAP-CAPSA
Jalan Merdeka 145, Bogor 16111
Indonesia

Printed in Indonesia

Cover Photograph by Muhamad Arif

National Library: Cataloguing in Publication

The Impact of Support for Imports on Food Security in Indonesia/ I Wayan Rusastra, Togar A. Napitupulu and Robin Bourgeois -- Bogor: UNESCAP-CAPSA, 2008.
xii, 58 pp.; 23.8 cm. -- (Working paper series; No. 101).

Published in co-operation with CIRAD (Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement).

ISBN 978-979-9317-69-8

1. Food Security 2. Trade Policy
I. Title II. Napitupulu, Togar A. III. Bourgeois, Robin.
IV. Series.

353.997

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List of Abbreviations

BKP	Food Security Agency (*Badan Ketahanan Pangan*)
BLM	Direct cash aid (*Bantuan Langsung Masyarakat*)
BULOG	National Logistics Agency (*Badan Urusan Logistik*)
CAPSA	Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific
CBS	Indonesian Central Bureau of Statistics
CIF	Cost – Insurance – Freight
CIRAD	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement
CNUCED	United Nations Commission for Growth and Economic Development
DG-AGRI	Direction Generale de l'Agriculture
DI	Diversity index
DKP	Food Security Council (*Dewan Ketahanan Pangan*)
DPM-LUEP	Capital Enhancement Funds for Rural Business Institutions (*Dana Penguatan Modal Lembaga Usaha Ekonomi Pedesaan*)
DRCR	Domestic Resource Cost Ratio
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Database on line
GDP	Gross domestic product
GKP	Dried unhusked paddy (*Gabah Kering Panen*)
GOI	Government of Indonesia
GRET	Groupe de Recherche et d'Etudes Techniques
ha	Hectare
HDI	Human development index
HPP	Government procurement price (*Harga Pembelian Pemerintah*)
HvDI	Harvest Diversity Index
HYV	High yielding varieties
ICASEPS	Indonesian Center for Agriculture Socio Economic and Policy Studies (ex CASER; ex ICASERD)

IDP	Internally Displaced Persons
IDR	Import dependency ratio
IMR	Infant mortality rate
LRPI	Indonesian Plantation Crop Research Institute (*Lembaga Riset Perkebunan Indonesia*)
MCI	Multiple cropping index
MDG	Millennium Development Goal
MSME	Micro-small-medium enterprises
PDRP	Empowerment of food insecure areas (*Pemberdayaan Daerah Rawan Pangan*)
PIDRA	Participatory Integrated Development in Rainfed Area
PRRO	Protracted Relief and Recovery Operations
R&D	Research and Development
Rp	Indonesian Rupiah
SMO	Special market operation
SP	Special Products
SPFS	Special Programme for Food Security
SSM	Special safeguard mechanisms
ToR	Terms of reference
TRI	Intensified Smallholder Sugar Cane (*Tebu Rakyat Intensifikasi*)
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USA	United States of America
WFP	World Food Programme
WTO	World Trade Organization
WTO-AoA	WTO-Agreement on Agriculture

Foreword

Export support measures are the subject of numerous criticisms. In relation to developing countries, such support is accused of exercising downward pressure on international markets and creating conditions of unfair competition. The persistence of food insecurity around the world is related to commercial trade, including features such as the export support measures of developed countries.

This study on the impact of import support on food security was conducted in eight developing countries – including Indonesia – that were facing food insecurity and were recipients of subsidized exports and food aid. In Indonesia, the analysis of import flows in comparison with overall production and consumption data led to the selection of the three import substitute commodities, soybean, sugar and milk, that were the focus of this study. The objective of the study was to provide an analysis of the national impact of export support measures on food security, by taking into account their impact on the producers and consumers of the three commodities under consideration.

I am grateful to Dr. Robin Bourgeois, CIRAD Agricultural Economist assigned to CAPSA, for his substantial contribution to supervising this study. My gratitude is extended to Dr. I Wayan Rusastra, the Programme Leader R&D, CAPSA and a Senior Agricultural Economist at the Indonesian Center for Agriculture Socio-Economic and Policy Studies (ICASEPS), who co-ordinated the project as the Project Leader. Deep and sincere appreciation to researchers in ICASEPS, LRPI, the Agency of Food Security, and CAPSA for their valuable contribution paper to this study. My thanks also go to Mr. Geoff Thompson and Mr. Robert Baldwin for their dutiful editing services throughout the publication of the study report.

I sincerely hope that this study will contribute to the further improvement of food security in Indonesia, in other countries that participated in the study, as well as those countries that have similar economic conditions.

Finally, I would like to express my sincere appreciation to the Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement, and the Groupe de Recherché et d'Etudes Techniques, for the financial support for the project.

January 2008

Taco Bottema
Director
UNESCAP-CAPSA

Acknowledgements

The foundations of this report rest on several background papers commissioned specifically to provide information for the analysis of the impact of import support and food aid measures on food security in developing countries. Considerable effort was put into each of these projects by a variety of researchers. Their valuable research and analysis was instrumental in the production of this report.

The authors extend their sincere thanks to the following researchers:

Dr. Dewa K. Swastika	Agricultural Economist, ICASEPS, Bogor
Dr. W.R. Susila	Agricultural Economist, LRPI, Bogor
Dr. Nyak Ilham	Agricultural Economist, ICASEPS, Bogor
Dr. Hermanto	Secretary of the National Food Security Agency, Ministry of Agriculture, Jakarta
Ms. D. Kusumaningrum	Research Assistant, CAPSA, Bogor
Ms. Mewa Ariani	Agricultural Economist, ICASEPS, Bogor
Mr. Gatoet Sroe Hardono	Agricultural Economist, ICASEPS, Bogor
Ms. Sri Nuryanti	Agricultural Economist, ICASEPS, Bogor

Dr. Swastika, Dr. Susila and Dr. Ilham, conducted studies on the impact of support for imports breakdown for sugar, soybean and milk. They also made an examination of the competition between national products and imports. Ms. Nuryanti gave valuable support on data collection and analysis for the three commodities under consideration. Dr. Hermanto and Ms. Kusumaningrum conducted a study on the performance and prospects of food security in Indonesia. Ms. Ariani and Mr. Hardono, conducted a study on the characteristics and consumption modes of households facing food insecurity.

Valuable comments at various stages of the production of this paper were received from Dr. Taco Bottema, Director, CAPSA.

The authors also extend their thanks and appreciation to the Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement, and the Groupe de Recherche et d'Etudes Techniques, for their financial support for the project, and to the

Indonesian Center for Agriculture Socio Economic and Policy Studies, and the Indonesian Plantation Crop Research Institute for their support and co-operation.

The opinions expressed in the paper are those of the authors.

The Authors
November 2007

1. Introduction

1.1 Background

Export support measures, such as European Union refunds or measures with equivalent effect (export credits and export credits guarantees, state trading enterprises, food aid) are the subject of numerous criticisms. They are said to exercise downwards pressure on international markets and to create conditions of unfair competition, notably in the markets of developing countries. International trade and the agricultural export support policies of developed countries are often singled out as one reason for the persistence of food insecurity in developing countries due to the complex links between agricultural trade, poverty and food security. In order to bring more fact-based understanding on the issue of the impact of export support and food aid by developed countries on food security, EU (European Union) - DGAGRI (Direction Generale de l'Agriculture) has contracted GRET (Groupe de Recherche et d'Etudes Techniques) to implement an *ex post* study in several countries.

A limited but representative set of countries that use export support measures[1], and of products receiving this support[2], has been defined. Similarly, a number of developing countries facing food insecurity (in diverse forms) and recipients of subsidized exports and/or food aid[3] have been identified, including Indonesia.

1.2 Objective and scope of work

The objective was to collect the necessary information and to provide an analysis on the national impact of export support measures and food aid on food security, focusing on the primary imports that receive support from the exporting countries and the primary food aid products.

The Indonesian country study aimed to address the section of the general study that was conducted by GRET and devoted to the local impact of export support measures and food aid. It also aimed to complete the section of that study that focuses on the impact on the international market.

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[1] European Union, United States, Canada, Australia, New Zealand, Thailand and Japan for food aid.
[2] Wheat and wheat flour, maize, rice, sugar, milk powder and other dairy products, soybean, bovine meat, chicken meat.
[3] Bangladesh, Egypt, Ethiopia, Guatemala, Indonesia, Mali, Malawi and Tajikistan.

As indicated in the Terms of Reference (ToR), the team mission was to submit a report presenting the results of their analysis. The report should provide: (a) a presentation of the institutional situation; (b) a description of the trade situation and food aid situation in the country for the products selected; (c) a concrete and detailed presentation of the mechanisms by which the selected product imports and food aid have an 'impact' on food security in the country, distinguishing if possible between geographic zones, types of households, and even individuals within households; (d) a presentation of lessons learnt on the probable consequences of a drop in the prices of imported products and the amount of food aid.

The work focused on import support. In Indonesia, the fourth most populated country in the world with 220 million inhabitants, the food aid component of the study was felt to be relatively marginal. Indeed, according to WFP (World Food Programme), Indonesia has gradually recovered from multiple crises that affected the country in 1997–1998 and economic achievements and political stability have facilitated settlement and integration of a large number of displaced persons. The WFP regional emergency operation (EMOP 10405.0) in response to the December 2004 tsunami, ended on 31 December 2005.

The WFP's existing protracted relief and recovery operations (PRRO), 'Assistance to Recovery and Nutritional Rehabilitation', has been expanded to include beneficiaries from Aceh and Nias and focuses on nutritional rehabilitation and recovery of livelihoods for the affected population. The project is committed to providing 316,000 tons of food over three years. While this represents significant help to the local population under Food-for-Work/Food-for-Training programmes, it is a very small amount compared, for instance, to the 32 million tons of white rice alone produced by the country every year. Even the 826,000 primary school children who received a food complement under the school feeding programme in 2006 represented less than 2 per cent of the 44 million children within the 6–12 years age group receiving primary school education.

The analysis of import flows[4] and a comparison of these flows with overall production and consumption data[5] led to the selection of the following three sectors in Indonesia:

(1) Soybean: It is the primary source of protein for the poorest households. Since 1995, soybean grain imports have been increasing, in large part from the United States (at least 70 per cent of total imports). Today they represent the main source of supply due to declining domestic production.

[4] UNCTAD database.
[5] FAO database (Food Balance Sheet).

(2) Milk: Although still low, milk consumption is rapidly increasing. Most is currently imported, but could be produced locally. It therefore warranted examination.

(3) Sugar: Imported sugar from tropical and non-tropical countries competes with domestic sugar cane production. It is a hot political issue in Indonesia and very much a subject of tension with developed countries as the international sugar market is largely distorted by various measures emanating from developed countries.

1.3 Organization of the study

The work organization for the completion of this analysis was done by the UNESCAP-CAPSA[6] in Bogor, Indonesia with the team leader of I Wayan Rusastra, Programme Leader for R & D at the Centre. Supervision was in the hands of Robin Bourgeois, CIRAD (Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement) Agricultural Economist assigned to CAPSA. CAPSA established a team of experts who were in charge of the thematic and commodity aspects of the study.

The agreement between CAPSA and GRET commenced on 23 March 2006 and all methodological as well as logistic arrangements were concluded by 12 May 2006. CAPSA was expected to produce a draft report by 9 June 2006 and a final report by 15 June 2006. Data collection and analysis was performed between 12 and 30 May 2006. Report writing started immediately after and was completed as indicated above.

1.4 Structure of the report

The report is structured into three chapters. Chapter I is an introduction of the policy, institutional and trade context for Indonesia. It synthesizes recent evolutions (over the last ten years), describes the current situation and explores some future prospects for Indonesian policy and economic outcomes. It also provides a general overview of trade policies with a special focus on the three selected commodities, soybeans, milk and sugar.

Chapter II presents the current food security situation in Indonesia, firstly at macro level and then at household level. At macro level it analyses the main sources of food insecurity and the related overall food security level in Indonesia and then describes the recent evolution of dependency on imports of milk, soybean and sugar. Then, at household

[6] Centre for Alleviation of Poverty through Secondary Crops' Development in Asia and the Pacific, a regional body of the UN Economic and Social Commission for Asia and the Pacific. See http://www.uncapsa.org.

level we conduct a more detailed analysis to characterize food insecure households, their consumption patterns in general and in relation to the three commodities.

Chapter III analyses the impact of import support on food security firstly on consumers and then on domestic production, for the three commodities. The impact on consumers is seen both from a macro level with a focus on the state trade balance and from a micro level with a focus on food insecure households. The impact on domestic production includes an analysis of the current competitiveness of the three commodity products and trading systems (*filières*) and a discussion on prospects to strengthen it.

The conclusion summarizes the main findings of the study and opens ways for further research and analysis in relation to the impact of developed countries' agriculture and trade policies on food security in Indonesia.

2. Institutional and Policy Context

This section presents the current macroeconomic developments, the main problems and challenges faced by the Indonesian economy. It highlights the evolution of the Indonesian national food security programme and the paradigm shift in Indonesia's food security policy. In addition, it discusses the performance and impact of the current programmes with respect to food security improvements and poverty alleviation. Lastly, it presents an analysis of the current trade policy regime in the country.

2.1 Macroeconomic policy and poverty

Political, economic, and social conditions in Indonesia have witnessed important changes (European Commission, 2005): (a) macroeconomic performance suggests that the economy has finally recovered from the 1997 Asian financial crisis, and that the challenge has now shifted from recovery to sustaining a growth rate of 5 to 7 per cent, (b) there has been a transition from autocratic rule to democracy since 1998; and (c) the country has experienced an ambitious decentralization programme, devolving considerable authority to local governments, which seems to be beneficial for resource-rich areas, and may also lead to a consideration of the rights and claims of indigenous and minority groups. The key challenge is to create enough jobs to absorb an estimated 2.5 million new entrants to the labour market every year.

Despite positive macroeconomic achievements in 2004, such as a 5.1 per cent gross domestic product (GDP) growth rate and an inflation rate limited to 6.1 per cent, the country still faces major challenges in key areas, such as employment creation, improvement of the investment climate and ensuring that Indonesia fully benefits from its integration into the international trading system (European Community, 2005). In regard to trade policy, Indonesia is a country open to foreign trade, with total external trade in goods amounting to 56 per cent of GDP in 2004. Indonesia's trade policies have evolved from high protection to openness in a comparatively short period with significant unilateral trade liberalization measures. The structure of Indonesia's trade is characterized by a relatively high concentration of trade with certain countries, the dominant trading partners being Japan (20 per cent), EU (13 per cent), and the USA (11 per cent) in 2003.

In relation to the social situation, especially to poverty, the "Human Development Report 2004" ranks Indonesia 111 out of 175 countries with a human development index

(HDI) that places Indonesia in the medium human development category (European Community, 2005). Poverty remains a challenge, while unemployment and under-employment are still high. Over 110 million (nearly 50 per cent) Indonesians live on less than US$ 2 a day and are at great risk of falling below the poverty line. Rural poverty is a concern particularly in remote areas and isolated populations. Although Indonesia recently passed a law on social protection, including social health insurance, its implementation will require further central and local regulation and substantial financial and technical support before it can be applied.

Success in pursuing macroeconomic stability over the past four years has certainly been the primary factor in reducing poverty in Indonesia. However, the experience of many countries shows that economic growth alone is not sufficient for improving the well-being of poor people. While economic growth may help poor people through the creation of jobs, additional efforts are still needed to address their needs.

2.2 Food security policy

For some time, Indonesia's food security programme was based on a food availability approach with twin strategies: price stability and rice self-sufficiency. Some experts have criticized this policy framework as unsustainable economically, politically and ecologically, and hence bound to fail. They have identified inherent weaknesses in this food security policy such as: (a) the objective was directed primarily toward the achievement of political and economic stability rather than sustainable food security, by assuring availability of food (rice) at a low and stable price; (b) by not including the household income promotion element, the policy failed to address income and non-market mechanisms of food access, which led to a food crisis caused by economic problems rather than by the decline of food availability; (c) it was primarily focused on food security at the national level, but failed to address the local and household dimensions for individual food security, which are particularly relevant in remote local areas (hunger paradox); and (d) the policy promotes domestic production for self-sufficiency while keeping the price stable at an affordable level (Simatupang, 1999).

Recently the government implemented the sustainable food security paradigm (SFSP) with four primary dimensions (Simatupang, 1999): availability, accessibility, vulnerability (stability and reliability), and sustainability. Monitoring and early warning systems, social security systems, and social safety net systems are inherent components in the implementation of the paradigm.

Both food availability and access are highly vulnerable to various risks such as production, trade, price, incomes, and political and social conflicts. Accordingly, social security systems or social safety net systems are also necessary components of sustainable food security systems. The lack of social security systems or social safety net systems contributed to the emergence of the 1998 food security crisis in Indonesia.

Sustainability addresses long-term food security. Practical indicators for sustainability are positive long-term trends of both food availability (caloric supply) and access (economic). Food farming sustainability is especially important in this respect. In general, the food security programme must be environmentally friendly or ecologically sustainable. Ecological sustainability has been a global concern in recent years. The sustainability element will also be important in drawing international support to the national food security programme.

In Indonesia food security is given high priority. It is referred to in the Food Law 1996 and the Government Regulation No. 68/202. The formulation of the Food Security Policy was synchronized with the agreement on Millennium Development Goals (MDGs), in particular MDG1, on reducing poverty and hunger by 50 per cent by 2015, compared to 1990 levels.

In order to implement the above-mentioned programme, the government of Indonesia established a Food Security Council (DKP) through Presidential Decree (*Keppres*) No. 132/2001. The tasks of DKP are: (a) to formulate a national food security policy which covers the aspects of availability, distribution, consumption, quality, nutrition, and food safety; and (b) to implement evaluation and management towards national food security stabilization.

Several measures related to food security have been implemented by the government as it was formulated in the former Five Year Development Plan (now the National Development Programme). In 2002, a government agency, the Food Security Agency (BKP), was established to serve as a secretariat to the DKP. The agency implemented seven models for food security empowerment developed at regency/city levels in some provinces throughout the country. These models have been implemented through direct cash aid (BLM) schemes (Table 2.1). The following points are brief descriptions of the models (Pasaribu, 2006).

1. People's food barn system development.

   People's food barns are simple, small-scale, socially oriented systems that are used for food borrowing and saving activities commonly found in Indonesia. This

revitalized model is hoped to become an institution of rural economic impetus. In fact, food barn systems are owned by rural people, and established and managed by those running businesses for storage, distribution processing, and trading of foodstuffs.

2. Delayed selling system development

   Development of delayed selling systems is aimed at supporting the farmers who reside in production centres, to avoid price plunges under the fixed government price, at peak harvest season. Such activity can also be controlled through the food barn system development and the provision of capital enhancement funds for rural business institutions (*Dana Penguatan Modal Lembaga Usaha Ekonomi Pedesaan* or DPM-LUEP). In 2003, the activity was implemented for non-rice commodities..

3. Local food development

   Local food development is aimed at developing locally specific commodities to fulfil alternative food needs, as well as enhancing agribusiness activities in order to speed up food diversification.

4. Home yard utilization

   The home yard utilization model is developed in an effort to use home yards as additional land to produce food as well as to generate income. Home yards are utilized in an integrated way and may consist of various plants, animals, and fish. Community groups established for the above-mentioned activity would get funds through a revolving BLM scheme.

5. Participatory Integrated Development in Rainfed Area (PIDRA)

   The PIDRA model of community empowerment is focused on poor farmers who cultivate rainfed areas through a process of self-reliant community development, assisted by non-government organizations. Until 2004, some 2000 self-reliant groups have been established and cover some 41,000 households.

6. Special Programme for Food Security (SPFS)

   The SPFS model is a joint programme between the Department of Agriculture and the FAO. It will run for a period of five years. The activities that have been carried out in this programme are: (a) identification of farmers and locations through participatory rural appraisal; (b) conducting planning and training of officers; (c) provision and distribution of supported amenities; (d) presentation of seminar/workshop and exchange study visits; and (e) assistance to 36 groups of farmers.

7. Empowerment of food insecurity areas (PDRP)

   The PDRP model (central, province and regency/city) seeks the empowerment of food insecurity groups, both transient and long-lasting, through capacity building, or providing facilities, amenities or foodstuffs. The PDRP model is directed to farmers' households in poverty areas hit by disaster. In 2002, BLM aid was managed by revolving fund mechanisms providing production inputs needed for farming development. However, since 2003, aid has been given as a grant, without a revolving mechanism in the form of production inputs and food.

Table 2.1 Community empowerment programme through BLM, 2002–2004

Food security empowerment model	2002		2003		2004	
	Regency	Groups	Regency	Groups	Regency	Groups
1. Food storage	100	232	78	338	68	294
2. Delayed selling	55	118	45	193	40	130
3. Local food dev't	111	263	70	333	60	264
4. Home yard	82	362	66	250	38	221
5. PIDRA	14	643	14	840	5	588
6. SPSF	5	36	5	0	14	0
7. PDRP	63	235	*	*	*	*
Total	430	1 889	278	1 954	215	1 497

Source: The Agency of Food Security, Ministry of Agriculture, Jakarta, 2005.

Note: * Activity has been changed to support programmes in disaster areas.

The following analysis relates to the General Policy of Food Security for 2006–2009 (Dewan Ketahanan Pangan, 2006*)*. Key elements of the strategic policy on food availability are: (a) to improve the quality of natural resources and the environment; (b) to improve agricultural and rural infrastructure; (c) to increase food production to fulfil domestic food demand; and (d) to improve the capacity of regional government and community in food stock management.

In relation to food availability the government identified four targets: (a) maintaining the energy availability per capita per day above the 2,200 kcal standard, and protein availability above 57 grams/capita/day; (b) strengthening food self-sufficiency by sustaining the achievement of rice self-sufficiency, and achieving the target for self-sufficiency in corn in 2007, soybean (in 2015), sugar (in 2009), and beef (in 2010); (c) improving food stock management conducted by regional governments and the community; and (d) increasing agricultural land by setting aside permanent irrigated and dryland areas, each being 15 million hectares in area.

Strategic policy related to food distribution includes: (a) improvement of infrastructure to strengthen food distribution efficiency and food trade; (b) elimination of regional

regulations hampering interregional food flow and its distribution; (c) development of institutional and physical infrastructure of food processing and marketing in rural area; and (d) formulation of food price policies to protect producers as well as the consumers.

On food distribution, the target of the Strategic Policy is to improve interregional marketing and distribution networks. Special attention is to be given to better marketing accessibility for agricultural input and output in remote areas. This specific attention on marketing efficiency is important since inefficient marketing due to infrastructure and distribution constraints creates negative impacts to agricultural production as well as food security achievement.

Strategic policies related to food consumption are: (a) to improve the capacity of household food accessibility based on appropriate volume, quality, safety, and nutritional balance; (b) to encourage, develop, and facilitate the role of the community to fulfil their right to food, especially for poor people; (c) to improve the efficiency and effectiveness of food aid and subsidized food for food insecure households; and (d) to speed up food diversification for better food consumption and to balance nutritional content.

For food consumption and food insecurity five targets have been set: (a) increasing energy consumption to a minimum of 2,000 kcal/capita/day and protein consumption to 52 grams/capita/day, and to improve the quality of consumption with a minimum score of targeted food pattern (PPH) of 80; (b) achieving higher quality, safety, and hygiene of food consumed by communities; (c) reducing the number of people in chronically food insecure situations (i.e. energy consumption of less than 80 per cent of the standard requirement of 2,100 kcal/capita/day) by at least 1 per cent per year; (d) improving the capacity of the early warning system to anticipate and cope with food insecurity and chronic nutritional problems; and (e) improving the capacity of the government to handle transient food insecurity problems in disaster areas.

In general, regional agricultural diversification in the major rice-producing areas has been stagnant, as indicated by a small change in the multiple-cropping index (MCI, which indicates the degree of planting intensity) and the harvest diversity index (HvDI, which indicates the degree of land utilization diversification) during the 1996–2002 period (Simatupang *et al*., 2003). A higher value of the respective indicators means a greater degree of the regional agricultural diversification status. While the MCI and HvDI have little changed, the diversity index (DI, the level of income diversity) fell by 1.6–4.4 per cent per year, mainly due to the instability of relative prices of inputs/outputs and farm income.

Conversely, farm agricultural diversification indicated that there is no clear evidence that technical irrigation has a lower diversification status. This is also true for semi-technical irrigation as compared to simple irrigation (Simatupang *et al*., 2003). This indicates that the availability of water does not automatically encourage farmers to plant rice. The real drivers of diversification are economic considerations, not technical ones.

Based on the information of agricultural diversification indicators by region and type of irrigation on wetland rice areas, there is still room to improve farm diversification (Simatupang *et al*., 2003) as follows: (a) to improve the availability and accessibility of non-rice agricultural farm technology; (b) to enhance farmers' management capacity through improving extension services especially for non-rice commodities; (c) to improve the availability and accessibility of capital to support high-value capital intensive commodities such as horticulture; (d) to develop deep water irrigation infrastructure (pump irrigation) to foster agricultural diversification; (e) to improve farm productivity or implement price stabilization programmes for alternative commodities with high risk but high profitability; (f) to empower farm group institutions and partnerships with the investors in order to solve problems of access to capital and marketing constraints for alternative commodities; and (g) to develop infrastructure (physical and institutional) at the farm level, in agricultural markets, in agricultural processing, and in networking with related parties, in order to improve marketing efficiency and price stabilization for secondary crops and horticulture in particular.

In addition to the food security programmes, there are four main food security related programmes specifically designed for the poor: (a) the Rice Programme for the Poor; (b) the Public Works Programme; (c) the Empowerment Programme for micro-small-medium Enterprises; and (d) the Low-income Assistance Funds Disbursement Scheme (Rusastra *et al*., 2005). The following elaborates on the description, achievements and the problems faced by the respective programmes.

The Rice Programme for the Poor

During the 1998 economic crisis, the government implemented special market operations (SMO) to subsidize rice prices for the poor. Four years later (2002) the government converted this programme into the Rice Programme for the Poor (Suryana and Hermanto, 2004). The new programme changed the general price subsidy to a targeted rice price subsidy directed to poor people. During the period of 1998–2003, through SMOs and the Rice Programme for the Poor, the government distributed at least 10 million tons of rice

(on average 1.7 million tons per year) to approximately seven million poor households in the country[1].

The implementation of the Rice Programme for the Poor (RPP) faced some problems, such as poor quality of the distributed rice, the high variation of the rice price paid by the poor, inaccurate rice weight, wrongly targeted households, as well as the negative impact of the programme on the paddy price received by farmers especially during harvest season.

The Public Works Programme

Another programme is the Public Works Programme that hires local men and women (usually without any direct screening) for temporary employment on projects such as building roads or providing other public services. The evidence shows that wages paid varied by project and by region, and indicates the existence of some 'screening' in certain places to restrict the number of entrants to the programme (CASER and World Bank, 2000). This safety net programme had moderate success in targeting transfers to reach the poor during the crisis. The median income contribution from the Public Works Programme to households in the lowest per capita income quintile that participated in the programme is only 3.1 per cent. The Public Works Programme provided only a modest degree of support to poor households. Leakages in the form of mismanagement reduced the benefit of the programme to the poor.

The Micro-small-medium Enterprise Programme

In 2005 the government implemented action programmes for poverty eradication through empowering micro-small-medium enterprises (MSME) in accordance with the implementation of the Indonesia Micro Finance Year of 2005. In 2005, there were 41.3 million MSME units with a targeted credit disbursement of Rp 60,440 billion, or 57 per cent of bank loans' growth potential of Rp 106,000 billion (Kompas, 2005). In addition to bank loans, there are other sources of funding for MSME, i.e. the allocation of between 1 to 3 per cent of the national state enterprise profit amounting to Rp 1,470 billion, and the fuel price hike compensation fund amounting to Rp 250 billion in 2005. All of the funds are dedicated to empowering MSME to create employment and eradicate poverty in the country. Given an actual-to-planned credit disbursement ratio of 87 per cent for the MSME in 2004 and a credit repayment rate of 96.7 per cent, the programme is considered successful in reducing poverty.

[1] More or less 60 kgs/capita/year, an equivalent of a third–half a year's consumption.

Direct Transfer Payment Programme

In 2005, the government disbursed Rp 7,300 billion (US$ 784 million) from funds set aside for various assistance programmes to alleviate the burden of the poor arising from the recent fuel price hikes (Hudiono, 2005). The funds are part of a total of Rp 17,800 billion resulting from the 29 per cent average hike in domestic fuel prices. The low-income assistance programmes mainly consist of educational assistance, provision of rice, health services for the poor, and rural infrastructure schemes.

2.3 Trade policy: tariff and non-tariff barriers

2.3.1 General trade regime

Indonesia's trade tariffs are much lower than the requirements of the WTO (World Trade Organization) agreement. For example, the tariffs applied for rice and sugar were Rp 430/kg and Rp 700/kg respectively, which were about 30 per cent and 60 per cent of *ad valorem* bounded tariffs. Soybeans and milk bounded tariffs were 27 per cent and 210 per cent in terms of *ad valorem*, while their implementation was 0 per cent and 5 per cent, respectively (Sawit, 2005). Therefore, Indonesia is often considered as the most open country for imports of agricultural products (Mageira, 2002 cited *in* Sawit, 2005). Table 2.2 shows the bounded and implementation tariffs for some agricultural products for the last ten years.

This low tariff policy facilitates high flows of agricultural products from other countries to Indonesia. Furthermore, the prices of imported agricultural commodities are generally lower than what they are supposed to be as a result of high subsidies in exporting countries. The logical implication is that the prices of imported commodities may become lower than those of domestic produce. As shown in Table 2.3, the price ratio of imported and domestic soybean during the 1995–2002 period ranged from 0.61 to 0.88, indicating a lower price of imported soybeans compared to domestic soybeans.

Table 2.2 Bounded and applied tariffs of agricultural products in Indonesia, 1994–2004

Commodity	Bounded, 1995 (%)	Applied tariffs in Indonesia (%)					
		1994	1995-96	1997	1998-99	2000-01	2002-04
Rice	160	0	0	0	0	30	30
White sugar	95	10	0	0	0	25	60
Milk/products	210	5	5	5	5	5	5
Soybeans	27	0	0	0	0	0	0
Corn	40	0	0	0	0	0	0
Wheat	18	0	0	0	0	0	0
Meats	50	5	5	5	5	5	5

Source: Indonesian Customs Tariff Book, various years.

Table 2.3 Real prices of domestic and imported soybeans in Indonesia, 1995–2002

Year	Price of domestic soybean[a] (Rp/kg)	Price of imported soy[b] (Rp/kg)	Price ratio imported/domestic
1995	472	286	0.61
1996	476	303	0.64
1997	337	239	0.71
1998	330	290	0.88
1999	321	234	0.73
2000	277	223	0.81
2001	324	230	0.71
2002	344	298	0.87

Sources: [a] FAO, 2004; [b] Dotkemtam, 2004 *in* Damardjati *et al.*, 2005.

It is believed that some agricultural products that are now net imports are actually experiencing comparative advantage. In order to strengthen the domestic competitiveness of these products the government has proposed to increase tariffs on all these products for the next five years with a view to harmonizing them to a level of around 5 per cent across the board. For example, the tariff for rice is currently 30 per cent and it will be maintained at 30 per cent until 2010, while sugar with a current tariff of 60 per cent will be reduced to 40 per cent until 2010. Tariffs of other commodities have been increased but will be slightly decreased in 2009 and 2010. At this time all tariffs will be evaluated (Table 2.4).

Table 2.4 Proposed harmonized tariffs of some agricultural commodities, 2005–2010

Commodity	Applied (%) (2004)	Indonesia's proposed harmonized tariffs (%)					
		2005	2006	2007	2008	2009	2010
Rice	30	30	30	30	30	30	30
White sugar	60	40	40	40	40	40	40
Oranges	5	25	25	25	25	20	10
Soybeans	0	10	10	10	10	10	10
Corn	0	5	5	5	5	5	5
Onion	5	25	25	25	25	20	10
Potatoes	5	25	25	25	25	20	10
Chicken legs	5	25	25	25	25	20	10

Source: The Ministry of Finance regulation.

Indeed, the Government of Indonesia (GOI) has been implementing trade policy reforms since 1998, as indicated by the low average applied tariffs for agricultural products of only 5 per cent, far below the average bounded tariff of 40 per cent (Sawit and Rusastra, 2005). The implementation of such low tariffs has a serious negative impact on the output price received by the farmers, agricultural productivity, agricultural labour wages, and the welfare of both farmers and agricultural farm labourers.

Under the ongoing WTO-AoA (Agreement on Agriculture) Doha Round negotiation, developing countries have been given provision to determine some products called Special Products (SPs), based on food security, rural development and livelihoods, to receive some special treatment (to be negotiated). Sawit *et al*. (2004) have tried to identify 11 SPs using input-output analysis (Table 2.5). These products consist of paddy/rice, vegetables, fruits and processed products, corn/feed, livestock/meat/offal products and processed meats, poultry products, soybean/soybean processing, sugar cane, fresh milk/milk products, and other foods and meals. All of these primary products and processed products generate total employment for 31 million people (92 per cent from primary products and 8 per cent from processed products).

Table 2.5 Special products and employment generated, Indonesia, 2004

Primary product	Employment ('000)	Processed product	Employment ('000)	Total ('000)
Paddy	11.2	Rice	0.7	12.0
Vegetables	5.8	Processed Vegetables	0.06	5.9
Fruits	5.1	Processed Fruits	-	5.1
Corn	2.3	Feed	0.16	2.5
Livestock	0.8	Meat/offal	0.90	1.7
Poultry	1.5			1.5
Soybean	0.9	Processed Soybean	0.16	1.0
Cane	0.8	Sugar	0.16	1.0
Fresh milk	0.1	Milk food/beverages	0.11	0.2
		Other goods	0.14	0.14
		Other meals	0.02	0.02
Total	28.7		2.4	31.1

Source: Sawit *et al*., 2004.

Based on trade policy reforms in Indonesia and their negative impact on domestic output prices, agricultural yield, wage rates, the welfare of both farmers and agricultural workers, the comparative advantage of agricultural commodities, and stability or sustainability of food security, Sawit and Rusastra (2005) proposed the following trade policy options: (a) to focus on the proposed 11 SPs in order to maintain and speed up agricultural and rural development, employment generation, poverty eradication, rural livelihood development, and strengthen national as well as household food security; (b) to complement the respective SP measures with special safeguard mechanisms (SSM), another provision that is slightly different to a general safeguard mechanism, requested by developing countries in order to protect domestic agricultural products from outside competition; (c) to give non-SP agricultural products access to SSM; and (d) to avoid widening and intensifying food and agricultural liberalization.

2.3.2 Sugar trade policy

Trade and production policies have played a very significant role in determining the performance of the Indonesian sugar industry. As seen in Table 2.6, three basic stages of policy regimes are identified, namely: (i) Support and Stabilization (1971–1996); (ii) Liberalization (1997–2001); and (iii) Controlled/Managed Imports (2002–present).

During the Support and Stabilization regime, the GOI introduced various policies intended to promote domestic production, adequate distribution systems, and affordable and stable pricing. The most important policy during this period was the introduction of *Tebu Rakyat Intensifikasi*/TRI (Intensified Smallholder Sugar Cane), based on the government policy Presidential Instruction, Inpres No. 9/1975, 22 April 1975. Under this scheme, the GOI provided domestic support in terms of production input subsidies, credits, and price guarantees or a 'floor price', known as *harga provenue* based on the policy Kepmenkeu No. 342/KMK.011/1987. Moreover, the Central Government instructed local governments in Java to provide areas for sugar cane plantations, so that there was guaranteed land area available for sugar cane.

Table 2.6 Sugar policy regimes in Indonesia

Policy regime	Policy	Subject	Main objective
SUPPORTING AND STABILIZATION (1971-1996)	Keppres No.43/1971 14 July 1971	Procurement, distribution, and marketing	To control sugar market as basic need
	Surat Mensesneg No.B.136/ABN SEKNEG/3/74, 27 March 1974	Monitoring and distribution of sugar produced by private companies	To explain Keppres No.43/1971
	Inpres No.9/1975, 22 April 1975	*Tebu Rakyat Intensifikasi* (TRI)	To increase production and farmers' incomes
	Kepmen Perdagangan dan Koperasi No.122/ Kp/III/81, 12 March 1981	Domestic market arrangement	To guarantee good provision and distribution of sugar, and to increase farmers' incomes
	Kepmenkeu No.342/ KMK.011/1987	Determination of the price of domestically produced and imported sugar	To control domestic price and profit sharing between farmers and sugar manufacturer

continued….

Table 2.6 Sugar policy regimes in Indonesia (continued)

LIBERALIZATION (1997-2001)	Inpres No.5/1997 29 December 1997	*Program pengembangan tebu rakyat*	To open the role of the private sector in the sugar industry related to trade liberalization
	Inpres No.5/1998, 21 January 1998	Termination of Inpres No.5/1997	To give freedom to farmers to plant their crops according to Inpres No.12/1992
	Kapmen Perindag No.25/MPP/Kep/1/1998	Deregulation of imported products	To promote efficiency and distribution of imported products
	Kepmenhutbun No.282/Kpts-IX/1999, 7 May 1999	Determination of *harga provenue* (floor price) of sugar product by farmers	To minimize farmers' losses and to promote production increases
	Kepmenperindag No.363/MPP/Kep/8/1999, 5 August 1999	Marketing management of imported sugar	To allow producer to import sugar to reduce government burden in importing sugar
	Kepmenperindag No.230/MPP/Kep/6/1999, 5 June 1999	Termination of Kepmenperindag No.363/MPP/Kep/8/1999	To impose import tariffs in order to protect domestic sugar industry
CONTROLLED/ MANAGED (2002-present)	Kepmenkeu No.230/ MPP/Kep/6/1999, 5 June 1999	Change in level of import tariff	To increase the effectiveness of import tariffs
	Kepmenkeu No.324/ KMK.01/2002	Marketing management of imported sugar	To limit importers, only producer importers and listed importers in order to protect domestic sugar industry
	Kep Menperindag No.527/MPP/Kep/2004 Jo.Kep Menperindag No.02/M/Kep/XII/2004 & No.08/M.DAG/Per/4/ 2005	Marketing management of imported sugar, sugar quality, and farmers' reference price	To limit importers only producer importers and listed importers, sugar quality, and farmers' reference price, time of import

Source: Sudana *et al*., 2000 and Susila, 2005 *in* Susila, 2006.

To control distribution and retail prices, the government entrusted *BULOG* (National Logistics Agency) as the sole importer of sugar during that period (Keppres No. 43/1971). Moreover, *BULOG* was also the only agency assigned a license to buy sugar from farmers and government owned estates at *provenue* price. This meant that the structure of the market was very close to a monopoly. Under this circumstance, the sugar cane area and domestic production increased respectively by 2.2 and 1.0 per cent per annum. Since domestic consumption increased by more than 4 per cent per annum, sugar imports increased by more than 4 per cent per annum. However, in terms of volume, the import was relatively low, about 0.3 million tons per annum.

The liberalization period can be considered as the opposite condition of the Support and Stabilization Regime. During this period, almost all former policies were abolished. For example, all *BULOG* roles related to sugar were terminated, the floor price, state distribution system, and controlled retail prices were abolished (Kepmenperindag No. 25/MPP/Kep/1/1998). Domestic markets were completely opened with zero import tariffs and private companies were allowed to import goods. During this period, imports of sugar increased rapidly at more than 5 per cent per annum, up to 1.5 million tons per annum, and in 1998 the volume of imports reached its maximum at 1.73 million tons, more than 60 per cent of domestic consumption. Conversely, domestic production decreased by 5.8 per cent per annum.

Considering the importance of the sugar industry in Indonesia, the GOI designed several policies that were intended to overcome the negative impact of the Liberalization Regime. In 1999, the GOI released the policy SK Menperindag No. 364/MPP/Kep/8/1999 that limited the number of importers to only producer-importers. Another policy (SK Menperindag No. 230/MPP/Kep/6/1999) set a 20 per cent import tariff for raw sugar and 25 per cent tariff for white sugar. However, these policies were insufficient to promote the domestic sugar industry, which continued its slide to lower performance.

Facing this critical situation and the closing of eight sugar plants, in 2002 the GOI defined policies that were intended to control and manage imports. This was the start of the current Controlled Import Regime (Kepmenperindag No. 643/MPP/Kep/9/2002, released on 23 September 2002). Under this policy, two types of importers are recognized, namely, *importir produsen* (producer-importers) and *importir terdaftar* (listed importers). The former are importers that used their imports as raw material or inputs for their processed products, such as foods, beverages and medicines. The volume of sugar imported by these importers is limited to their own needs. The latter importers are sugar-producing companies for which

at least 75 per cent of their processing output is from sugar cane produced by smallholders. Moreover, these importers can only import when the farm gate price is not lower than the minimum price stipulated by the GOI. In 2005, for example, the minimum farm gate price was Rp 3,800 per kilogram. The policy was revised to clarify and add some direction related to quality, timing of imports, and price guarantees in 2005 (Kep Menperindag No. 527/MPP/Kep/20004 jo. Kep Menperindag No. 02/M/Kep/ XII/2004 jo. Kep Menperindag No. 08/M-DAG/Per/4/2005).

This policy has significantly promoted the development of the sugar industry in Indonesia. During this period, domestic production increased by 8.1 per cent per annum, while imports declined by 5.2 per cent per annum, amounting to approximately 1 million tons per year. This policy period is also marked by a record production level, hitting more than 2 million tons for the first time since 1930.

2.3.3 Soybean and milk trade policy

There are no longer non-tariff barriers for soybean and milk. The 1996 import quota '1 to 2.4' ratio requirement for imported milk was eliminated in 1998. The only trade policy instruments recently applied for soybean and milk are import tariffs of respectively 18 per cent and 5 per cent.

Beside trade policy, the government has proposed a soybean self-sufficiency programme for 2015 where 65 per cent of this will be achieved by 2010, with a production growth target of 12 per cent per year (Badan Litbang Pertanian, 2005). For 2015, a harvested area of 1.2 million hectares is targeted with productivity of 2 tons per hectare. To achieve this objective, special programmes will be implemented to: enlarge the planting area; improve productivity; develop centres for growth; promote rural industrial agribusiness developments; to introduce partnership programmes for development. For 2005–2010, the total investment needed is Rp 5,770 billion, of which 88.2 per cent will come from the private sector and the remaining (11.8 per cent) will come from the government.

For the soybean self-sufficiency programme, the following policy support is needed: (a) better access to working capital for the private sector and farmers on soybean agribusiness developments; (b) speeding up technology transfer and adoption at farm level through revitalizing agricultural extension; (c) empowering (in technical, management, and marketing arenas) the soybean seed agribusiness cluster development; (d) strengthening the agroindustry related to soybean processing and product development; and (e) monetary and trade policy to support domestic soybean development through implementing an import tariff of 20–30 per cent.

Apart from the current tariff policy no specific policy has been implemented to shape the future of the milk sector. However, experts in the sector advocate some basic policy instruments for improving milk production and competitiveness through better productivity and efficiency. These include: (a) to improve the quality of dairy cattle through better management of female dairy cattle farming and embryo transfer; (b) to improve various management aspects of imported female dairy cattle; (c) to improve livestock farm management through better feeding and milking; (d) to improve farm efficiency through using cheaper local feedstuff (in particular the by product of agro-industry); (e) to improve market share of fresh milk; and (f) to increase economic scale and economic size of dairy cattle farming.

To encourage farmers to produce more soybeans, there should be some strategic policies to improve the competitiveness of soybean production as well as food security. The alternative strategic policies are: (a) to impose an appropriate import tariff in order to improve the competitiveness of domestically produced soybeans; (b) to develop some new high yielding varieties (HYVs) tolerant to biotic and non-biotic stresses, through intensive breeding R&D; (c) to improve the performance of seed industry by involving private sector; (d) to provide subsidy on seed of soybeans HYVs; and (e) to provide farmers with soft credit systems with simple administration procedures.

3. The Food Security Situation

This chapter intends to identify and characterize food insecure households. In its first section a detailed discussion leads to the understanding of food security in Indonesia at the macroeconomic level. It is then followed by an analysis of food insecurity specifically at household level.

3.1 Macro level analysis of food security

This section on the macro-level food security situation in Indonesia will elaborate on four aspects: (a) the national trend of food production and food price stability; (b) macro-level food accessibility and security; (c) the current condition of food insecurity; and (d) stability of food security and import dependency ratio.

3.1.1 The national trend of food production and price stability

The last five years saw a positive trend in national food achievements (Dewan Ketahanan Pangan, 2006) as indicated by the fact that: (a) the production of primary commodities tended to increase overtime; (b) food price tended to be stable, except for beef and eggs which were subjected to the increased fuel prices; and (c) the proportion of people under the poverty line and facing food insecurity tended to decrease.

From 2000 to 2005 food grains, as a source of carbohydrates (calorie), experienced positive growth, i.e. rice by 0.8 per cent and corn by 4.6 per cent. Peanut production increased by 2.8 per cent, meanwhile soybean production decreased by 3.9 per cent. While milk production decreased by 5.3 per cent, meat-product production increased in the range of 5.8 per cent (beef) to 9.3 per cent (chicken meat). These generally increasing trends of agricultural production were followed by positive trends in per capita energy availability of 0.57 per cent per year, as well as animal protein (4 per cent).

Price stability was determined using the trend of average price and price variation coefficient. From 2001 to 2005 the trend of primary food prices in Java and Bali (as the main indicators) tended to be stable, except for beef and chili prices. The food price variation coefficient in 2005 tended to be more stable compared to previous years (Nainggolan, 2006). As an illustration, the price of harvested dried unhusked rice (GKP) at farm level was stable and higher than the government procurement price (HPP).

As the people living under the poverty line are the most sensitive and vulnerable to food insecurity and since their numbers have decreased from 38.7 million (19.1 per cent) to 36.1 million (16.7 per cent), it can be said that food security from 2000 to 2004 was improving. However, most of these groups (55 per cent) reside in rural areas and 87 per cent are engaged in the agricultural sector. If food security programmes are not directly dedicated to these groups, their food security and nutritional status will most likely remain elevated.

3.1.2 Food accessibility and security

The expenditure share of food was used as a proxy for food accessibility (Rusastra *et al*., 2005) under the assumption that the higher the food expenditure share, the lower the food accessibility of the people. A high proportion of food expenditure means that only a small amount is left available for the consumption on non-food commodities, therefore also indicating the lower wealth status of the people.

The proportion of food expenditure at the national level (aggregate) is substantial (Susenas, CBS, Jakarta). During the economic crisis, it increased to 62.9 per cent in 1999, and then fell to 58.5 per cent in 2002. Comparing rural to urban, the food expenditure share is found to be relatively higher in rural areas, but with a lower magnitude of total expenditure. As an illustration, in 2002 the food expenditure share in rural areas was 66.6 per cent (vs. 52.8 per cent in urban areas), but total expenditure was 44.1 per cent lower than urban areas. These figures indicate relatively lower levels of wealth and food accessibility for people in rural areas.

The household expenditure structure by group of income and main activity indicates that higher income levels correspond to a lower food expenditure shares (Susenas, CBS, Jakarta). People whose main activity is in agriculture have a higher food expenditure share than people engaged in other sub-sectors (services and industry). Similar patterns can be traced both before (1996) and during the economic crisis (1999). During the economic crisis, the food expenditure share increased substantially across all income groups.

This evidence indicates that people residing in rural areas, mainly employed in agriculture, and belonging to low-income categories, tend to have lower food accessibility compared to those who reside in urban areas with their main activity in the formal sector (services and industry). Clearly, raising the incomes of rural dwellers will contribute greatly to higher accessibility of food.

Measured as the ratio of calorie availability to domestic demand we note that food security at the national level has improved and appears to be stable over time (Saliem *et al*.,

2003). The ratio increased from 144 per cent (1969–1973) to 215 per cent (1999–2001), with an average growth rate of 1.4 per cent per year and a coefficient variation of 16 per cent.

Table 3.1 represents the distribution of household level food security (defined as the proportion of household calorie demand met by household food availability) by region and main activities. In 1999, the percentage of households achieving food sufficiency approached 70 per cent, i.e. 30 per cent of households were vulnerable to food insecurity. The number of household residents in rural areas experiencing food insecurity was about 32.5 per cent, with most of those (62.2 per cent) being engaged in the agricultural sector. In urban areas, 27 per cent of households experienced food insecurity, with most of those (48.4 per cent) being occupied in the industrial sector. These categories should be the target of social safety nets.

Table 3.1 Distribution of households experiencing food insecurity by type and main activity in Indonesia, 1999

Description	Household food Sufficiency (%)	Household food Vulnerability (%)
Region		
- Urban + rural	69.7	30.3
- Urban	73.0	27.0
- Rural	67.5	32.5
Main activity		
a. Urban		
- Agriculture	7.1	12.2
- Industry	42.6	48.4
- Services	36.9	33.6
- Others	13.5	5.8
b. Rural		
- Agriculture	47.9	62.2
- Industry	25.5	22.4
- Services	19.3	12.2
- Others	7.3	3.3

Source: Saliem *et al.*, 2001.

The geographical distribution of household food insecurity indicates that the regions with the highest magnitude (34.5 to 43.4 per cent) are East Java, Central Java, Yogyakarta, East Nusa Tenggara, Jambi, and South Sumatra (Saliem *et al.,* 2001). The provinces with the lowest food insecurity are West Sumatra, Jakarta, and Bali. Twelve other provinces experience food insecurity level in the range of 31 to 43 per cent.

3.1.3 Current conditions of food insecurity

The food insecure situation can be categorized into two types, transitory or occasional food insecurity (inability to meet food needs), and chronic food insecurity. Transitory food insecurity is seasonal food insecurity due to sudden external shock, being temporary or cyclical. Chronic food insecurity is the condition of repeated food shortages, indicated by the weak accessibility of food, physically and economically, mainly due to poverty incidence faced by households or certain regions.

Food security is vulnerable to natural disasters and other shocks such as fluctuation in food prices, instability of economic conditions, etc. Indonesia is the second most vulnerable and disaster prone country in South-East Asia after the Philippines. Many districts in Indonesia are vulnerable to earthquakes, volcano eruptions, tsunami, and land slides. In 2004, a tsunami hit Aceh and North Sumatra causing thousands of fatalities leaving hundreds of thousands in transient food insecurity conditions. Floods and droughts are also major sources of food insecurity. In 2006, a 6.2 magnitude earthquake hit several districts in Yogyakarta and Central Java causing the death of more than 5,000 people with more than 700,000 Internally Displaced Persons (IDPs). Districts from Sumatra to Papua are high-risk flood regions due to the high rainfall intensity.

Based on research done by Dartmouth Flood Observatory since 1974, Jambi, South Sumatra, Riau, Aceh, Central Java, East Java, North Sulawesi, North Sumatera, West Java, and South Sulawesi are susceptible to food insecurity because floods occur every year in these regions. In 2004, floods resulted in the loss of 60,000 tons in crop production, while droughts caused the loss of 8,000 tons in crop production. Increased flood events are also associated with forest degradation such as was witnessed in South Sulawesi where the highest lowland deforestation occurred. During 1985–1997 forest loss reached 89 per cent. Drought causes annually losses of paddy production of approximately 50,000 hectares (ha). Riau, Jambi, South Sumatera, West Java, Central Java, Central Kalimantan, Central Maluku, and East Nusa Tenggara are areas that are partially affected. In 1997–1998 El Nino hit Indonesia, causing a loss of about 3 million tons of rice. In 2005, some food vulnerability incidences were declared in Papua (Yakuhimo), West Nusa Tenggara and East Nusa Tenggara.

Another factor that causes transient food insecurity is conflicts. According to FAO, in 1992–2003 conflicts and economic problems were cited as the main cause of more than 35 per cent of food emergencies in the world. In Indonesia a social conflict that led to violence occurred in Poso, Central Sulawesi that started in 1992–2001 caused mass migration to

nearby districts such as Palu and Morowali. The condition of IDPs was very tragic because they had to adapt to new shelter conditions and try to find income to survive. This condition led to severe food insecurity. Moluccas, North Moluccas and Aceh (before it was hit by a tsunami) witnessed conflicts that lead to transient food insecurity.

Seasonal availability problems are definitely correlated with the fluctuation of prices. Under normal conditions, in the harvest season, prices tend to drop, meanwhile in non-harvest seasons and especially during long droughts prices tend to hike. Purchasing power is weak when prices reach a very high level during long dry seasons. Another problem related to seasonal availability is food distribution. If food is well distributed the risk of food insecurity is much lower. Consumer food prices in Indonesia tend to be high in many parts of Indonesia due to inefficient distribution chains along with inadequate infrastructure. In the case of Yahukimo, Papua, distribution of food has been a major handicap leading to severe food insecurity. Prices of primary foods are high and unaffordable. Yahukimo people rely on local food production from tubers, when this area is hit by drought many people are faced with starvation.

Using a price stability indicator based on the growth of average prices and a coefficient variation, we find that throughout 2000–2004 the price of food was stable especially in Java and Bali, except for bovine meat and chili. The stability of prices changed in 2005, when the GoI announced drastic rises of fuel prices (twice in May and October 2005). Food prices also rose and the number of people suffering from malnutrition and food insecurity increased significantly.

3.1.4 The stability of national food security and import dependency

Overall the quality and quantity of food consumption in Indonesia at household level increased in 2005. The amount of energy consumed in 2005 was 1,997 kcal/capita/day, yet still slightly lower than the 2,000 kcal/capita/day recommended in the *Widya Karya Nasional Pangan dan Gizi*[1] (WKNPG). Meanwhile consumption of protein in 2005 reached 55.3 grams/capita/day. Even though protein consumption had declined compared to the previous year, it was still more than the WKNPG recommended level of 52 grams/capita/day. For further information on the condition in urban and rural areas refer to Table 3.2.

[1] Widya Karya Nasional Pangan dan Gizi is a national conference on food and nutrition.

Table 3.2 Average energy and protein consumption in Indonesia, 2002–2005

Description	Urban	Rural	National
1. Energy (kcal/capita/day)			
- 2002	1 945	2 011	1 986
- 2003	1 951	2 018	1 991
- 2004	1 941	2 018	1 986
- 2005	1 923	2 060	1 996
2. Protein (g/capita/day)			
- 2002	55.98	53.19	54.42
- 2003	56.71	54.38	55.37
- 2004	55.91	53.68	54.65
- 2005	55.26	55.28	55.27

Source: Kebijakan Umum Ketahanan Pangan 2006–2009 (Badan Ketahanan Pangan, Deptan, Jakarta).

While protein consumption has been at a sufficiency level since 2002, the energy consumption level has not yet attained such heights. Furthermore, one should keep in mind that the protein consumption is obtained primarily from rice and bean consumption. Animal protein consumption remains very low.

At provincial level, eight provinces (Nanggroe Aceh Darussalam (NAD), North Sumatera, West Nusa Tenggara, East Nusa Tenggara, West Kalimantan, Central Kalimantan, South Kalimantan, and Gorontalo) have a very high occurrence (above 30 per cent) of underweight children. Similarly, 15 provinces have a higher infant mortality rate (IMR) than the national average. In the "Indonesian National Human Development Report 2004", BPS estimated that 15 per cent of people in the country would die before the age of 40, a fact related to poor health and nutrition.

Of the districts analysed, 98 out of 256 had an underweight occurrence greater than 30 per cent. West Kotawaringin (Central Kalimantan), Nias (North Sumatera), West Aceh and Simelue (NAD) require immediate attention because the underweight occurrence is greater than 50 per cent. In general, 50 per cent of the districts have an IMR higher than the national average, in particular Sampang, East Lombok, Central Lombok, and West Lombok have an IMR of more than 80 per cent. The National Level of Life Expectancy was 66.2 years in 2002 and 127 districts fell below that average. Eighteen districts (Ngada, Sampang, East Lombok, Central Lombok, West Lombok, Sambas, Tanah Laut, Sumbawa, Bima, Bondowoso, Barito, Kuala, Merauke, Probolinggo, East Sumba, Dompu, Jember, and Cianjur) with a life expectancy under 60 years deserve immediate attention.

In addition to availability and accessibility, the other important dimension of the sustainable food security paradigm is vulnerability, which consists of two elements, i.e.

stability and reliability. The indicator of stability commonly used is import dependency ratio, which is the proportion of imports with respect to availability of the respective commodities.

For the three commodities, the import dependency ratio (IDR) is substantial, and increased during the two periods of analysis (Table 3.3). For soybean and sugar, the IDR during the period of 1998–2004 approaching 50 per cent, while for milk the IDR approached 100 per cent, due to a substantial increase of imports in the respective commodities. For the two periods of analysis, soybean, sugar and milk imports increased by 77.5 per cent, 55.8 per cent and 41.2 per cent, respectively, while the availability tended to be stable overtime. Sugar and milk availability increased by 3.9 per cent and 2.9 per cent while for soybean it decreased by 7.6 per cent.

Table 3.3 Import dependency ratio of the three commodities in Indonesia, 1995–2004

Commodities	Import ('000 tons)	Availability ('000 tons)[a]	IDR[b] (%)
Soybean			
1995–1997	657	2 175	30.20
1998–2004	1 166	2 009	58.04
Sugar			
1995–1997	988	3 109	31.78
1998–2004	1 539	3 230	47.65
Milk			
1995–1997	846	1 172	71.18
1998–2003	1 195	1 224	97.73

Source: Raw data from CBS, Jakarta and FAO, various years.
Notes: [a] The availability is production + import – export.
[b] The import dependency ratio (IDR) is the proportion of imports with respect to availability (%).

Soybean, sugar, and milk are fully net imported commodities with meager magnitude of exports (approaching zero). The stability of availability indicates the weak capacity to improve domestic production, due to low amounts of government support and incentives granted to local producers (Rusastra *et al*., 2005). In addition, the institutional and law enforcement capacity of the government to manage imports by imposing tariffs and controlling illegal imports was relatively weak. Considerably lower world food prices impose great burdens on farmers in developing countries like Indonesia due to the dominant role of agriculture on household income structures and employment in rural areas.

However, in general, as an agrarian country, Indonesia has relatively small IDR for rice, corn, peanuts, fruits, vegetables, chicken, eggs, and beef with the ratio of import dependencies of less than 10 per cent. Indonesia can be considered as a major exporter country for crude palm oil in the world's market. Indonesia can also be considered as a surplus country for cassava and other tubers production. The government of Indonesia has

the mid-term goal of achieving strategic food self-sufficiency. Indonesia plans to maintain self-sufficiency in rice, and to achieve self-sufficiency in corn by 2007, soybean by 2015, sugar by 2009, and beef by 2010.

3.2 Food insecurity at household level

Two main aspects will be discussed in this section, i.e. the characteristics of food insecure household and their consumption patterns. The household characteristics indicate the household capacity, asset ownership, housing condition, accessibility to public infrastructure, the existing condition of food stock, and income source. The food consumption pattern will elaborate the spatial and inter-temporal dimensions of household expenditure share and the rate of consumption for the four commodities.

3.2.1 Characteristics of food insecure households

The characteristics of food insecure households presented in Table 3.4 are based on studies of chronic food insecurity conducted by Ariani *et al.* (2000) in East Java, West Nusa Tenggara, and Bengkulu, as well as studies conducted by Saliem *et al.* (2002) in Yogyakarta, East Nusa Tenggara, and Lampung.

These authors characterize food insecure households as follows: (a) the age range of household head and his wife is 35-45 years; (b) the education level of household head and his wife is equivalent to primary school; (c) the average household size is five people; (d) the average land ownership is relatively limited and land type is dominated by dryland; (e) except for East Nusa Tenggara, livestock ownership is also limited; (f) the proportion of households holding primary food stock and its magnitude are limited; (g) the house floors and walls are not permanent; (g) a fraction of the household does not have access to electricity; (h) the source of drinking water is from manual tube well; and (i) the household income source is dominated by agricultural and non-farm wage labour.

The data of Susenas (2002) and Irawan and Irawan (2005) reveal that severe poverty conditions at household level were accompanied by low education status, low labour wages of the household's head, large numbers of household members, the limited/small average size of house per capita, a lack of access to clean drinking water and electricity. In general, the said households are mainly dependent on natural resources as a source of income such as agriculture and mining, and most of them were located in rural areas.

Table 3.4 Characteristics of food insecure households in six provinces, Indonesia, 2002

Characteristic[a]	Central Java	West Nusa Tenggara	Bengkulu	Yogyakarta	East Nusa Tenggara	Lampung
1. Age (year)						
- Household head	44.3	43.3	40.1	47.7	44.5	42.8
- Wife	35.8	34.8	34.8	40.4	39.9	34.1
2. Education (year)						
- Household head	4.3	2.9	6.1	7.1	6.5	4.6
- Wife	4.9	2.6				
3. No. of household member	5.6	5.3	6.6	6.3	5.5	4.5
4. Land ownership (ha)	0.15	0.21	0.23	0.21	1.19	1.05
5. Livestock assets (Rp.000)	399.1	898.4	480.4	906.0	2 710.7	170.0
6. Housing size (m^2)	81.7	26.8	34.7	117.5	40.8	40.8
7. Housing floor condition	Soil	Soil	Soil	Soil	Soil	Soil
8. Housing wall	Temporary	Temporary	Wood	Temporary	Temporary	Wood
9. Housing roof	Pantile	Corrugated iron	Corrugated iron	Pantile	Corrugated iron	Pantile
10. Electricity	Electricity	Electricity	Electricity	Electricity	Lamp	Lamp
11. Drinking water	Hand well	Hand well	Hand well	Hand well	Hand well	Hand well
12. Existence of food stock	No	No	No	Yes	Yes	Yes
13. Income source	Agricultural labour, trader	Rice farmer, wage labour, trade	Non-agricultural labour, trade	Agricultural labour, handicraft services	Dryland farming, livestock, service	Agricultural labour, dryland or backyard farming

Sources: Ariani *et al.*, 2000 and Saliem *et al.*, 2002.
Note: [a] Items 1 to 6 expressed as averages.

The characteristics of food insecure households cannot be separated from the conditions faced by people under the poverty line. The nature of poverty can be described as follows (Khomsan, 1999): (a) weak capability to fulfil primary necessities such as food, clothing, and housing; (b) low economic access to other basic needs such as health, education, better sanitation, clean water, and transportation services; (c) weak capacity for capital accumulation; (d) vulnerability to individual and mass external shock; (e) low development of human resources as well as natural resource ownership; (f) no involvement in community special activities; (g) limited access to sustainable wage labour employment; (h) occurrence of physical and mental disorders; and (i) social rejection.

More specifically Pasaribu (2006) and LPE-FEUI (2004) described the characteristics of poor people, as follows: (a) 60 per cent reside in rural areas with the main activity in the agricultural sector; (b) energy intake is below the standard requirement of 2,100 kcal/capita/day; (c) reside in marginal areas, with poor infrastructure, and with low rate of technology adoption; and (d) there is a strong correlation between agricultural land ownership and the magnitude of poverty, the less land owned, the higher the incidence of poverty and the poverty gap indicator, so that for households with an average land size of 0.10 ha, the rate of poverty is 28 per cent and for landless households it is 31 per cent.

Our estimation based on Susenas data indicates that around 14 million households in Indonesia are in a situation of food insecurity. This number is similar to the pre-crisis situation and indicates a progressive recovery since it reached 19 million households one year after the crisis as indicated in Table 3.5 below.

Table 3.5 Estimation of the number of food insecure households, Indonesia, 1996–2002

Description	1996	1999	2002
Population (million)	200	209	217
Food insecurity rate[a]	36%	47%	32%
Food insecure households (million)[b]	14	19	14

Source: Processed from BPS and Susenas data.
Notes: [a] Based on the share of the total number of food insecure households in Susenas surveys.
[b] Calculated using the assumption of 5 persons/households for food insecure households.

3.2.2 Consumption pattern

This section develops four aspects: (a) the proportion of households facing food insecurity and their food expenditure; (b) the food expenditure share for the three commodities compared to rice and total food expenditure share; (c) the rate of commodities consumption by region and overtime; and (d) the consumption rate of energy for the three commodities, in comparison with rice and total food. The rate of energy consumption will be compared with the standard requirement of 2,100 kcal/capita/day.

By considering all income classes (both rural and urban areas), the proportion of households facing food insecurity decreased substantially from 30.8 per cent in 1999 to 10.8 per cent in 2002 (Table 3.6). This is in line with the strong commitment of the government to combat poverty in conjunction with the gradual economic recovery from the crisis (Pasaribu, 2006). During the period of 1999–2002, the number of people under the poverty line reduced remarkably from 48.4 million (23.5 per cent) to 38.4 million (18.2 per cent).

The households experiencing severe food insecurity represent 40 per cent of the lowest income group (Table 3.6.). Its proportion is consistently higher in rural areas compared to urban areas overtime. As an illustration, in 1996 the proportion of households facing food insecurity in urban and rural areas was 42.4 per cent and 51.3 per cent respectively. Due to the economic crisis, the number of food insecure households increased in 1999 (effect of the crisis), and then decreased in 2002 (recovery), both in urban and rural areas. In 2002, their proportion in urban and rural areas was 19.7 per cent and 35.6 per cent respectively.

As the poorest households of Indonesia constitute the large majority of food insecure households and given that the poorest households rely essentially on labour wages or very small lands (less than 0.1 ha), they are unlikely to satisfy their food needs on a self-consumption basis. This is particularly true for urban food insecure households, where self-consumption should be regarded as nil. In rural areas, a certain level of self-consumption exists but is extremely difficult to assess for the poorest households. As a proxy, in the best case (assuming five household members and a maximum of cultivated land equivalent to 0.1 ha of irrigated rice field cultivated twice yielding four tons per ha) the self-consumption level would be exactly 100 per cent. However, the huge majority of food insecure households do not benefit from such conditions and for landless workers self-sufficiency is closest to zero while for sharecroppers it may reach 50 per cent. With regards to soybeans, milk and sugar the self-consumption of food insecure households must be considered as nil.

Food expenditures for households facing food insecurity for the last six years (1996–2002) increased overtime, both in urban and rural areas (Table 3.6). The growth rates in urban and rural areas were 34.1 per cent and 34.9 per cent per year respectively. As an illustration, its magnitude in rural areas increased from Rp 29,753 to Rp 92,081/capita/ month. The magnitude in rural areas was consistently lower than urban area, with the proportion of 68.6 per cent of food expenditure in urban areas, for 2002.

Table 3.6 Households facing food insecurity and their food expenditure in Indonesia, 1996-2002[a]

Description	1996	1999	2002
Share of households (%)			
- Urban	42.44	46.08	19.72
- Rural	51.35	57.37	35.62
Aggregate[b]	30.74	30.79	10.81
Food expenditure (Rp/capita/month)			
- Urban	44 047	97 183	134 142
- Rural	29 753	70 761	92 081
Aggregate[b]	54 334	112 357	126 395

Source: Raw data from National Socioeconomic Survey (Susenas, CBS, Jakarta).
Notes: [a] For the 40% of the lowest income group of the households facing food insecurity. Food insecure households based on two inclusive indicators, i.e. food expenditure share > 60% and energy intake < 80% of standard requirement of 2,100 kcal/capita/ day.
[b] For all income classes, both in rural and urban area.

Even though there was a significant difference in food expenditure between urban and rural areas, food expenditure shares of total household expenditure (as a proxy of income) is relatively similar, 67.5 per cent in urban areas and 70.3 per cent in rural areas in 2002. All this indicates that there was no significant difference in welfare status for the poor people who face food insecurity, either in urban or rural areas. The global budget allocation by categories of items is presented in Table 3.7.

Table 3.7 Share of selected food types and estimated value to total food expenditure by food insecure households in Indonesia, 1996–2002 (%)[a]

		1996		1999		2002	
	Food Type	(%)	Estimate Value (Rp/capita/month)	(%)	Estimate Value (Rp/capita/month)	(%)	Estimate Value (Rp/capita/month)
Urban	Paddy	20.3	9 566.48	21	21 939.30	15	22 938.26
	Tubers	0.8	377.00	0.8	835.78	0.7	1 070.45
	Meat/Poultry/Fish	21.6	10 179.11	17	17 760.38	17.7	27 067.14
	Beans	3.5	1 649.39	3.5	3 656.55	2.9	4 434.73
	Vegetables+ Fruits	14.7	6 927.45	12.4	12 954.63	11.3	17 280.15
	Oil and Fat	4.1	1 932.15	4	4 178.91	3	4 587.65
	Others (processed)	35.2	16 588.17	41.3	43 147.28	49.5	75 696.24
Rural	Paddy	29.3	9 118.73	31.6	23 397.13	26.6	26 699.31
	Tubers	1.9	591.32	1.6	1 184.66	1.2	1 204.48
	Meat/Poultry/Fish	15.9	4 948.39	13.6	10 069.65	15.8	15 858.99
	Beans	3.6	1 120.39	3.7	2 739.54	3.4	3 412.69
	Vegetables+ Fruits	13.4	4 170.34	13.4	9 921.57	12.8	12 847.79
	Oil and Fat	5.1	1 587.22	5.6	4 146.33	4.5	4 516.80
	Others (processed)	30.8	9 585.56	30.6	22 656.71	35.8	35 933.66

Source: Processed data from National Socioeconomic Survey (Susenas, CBS, Jakarta).
Note: [a] For the 40% of the lowest income group of the households facing food insecurity. Food insecure households based on two inclusive indicators, i.e. food expenditure share > 60% and energy intake < 80% of standard requirement of 2,100 kcal/capita/day.

More specifically, the expenditure share by commodity and total food are presented in Table 3.8. Between 1996 and 2002 the food expenditure share, both in urban and rural areas, was relatively constant, approaching 70 per cent. Using food expenditure share as an indicator of welfare status – the higher the expenditure share, the lower the welfare level – we observe that during the respective period of time, there is no consistent decreasing trend and food expenditure remains high, indicating the stagnant status of the poorest people in the country.

Soybeans are an important component of the Indonesian consumption basket both for the food insecure portion of the population and for the population as a whole. They are consumed not as beans but in the form of processed products mostly tofu and *tempe* (fermented soybeans). Based on the National Survey on Socio Economics (SUSENAS), those who are food insecure in the agriculture sector, around 50 per cent, have tofu and *tempe* in their dietary basket. In other sectors, the numbers of those who consume tofu and *tempe* are even higher, averaging around 70 per cent. The figures might be slightly different geographically, rural-urban, and by various income categories; however on average more than 60 per cent of the population have *tempe* and tofu in their daily diets. Sugar is consumed by up to 95 per cent of the food insecure population, across geographical categories, incomes, and sectors as sources of income. The consumption per capita per year is around 7 kg and increased slightly from 1996 to 2002. Milk is consumed by a very small portion of the food insecure population of the country. Fresh milk for example is consumed by around 0.3 per cent of this segment of the population, while powdered milk is consumed by around 3 to 6 per cent of the segment across geographical categories, income levels and sectors as sources of income. The amount consumed is also very small, around 0.6 to 1.5 kg/capita/year.

The ratio commodity food expenditure share to total food expenditure as indicated in Table 3.8 gives some interesting information: (a) the role of rice is still significant, absorbing from 20 to 35 per cent of household food expenditure; (b) the shares of soybean and sugar, and especially milk are relatively small, i.e. less than 5.0 per cent of food expenditure; (c) for soybean and sugar, there is no significant difference between urban and rural areas; (d) rural people are more dependent on rice, and give a small proportion of their income for purchasing milk; (e) the nature of commodities expenditure, as well as the higher food expenditure share indicates the lower welfare status of food insecure people in rural area; and (f) except for rice, there is no significant decreasing trend of commodities and total food expenditure.

The rate of consumption for the three commodities in comparison to rice as presented in Table 3.9 shows that: (a) the consumption of rice is significantly higher than the three commodities; (b) among the three commodities, milk consumption is the lowest; (c) rice consumption in rural areas is consistently higher than in urban areas overtime; (d) conversely, the consumption of soybean, sugar, and milk in rural areas is consistently lower than in urban areas; and (e) except for sugar and milk, inter-temporally, there is an indication of a decreasing trend in rice consumption and a rising trend for soybean.

Table 3.8 Share of selected commodities to food expenditure, and food to total household expenditure by food insecure households, Indonesia, 1996–2002 (%)[a]

Description		1996	1999	2002
Rice	- Urban	25.41	27.51	20.62
	- Rural	33.18	35.25	29.84
Soybean	- Urban	3.32	3.68	3.40
	- Rural	3.09	3.22	2.93
Sugar	- Urban	3.36	3.21	2.65
	- Rural	3.93	3.63	3.52
Milk	- Urban	1.62	1.35	1.64
	- Rural	0.44	0.42	0.61
Total Food	- Urban	67.07	69.06	67.49
	- Rural	73.32	73.62	70.29

Source: Processed data from National Socioeconomic Survey (Susenas, CBS, Jakarta).
Note: [a] For the 40% of the lowest income group of the households facing food insecurity. Food insecure households based on two inclusive indicators, i.e. food expenditure share > 60% and energy intake < 80% of standard requirement of 2,100 kcal/capita/day.

Table 3.9 Rate of consumption of selected commodities by food insecure households, Indonesia, 1996–2002 (kg/capita/month)[a]

	Description	1996	1999	2002
Rice	- Urban	7.83	7.08	6.15
	- Rural	7.85	7.25	6.70
Soybean	- Urban	0.38	0.42	0.51
	- Rural	0.27	0.28	0.33
Sugar	- Urban	0.65	0.61	0.60
	- Rural	0.54	0.51	0.56
Milk	- Urban	0.04	0.04	0.06
	- Rural	0.01	0.01	0.02

Source: Raw data from National Socioeconomic Survey (Susenas, CBS, Jakarta).
Note: [a] For the 40% of the lowest income group of the households facing food insecurity. Food insecure households based on two inclusive indicators, i.e. food expenditure share > 60% and energy intake < 80% of standard requirement of 2,100 kcal/capita/day.

As indicated in Table 3.10 below, the contribution of the three commodities to energy consumption is rather low. Total calorie contribution of soybean to total calorie consumption

is around 2 per cent, that is, 33.92 and 24.20 kilocalories per capita per day for urban and rural insecure households respectively in 1996. The figures increased to 44.81 and 29.29 in 2002. Similar to soybean products, the sugar contribution to calorie consumption of food insecure households of around 5 per cent is also not very significant, when compared to rice at 58.6 per cent of total calorie consumption. Similarly, in terms of calorie contribution to total calorie consumption by the poor, it is less than 1 per cent for urban poor and a lot smaller for rural poor.

Table 3.10 Contribution of selected commodities to energy consumption by food insecure households, Indonesia, 1996–2002 (kcal/capita/day)[a]

Description		1996	1999	2002
Rice	- Urban	942.01	855.02	742.16
	- Rural	945.51	872.22	807.56
Soybean	- Urban	33.92	37.00	44.81
	- Rural	24.20	25.31	29.29
Sugar	- Urban	78.97	73.69	72.85
	- Rural	65.47	62.34	67.73
Milk	- Urban	7.91	6.99	10.23
	- Rural	1.82	1.78	2.70
Total Food	- Urban	1 613.89	1 474.74	1 433.51
	- Rural	1 604.21	1 466.73	1 431.56

Source: Raw data from National Socioeconomic Survey (Susenas, CBS, Jakarta).
Note: [a] For the 40% of the lowest income group of the households facing food insecurity. Food insecure households based on two inclusive indicators, i.e. food expenditure share > 60% and energy intake < 80% of standard requirement of 2,100 kcal/capita/day.

These rates of contribution to energy consumption indicate: (a) a slight decreasing in welfare status over the past six years (1996–2002) the energy consumption decreasing by 1.8 per cent both in urban and rural area; (b) similar rates of energy consumption in urban and rural areas (around 1,430 kcal/capita/day), reaching 68 per cent of the 2,100 kcal/capita/day standard requirement; (c) in rural areas, rice gives a significant contribution, around 56 per cent of actual energy consumption, while sugar, soybean, and milk contributions are 4.7, 2.1, and 0.2 per cent, respectively; and (d) a decreasing trend of actual energy consumption mainly due to a negative trend of rice consumption as a source of energy, that is not compensated by other food intake in spite of a slightly positive trend for soybean consumption as a source energy.

4. The Possible Impact of Import Support on Food Security

This chapter examines the potential impact of the removal of import support on consumers and producers of soybeans, sugar and milk. The impact on consumers is first seen at the macro-level and then as it relates to food insecure households. The impact on domestic production is addressed first from a competitiveness standpoint and then in terms of prospects.

4.1 Impact on consumers

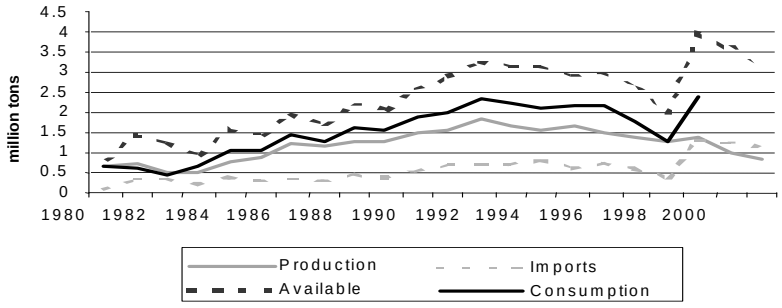
4.1.1 Macro level

The current situation of Indonesian imports is presented in this section, along with information on the world market prices of each commodity.

Soybean

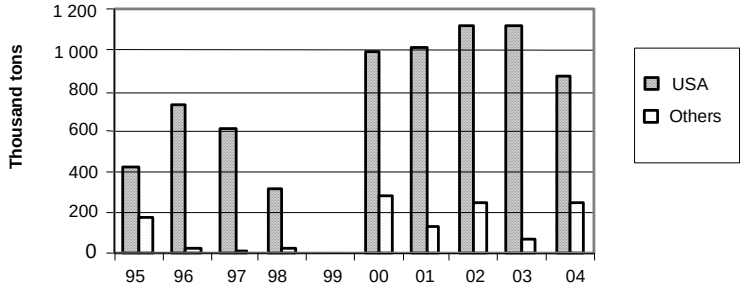
Since 1998, when soybean imports were liberalized, there has been a drop in production levels (Figure 4.1) and an increase in imports (Figure 4.2). While this may suggest strong competition between imported and domestic soybean as well as competition between domestic and international production, one should be cautious in drawing such simple conclusions. In 1998 Indonesia experienced a severe economic crisis as well as an El Nino atmospheric phenomenon. Both these factors had an undeniable influence and could well explain the drop in production.

Figure 4.1 Evolution of soybean's indicators in Indonesia, 1980–2001



Source: CNUCED.

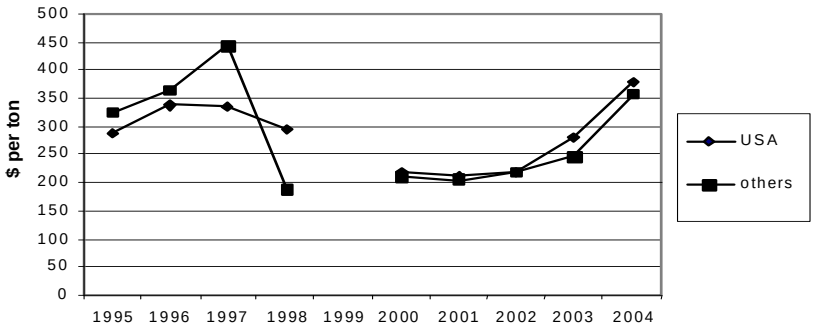
Figure 4.2 Evolution of imports in volume by origin in Indonesia, 1995–2004



Source: FAOSTAT.

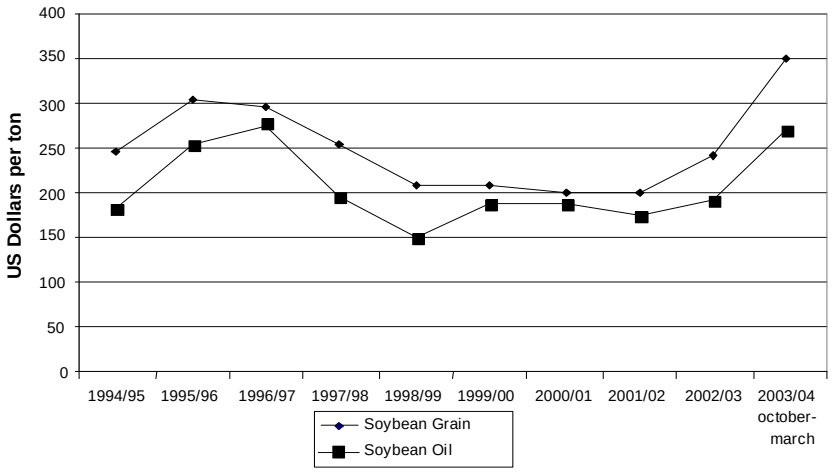
Soybean imported from the USA is supported by exporters in that country, but this is not the case for imports from others origins. This support takes the form of USA export credits. However in 2002 Indonesia disappeared from the list of the main country beneficiaries.

Figure 4.3 Soybean import prices by origin in Indonesia, 1995–2004



Source: CNUCED.

Figure 4.4 International soybean prices, 1994/95–2003/04



Source: CNUCED.

A comparison of prices of Indonesian imports by origins (Figure 4.3) shows that the USA prices were below the prices from other countries at the beginning of the nineties but this was not the case in the past five years. From world market analysis, the USA was the only provider using export support in the past five years. Export credits for wheat have become more important than for soybean. Moreover if unwinding of export supports caused USA production to decrease, other players (Brazil and Argentina) would probably increase their deliveries on the international markets. So it is probable that international prices would not be significantly affected.

Sugar

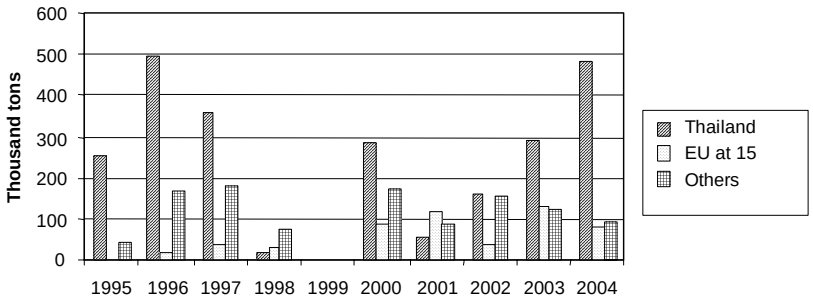
For sugar, the impact of export support may be more important on international prices (Figure 4.5). EU intervention on sugar is indeed important. Second only to Brazil, around 3.5 million tons are exported by the EU because of export support which may have an impact on international prices (EU exports represent between 15 and 20 per cent of world exports). However sugar prices are highly unstable and affected by oil prices (Brazil utilizes around half of its production to make alcohol).

Figure 4.5 International price of sugar, 1985–2001 ($/ton)

Source: USDA.

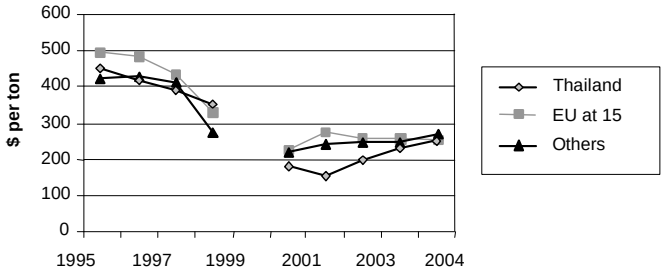
Brazil's delivery may increase in the event of a decline in EU production. Because the Sao Paolo region is very low cost there is no certainty it will affect the international sugar price. Nevertheless, according to world trade models, sugar prices could increase by more than 5 per cent (estimates vary greatly in different studies) after the withdrawal of export support.

Figure 4.6 Imports of sugar in Indonesia, 1995-2004 ('000 tons)



Source: CNUCED.

Figure 4.7 Import prices of sugar in Indonesia, 1995-2004 ($/ton)



Source: CNUCED.

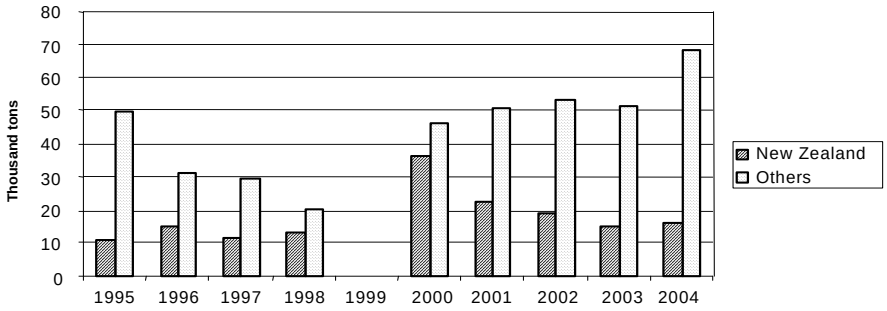
Indonesian imports come mainly from Thailand (Figure 4.6), which do not support sugar exports. Prices are similar whatever the country of origin (Figure 4.7).

Milk

Similar to sugar, milk is a market with a lot of export support intervention (export subsidies from EU and Canada) and private export monopoly (New Zealand). World trade studies usually expect a significant increase in prices after export support is withdrawn. However, estimates vary widely according to the methodology used.

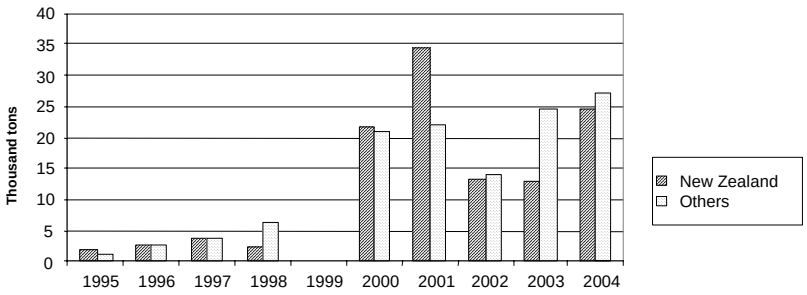
New Zealand is an important supplier of milk to the Indonesian market (Figures 4.8 and 4.9). Prices are similar whatever the country of origin (Figure 4.10).

Figure 4.8 Imports of powdered milk in Indonesia (less than 1.5% mg), 1995-2004



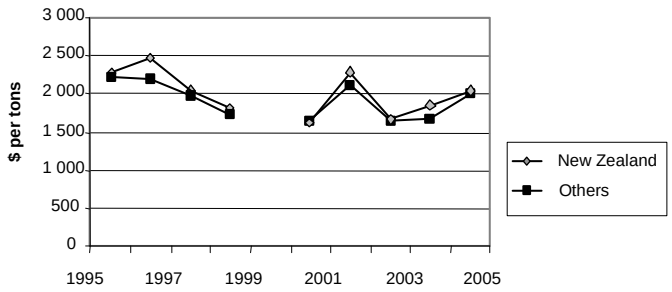
Source: CNUCED.

Figure 4.9 Imports of powdered milk in Indonesia (more than 1.5% mg), 1995-2004



Source: CNUCED.

Figure 4.10 Indonesia's price of imported milk, 1995-2005 ($/ton)



Source: CNUCED

These figures clearly show that imports of the three commodities are increasing substantially. However, in terms of percentage of total export of agricultural products, these figures are quite small. The same is true in terms of percentage of imports of agricultural products. In 2005 for example, imports of milk were only 3.9 per cent of total agricultural exports and around 9 per cent of agricultural imports. Sugar was 5.7 per cent of total agricultural exports and 13.7 per cent of total agricultural imports, while soybean was 4.9 per cent of exports and 11.4 per cent of imports. Nevertheless, altogether the three commodities represent more than one third of Indonesia's agricultural imports. This figure however was a lot smaller when compared with total national imports and exports. It is worth noting here that the agricultural sector's balance of trade is positive. In 2005, the balance was US$ 5,764 million.

As indicated above, removal of export support for the three commodities would have a varied impact on world prices: no significant effect on soybean prices; a possible slight increase in sugar prices (to be balanced by the fact that Indonesian sugar is imported from Thailand); and an expected but unknown increase in milk prices.

Due to these conditions our assessment is that the impact of the removal of export support will not significantly jeopardize the national balance of payments. Because removal of export supports for the three commodities in exporting countries will result in identical or higher prices in importing countries, the impact could be inflationary. However, unlike rice, the contribution of these products to inflation is very small, and thus the inflationary impact on price changes in these commodities would be minor at the macro level.

The impact on labour absorption and wages cannot be neglected as small scale downstream processing industries based on these three commodities is quite substantial. For instance, many small confectionary and food industries are highly related to the availability of sugar at lower prices. These industries employ large numbers of workers (see Table 2.5).

4.1.2 Food insecure households

Soybeans

Despite its small contribution to total calorie consumption of the poor, soybean's role as a major source of protein for the poor can not be neglected. Price elasticity of soybean products for the poor is believed to be close to one or even bigger than one, as it has very few substitutes if any at all. It is for this reason that lifting subsidies on this commodity by exporting countries which in turn raises Indonesia's domestic price could affect the nutritional intake of the poor portion of the population. Soybean product industries might be affected, to a certain extent, by rising prices of soybean raw materials. Rising prices may in turn affect the wages and employment levels in these soybean-based industries. However, since no price changes are expected due to export support removal, the nutritional status for food insecure households will remain unaffected.

Food insecure households in Indonesia display a remarkable pattern of consumption. According to Table 3.8 in this document, the share of soybean in the food expenditure of the household has decreased for rural households and remained stable for urban households between 1996 and 2002. However, Table 3.9 shows that the quantity consumed has steadily increased for both types of households. Given that the real price of soybean has decreased significantly over the period, we can say that to some extent food

insecure Indonesian consumers have benefited from the soybean trade liberalization. This is further witnessed where the contribution of soybean to energy consumption has also increased.

Sugar

Based on the reduced importance of sugar consumption by food insecure households both in terms of expenses and energy provision, it can be safely estimated that a 5 per cent higher price of sugar as a result of a lifting up export support will not strongly affect the food insecure population. However, it is worth noting here, that many small to medium scale food and beverage industries in the countries which are heavily dependent on cheap sugar and sweetener prices, employ a substantial number of workers with relatively low wages. These workers tend to belong to the food insecure portion of the population.

Milk

Given that the price elasticity of demand for milk is around 1.4, cheaper prices would increase the consumption of the food insecure population in the short run, and in the long run it would improve the quality of the food intake. However, given the insignificant role played by milk in the diet of food insecure households (consumed by less than 6 per cent of this population, a source of less than 1 per cent of proteins), it is obvious that the impact of export support withdrawals could be considered as nil. Given that this removal of export support is more likely to increase world prices, its impact will be stronger on domestic production.

4.2 Impact on domestic production

4.2.1 Competitiveness

Soybean

Indonesian production of soybean increased from 1969 to 1997 at a rate of 4.56 per cent per year, from 388,907 tons in 1969 to 1,356,891 tons in 1997. Production figures declined at a rate of -11.06 per cent per year from 1998 to 2003 when production stood at 671,600 tons. Peak production occurred in 1992 at approximately 1,869,713 tons. Productivity also increased steadily from 1969 to 2003 at 1.77 per cent per year from 0.7 tons per hectare (ha) in 1969 to 1.28 tons per ha in 2003. The decline in production was due to a steady decline in area harvested from a peak of 1,665,000 ha in 1992 to 526,716 ha in 2003.

Soybean production has evolved in parallel with the increase in domestic demand for tofu and *tempe* due to increases in population. However, domestic production was not able to supply the ever-increasing demand as indicated by the steady increase in imports from zero tons in 1969 to 1,192,717 tons in 2003. The continual rises in production through to 1997 indicate that the industry was quite competitive. This is also consistent with research findings where during this period the Domestic Resource Cost Ratio (DRCR) was below 1, ranging from 0.59 to 0.94 in different regions throughout the country.

This indicates that domestic production was still competitive even in the presence of subsidies in exporting countries. In other words, Indonesian domestic production appears to have not been affected by the export support as such measures were in effect far before the decline in production. Furthermore, it should be noted that productivity was steadily increasing during this period. In addition, even in the recent absence of a nominal protection rate, the effective rate of protection is reported to be as high as 200 per cent.

The recent decline in area harvested can be explained partly by a reorientation of farming activities. Soybean farming is secondary farming where rice is the primary crop for farmers with less than 0.2 ha of land. In addition, despite increases in productivity, production levels are still far below international averages, indicating low-level use of technology. Because of these factors income from this secondary activity was greatly reduced. More income could be obtained from non-agricultural activities. Lower international prices drive more farmers out of soybean production. To a certain extent this could be a result of the subsidized operations in exporting countries, which tend to produce relatively lower international prices.

It is difficult to state however if farmers reacted negatively to trade liberalization of soybean imports. As indicated in Annex 2, estimates based on DRCR show that soybean production is still competitive even after the liberalization scheme. Furthermore, the decline in planted area started earlier in the 1992, independently from the liberal reform of imports. This indicates that even if farmers are price responsive, trade liberalization cannot be presented as the main cause for the decline in soybean production (see also the 'Prospects' section below on soybean).

Milk

Domestic fresh milk production is dominated by small operations with 1 to 9 cows. They contribute about 90 per cent of the total domestic production. Most of the product is sold to the nine currently existing processors, mainly multinational corporations. This

domestically supplied raw material fills 30 per cent of the total demand of local processors and the rest (70 per cent) is imported.

Studies indicate that the domestic milk industry is competitive enough with the DRCR ranging between 0.57 and 0.96. This is in the presence of highly subsidized imports; in fact, the Cost-Insurance-Freight (CIF) price of imports, which are a lot lower than the domestic price received by farmers in exporting countries, is still higher than the price received by Indonesian farmers. Strangely, while the CIF price increased by 6.16 per cent per year during the period 1995–2004, the price received by Indonesian farmers from processors declined by 0.71 per cent per year during the same period. Even so, the farmers still continue to be competitive as indicated by the DRCR. In 2004 for example, the price difference between CIF and the price received by local farmers was US$ 236 per ton, a differential of about 27 per cent. On the other hand, the price received by the farmers in exporting countries was (USA case) about 21.7 per cent above the CIF price.

Therefore, even in the presence of subsidies by exporting countries, domestic producers are still competitive. Reducing subsidies would certainly improve competitiveness and could become an incentive for the growth and expansion of the industry to fill the readily available market of 70 per cent imports. This though has to be accompanied by strict imposition of the anti-trust laws banning the seemingly oligarchic power practiced by the processors that differentiate the CIF price and the price received by the farmers.

Sugar

To understand the sugar industry in Indonesia one has to look into history of the industry. In colonial times, the industry was basically run and managed by one company from farm to processing and marketing. At that time, marketing was essentially exporting the sugar. Because of this centrally managed operation from farm to processing and marketing, optimization at all stages could be relatively easily implemented. This explains why during that time Indonesia was a major world sugar exporter; this also sheds light on why the yield could be up to 12 tons per ha.

Today, the sugar industry is characterized by decoupled operation stages, in particular between processors (sugar plants) and sugar cane farmers. Sugar cane is supplied by a myriad of small independent farmers (mainly smallholders with less than 0.2 ha) to the sugar plant companies. These companies in some cases have no sugar cane production of their own at all. Today yields have dropped to as low as 5.6 tons per ha.

Consistent with the low levels of productivity, some studies indicate that the DRCR range is from 0.58 to 1.59. This means that many operations are inefficient or not

competitive at all. Indeed subsidized sugar industries in exporting countries distort international prices in such a way that they do not reflect the real cost of production. Elimination of such distortions would certainly provide an incentive for farmers through higher prices. However, true competitiveness, the ability of farmers and industry to respond to such an incentive remains an internal problems that can only be improved by streamlining the industry's systems, including economies of scale, management, technology, etc.

4.2.2 Prospects

Soybean

As mentioned in the previous part of this chapter, with a DRCR of less than one, soybean shows potential for development. This is also indicated by the fact that long before today's decline in area planted/harvested, Indonesia was able to produce substantial amounts of soybean and was indeed almost self sufficient. However, as demand increased due to increases in population, domestic supply could not meet demand and the country had to resort to imports. For this reason, high tariff protection should be carefully considered. The size of operations, large enough to provide farmers enough income that would entice them to pursue soybean farming using proper technology if not state of the art technology should not be underestimated. Given the current relatively high import dependency ratio, considerations of such developments should be debated carefully to avoid any severe impact on consumers

The Government of Indonesia is preparing a programme to achieve soybean self-sufficiency by 2015. The targets are: expansion of area planted up to 1.2 million ha (from 0.5 million ha currently planted); increase productivity up to two tons per ha by 2015 (against 1 ton per ha). To achieve this objective, the following programmes have been devised: (i) area planted expansion through improvement in planting index (number of plantings per year); (ii) improvement in productivity through introduction of high yield varieties, integrated pest and disease management practices, improvement in soil fertility through proper use of fertilizers; (iii) focusing on growth centres through improvements to economies of scale and size of the farms by organizing groups of farmers consolidating up to 500 ha farms as project units; (iv) business development through synergizing social engineering, technology and business practices in order to improve productivity and efficiency to increase added value of the businesses; and (v) partnership development through establishment of networking and collaboration of all stakeholders from up-stream farm activities, down-stream processing activities, and supporting systems including

financial institutions. However, the likeliness to succeed is strongly limited by several facts: (a) soybean is not a tropical crop and largely unsuitable in many parts of the country; (b) as a secondary crop it competes with other more profitable crops such as maize, vegetables; and (c) the needs of the feed industry are growing and an increasing share of the domestic production could be diverted to the feed industry.

Milk

As for milk, given the even higher import dependency ratio compared to soybean, and the current level of technology and the size of the operations, one should be prudent as not to allocate unnecessary resources of the nations and not to loose current consumer surpluses in developing this milk industry. Development of such industry in the spirit of increasing rural income through diversification of productive activities of the farmers and rural population might be worth considering.

Sugar

Despite the gloomy picture of the Indonesian sugar industry, owing to the political sensitivity of the commodity, the Indonesian government is preparing a programme to develop the industry with the following road map: (1) Stage I, called consumption self-sufficiency is targeted to be achieved by 2009. This means that domestic sugar production is targeted to meet domestic household consumption demand by 2009; and (2) Stage II, called national self-sufficiency is targeted to be achieved by 2014.

To achieve these targets, the government and all stakeholders developed the following programmes: (1) programmes to increase on-farm efficiency and productivity; (2) programmes to increase off-farm efficiency and productivity; and (3) government policies and regulations necessary to smooth the process of development. Important activities related to on-farm programmes are replacement of old varieties, speeding up crop rehabilitation, improvement of irrigation facilities, area expansion, improvement in harvesting and transportation systems, and strengthening farmer's organization. For off-farm programmes, one important activity is the rehabilitation of old sugar mills. Government policy aims to (a) promote fair competition in sugar industry both domestic and international through trade policies; (b) provide incentives for investment in sugar establishment outside Java; (c) provide financial support to rehabilitate and consolidate sugar mills in Java; and (d) promote privatization of the government-owned sugar companies.

As sugar industries internationally are highly competitive and are run under complete agri-business practices, the domestic development of such industry cannot be pursued in

the spirit of income improvement for small farmers in the rural areas or in the spirit of income source diversification or poverty alleviation. The business should be developed as a capital-intensive industry. Considering the availability of abundant land in the country, and assuming an international price reflecting the real cost, the sugar industry has prospects for the future, but this development could severely affect the future of small farmers.

5. Conclusions and Policy Implications

5.1 Conclusions

The objective of this study was to collect information and provide an analysis of the national impact of import support and food aid measures on food security in Indonesia. The study was structured around an investigation of the following factors: the political, institutional and economic context; imports; characteristics of households facing food insecurity; consumption modes of food insecure households; and competition between national products and imports. In the context of these factors, three particular sectors were analysed: soybean, milk and sugar. The study's key conclusions are listed below.

Institutional and policy context

1. Rural poverty is a particular concern and affects remote areas and isolated populations. There are four main government programmes for the poor: the Rice Programme for the Poor; the Public Works Programme; the Empowerment Programme for Micro-small-and-medium Enterprises; and the Low-income Assistance Funds Disbursement Scheme.
2. Poverty cannot be separated from food security. Currently the government is implementing a sustainable food security paradigm (SFSP) through seven community empowerment programmes. These pro-poor food security programmes have contributed to the reduction of relative poverty from 24.2 to 16.7 per cent in the period from 1998 to 2004.
3. For the period 2005–2010 the government proposed harmonizing tariffs to a level of 5 per cent across the board by 2010; tariffs for some agricultural commodities such as white sugar, soybean and milk will be increased from the current level to 40, 10 and 5 per cent, respectively.
4. The government has implemented programmes aimed at self-sufficiency for soybean by 2015 (2010 = 65 per cent), and sugar by 2009. In general, the following policy support will be implemented for both commodities: better accessibility for working capital; speeding up technology transfer and adoption; empowering NHYV agribusiness cluster development; and strengthening agro-industry and product development.

Food security situation

5. An analysis of food security indicates that: (a) the production of primary commodities is increasing and food prices are stable; (b) people residing in rural areas, mainly employed in agriculture and belonging to lower income categories, tend to have lower food accessibility than urban people; and (c) regional transient food insecurity in the country is still rampant due to natural disasters, conflicts, seasonal food shortages, and price hikes.
6. For soybean and sugar, the import dependency ratio during the period 1998–2004 approached 50 per cent, while for milk it was approximately 100 per cent. This evidence indicates the weak capacity to improve domestic production, due to low government support and incentives for the development of soybean and sugar commodities. In addition, institutional and law enforcement capacity to manage import tariffs and to handle illegal imports is relatively weak.
7. In general, the characteristics of food insecure households are as follows: (a) limited access to education services and weak capacity of human resources; (b) limited ownership of productive assets (e.g. land, livestock, capital); (c) simple housing conditions and limited access to related facilities (e.g. electricity, drinking water); and (d) high dependence on natural resources and wage labour as the main source of income, particularly in the agricultural sector.
8. The number of food insecure households was around 14 million in 2002 (32 per cent), slightly lower than in 1996 (36 per cent) but much lower than during the economic crisis in 1998 (47 per cent) which indicates a high sensitivity to external shocks. The proportion in rural areas is consistently higher than urban areas and the only significant differences among these households are between urban and rural households.
9. The consumption pattern of food insecure households shows that: (a) between 1996 and 2002 the share of food expenditure, both in urban and rural areas, remained relatively constant, approaching 70 per cent; (b) the commodity expenditure of rice is significant, between 20 and 35 per cent of household food expenditure, while the share of soybean, sugar, and milk in particular, is relatively small, i.e. less than 5 per cent; (c) the consumption of soybean, sugar, and milk in rural areas is consistently lower than in urban areas; and (d) for the last six years, the energy consumption of food insecure households decreased by 1.8 per cent

both in rural and urban areas, indicating a slight decrease in the people's welfare status.

The impact on macro-level and food insecure households

10. The main exporting countries to Indonesia are respectively the USA, Thailand and New Zealand. An analysis of the removal of export support for the three commodities shows: no significant effect on soybean prices; a possible slight increase on sugar prices; and an expected but unknown increase on milk prices.
11. Indonesia's imports of soybeans, sugar, and milk have all substantially increased over the last ten years. Today these imports represent one third of Indonesian imports of agricultural products. This figure however is a lot smaller if we compare it with total national imports and exports. Consequently our assessment is that the impact of the removal of export support will not significantly jeopardize food security at the macro level.
12. Food insecure households in Indonesia display a price-sensitive soybean consumption pattern. However, since there is no expected price change due to the removal of export support, the nutritional status of the food insecure household in relation to soybean-based product consumption will remain unaffected.
13. Given their limited sugar consumption food insecure households are unlikely to be significantly affected by a 5 per cent higher price of sugar as a result of a lifting of export support by exporters.
14. With regard to the as yet insignificant role played by milk in the diet of food insecure households the impact of export support removal can so far be considered as nil.

The impact for the three commodities

15. Soybean production in Indonesia is still considered to be competitive. The sharp decline in planted area cannot be associated with liberalization of soybean imports since domestic prices were decreasing well before liberalization. Factors that affect the dynamics of soybean production include poor yields, unfavourable agro-ecological conditions and competition with other more profitable crops.
16. The expected impact of export support removal on domestic soybean production is very small if any at all. Increased demand for soybeans due to increases in population and feed industry needs will not be fulfilled by domestic supply and the country will have to resort to imports.

17. Studies indicate that the domestic milk industry is competitive enough, even in the presence of highly subsidized imports. Lifting export support would certainly further improve this competitiveness and may become an incentive for the growth and expansion of the industry to substitute imports.
18. Many operators in the sugar cane sector are running inefficient operations or are not competitive at all. Elimination of export support resulting in a 5 per cent price increase would certainly provide a positive signal for farmers.

5.2 Policy implications

1. Items for a future policy agenda for poor people and food insecure households relating to the three commodities under consideration, include: (a) implementation of a strategic policy instrument to facilitate better availability, distribution, and consumption of food; (b) enhancing agricultural diversification by strengthening the availability, accessibility, and improvement of: non-rice commodities technology, farm management, capital, irrigation infrastructure, farmer group institutions, partnership programmes with investors, and agribusiness infrastructure development; (c) proposing trade policy reform in terms of: the ratification of 'special product' (complemented with SSM) for 11 strategic agricultural commodities (including soybean, sugar, and milk), and other agricultural commodities related to small farmers; and Indonesia's return to the initial WTO-AoA regulation based on the commitment in Schedule XXI.
2. With regard to the sugar industry, the competitiveness and ability of farmers and the industry to respond to market signals remains an internal problem that can only be achieved by improvement of industry systems, including economies of scale, management, and technology.
3. Considering that there is still wide availability of land in the country, and assuming a real international price reflecting the real cost, the sugar industry has good future prospects. This includes a possible reorientation of the sector towards less involvement of small farmers and further expansion of more capital-intensive industry. There would be a strong impact of such a reorientation on poor households.
4. With regard to the milk industry, unless the oligarchical structure seemingly exerted by processing companies on the local market is counterbalanced, international price changes are unlikely to benefit the farmers.

5. The government's target to achieve soybean self-sufficiency by 2015 seems unlikely to be achieved unless policies are implemented to address the following problems: (a) soybean is not a tropical crop and is largely unsuitable in many parts of the country; (b) as a secondary crop it competes with other more profitable crops such as maize and vegetables; and (c) an increasing share of the domestic production is being diverted to the feed industry.

6. References

Ariani, M., Saliem, H.P., Suhartini, W. and Supriadi, H., 2000. *Analisis Kebijakan Ketahanan Pangan Rumah Tangga Berpendapatan Rendah*, Pusat Penelitian Sosial Ekonomi Pertanian, Bogor.

Badan Litbang Pertanian, 2005. *Rencana Aksi Pemantapan Ketahanan Pangan 2005 – 2010. Lima Komoditas: Beras, Jagung, Kedelai, Gula, dan Daging Sapi*, Badan Litbang Pertanian, Jakarta.

CASER and World Bank, 2000. *The Effect of the Indonesian Economic Crisis on Agricultural Households: Evidence from the National Farmers Household Panel Survey (Patanas)*, CASER, Bogor and World Bank, Washington, D.C.

Damardjati, D.S., Marwoto, Swastika, D.K.S., Arsyad, D.M. and Hilman, Y., 2005. *Prospek dan Arah Pengembangan Agribisnis Kedelai*, Badan Litbang Pertanian, Jakarta.

Dewan Ketahanan Pangan, 2006. *Kebijakan Umum Ketahanan Pangan 2006–2007*, Indonesian Ministry of Agriculture, Jakarta.

European Community, 2005. *Indonesia – European Community Country Strategy Paper: 2007-2013* (Draft); European Community, Brussels.

Hudiono, U., 2005. "Government to start disbursing funds for poor" *The Jakarta Post*, 8 March 2005.

Irawan, P. and Irawan, S., 2005. "Poverty and environment nexus in Indonesia". *Indonesia Decentralized Environmental and National Resources Management (IDEM) Project*, UNDP, Indonesia.

Khomsan, H., 1999. "Fenomena kemiskinan" *Harian Suara Pembaharuan*, 1 November 1999, Jakarta, http://www.indo-news.com.

Kompas, 2005. "Presiden canangkan aksi penanggulangan kemiskinan: melalui pemberdayaan UMKM" *Kompas*, 27 February, 2005, Jakarta.

LPEM-FEUI, 2004. *Finding Sources of Poor Growth in Indonesia*, University of Indonesia, Jakarta.

Nainggolan, K., 2006. *Kebijakan Ketahanan Pangan.* Badan Ketahanan Pangan, Indonesian Ministry of Agriculture, Jakarta.

Pasaribu, B., 2006. "Poverty profile and the alleviation program in Indonesia" paper presented on *Asian Regional Seminar on Poverty Alleviation*, held by AFPPD and IFAD, Hanoi, Viet Nam, 6 April 2006.

Rusastra, I. W., Sumaryanto and Simatupang, P., 2005. "Agricultural development policy strategies for Indonesia: enhancing the contribution of agriculture to poverty reduction and food security". *Forum Penelitian Agro Ekonomi*, vol. 23. no.12, Desember 2005, ICASEPS, Bogor.

Saliem, H.P., Lokollo, E.M., Purwantini, T.B., Ariani, M. and Marisa, Y., 2001. *Analisis Ketahanan Pangan Tingkat Rumah Tangga dan Regional*. Laporan Hasil Penelitian, Puslitbang Sosial Ekonomi Pertanian, Bogor.

Saliem, H.P., Ariani, M. and Purwantini, T.B., 2002. *Analisis Kerawanan Pangan Wilayah dalam Perspektif Desentralisasi Pembangunan*, Puslitbang Sosial Ekonomi Pertanian, Bogor.

Saliem, H.P., Mardiyanto, S. and Simatupang, P., 2003. "Perkembangan dan prospek kemandirian pangan nasional". *Analisis Kebijakan Pertanian*, vol. 1, no. 2, Juni 2003, Puslitbang Sosial Ekonomi Pertanian, Bogor.

Sawit, M.H. and Rusastra, I. W., 2005. *Globalisasi dan Ketahanan Pangan: Peta Jalan untuk Indonesia,* LPEM, Faculty of Economics, University of Indonesia, Jakarta.

Sawit, M.H., 2005. *Perum Bulog dalam Perjanjian Pertanian WTO: Apa, Mengapa, dan Bagaimana*, Puslitbang Bulog, Jakarta.

Sawit, M.H., Setianto, A., Purba, H.J. and Supriati, 2004. *Penyaringan SP (Special/Strategic Products) dengan Metoda I-O untuk Indonesia*, Puslitbang Sosek Pertanian, Bogor.

Simatupang, P., 1999. "Toward sustainable food security: the need for a new paradigm". *International Seminar: Agricultural Sector During the Turbulence of Economic Crisis: Lessons and Future Directions*, 17–18 February 1999, ICASERD, Bogor.

Simatupang, P., Rusastra, I. W., Saliem, H.P., Supriyati and Saptana, 2003. *Prospek Diversifikasi Usahatani di Lahan Sawah: Kasus Empat Kabupaten di Jawa,* Puslitbang Sosek Pertanian, Bogor and Bappenas/USAID/DAI, Jakarta.

Suryana, A. and Hermanto, 2004. *Kebijakan Ekonomi Perberasan Nasional; Ekonomi Padi dan Beras Indonesia*, Badan Litbang Pertanian, Jakarta.

Susila, W.R., 2006. "Impact of support import on Indonesian food security: the sugar case". *Technical Report of Collaborative Study between LRPI and UNCAPSA*, 2006.