

APPLYING A SSI APPROACH TO INDONESIAN RICE INDUSTRY FOR IMPROVING THE WELFARE OF INDONESIAN SMALL SCALE FARMERS: A PRELIMINARY ASSESSMENT

Rizqi Sari Anggraini ¹⁾

¹⁾ Peneliti Pada Balai Pengkajian Teknologi Pertanian (BPTP) Riau

ABSTRAK

Sebagai komoditas penting, beras memainkan peran dominan dalam membentuk ekspektasi terhadap inflasi dan stabilitas ekonomi di Indonesia. Karena itu, pengelolaan beras menjadi krusial juga. Penelitian ini bertujuan untuk menilai kinerja industri beras Indonesia untuk meningkatkan kesejahteraan petani skala kecil Indonesia. Penelitian ini didasarkan pada penelitian literatur menggunakan Sistem Sistemal Inovasi (SSI) kerangka untuk menilai seberapa efektif elemen dari suatu sistem beroperasi dan berinteraksi dalam kondisi saat ini. Temuan ini mengkonfirmasi produksi beras memainkan peran penting dalam ekonomi Indonesia. Namun, seperti komoditas pertanian lainnya, produksi beras juga di bawah ketidakpastian yang diciptakan oleh socio-ekonomi dan kondisi politik dan perubahan iklim. Untuk menghadapi semua tantangan ini, inovasi harus menjadi bagian terpadu dari produksi beras di Indonesia.

Kata Kunci: beras, Inovasi sistem sektoral

ABSTRACT

As an important commodity, rice plays a dominant role in forming expectation on inflation and economic stability in Indonesia. Therefore, rice management becomes an crucial aspect as well. This article aims to assess the performance of Indonesian rice industry for improving the welfare of Indonesia small scale farmers. This study based on literature research using Sectoral System of Innovation (SSI) framework to assess how effectively elements of a system operate and interact under current conditions. The findings confirm rice production plays important role in Indonesian economic. However, like other agricultural commodities, rice production also under uncertainty created by socio-economics and political condition and climate change. In order to face all these challenges, innovation should become integrated part of the rice production in Indonesia.

Keyword: *rice, sectoral system of innovation*

INTRODUCTION

Rice is an important commodity for Indonesia. It is staple food for most of Indonesian citizen and provide job for almost 21 million of Indonesian household. Therefore, rice become strategic and political commodity. In which, shortages of rice in domestic market or highly fluctuating rice hold the potential to generate domestic political instability. The pressing problem for Indonesian economy is caused by the price of rice plays a dominant role in forming expectation on inflation and economic stability (Mariono, 2014).

Indonesia is the third-largest rice producer country regarding global rice production (FAO 2014). However, Indonesia still rice importer as well, because domestic rice production is not sufficient to fulfill domestic rice demand. Given, Indonesian per capita rice consumption around 140 kg person⁻¹ year⁻¹. Thus, Indonesia needs to increase rice productivity and the technology adoption is one possibility towards this goal.

According to Indonesian Ministry of Agriculture (2015), the development of Indonesian rice production during the period 2011 – 2015 shows a positive trend. Small-holder farmers account for around 90 percent of Indonesia’s rice production, with average land ownership less than 0.8 hectare. The Indonesian Rice production is shown in Table 1.

Table 1. Indonesian Rice Production in 2011- 2015

	2011	2012	2013	2014	2015
Indonesian Rice Production (in million tons)	65.4	69.1	71.3	70.9	75.4

Source: Indonesian Ministry of Agriculture

Rice imports declined from 3.2 million t in 1995 to about 0.69 million t in 2010. There have been concerns, however, that rice imports may surge in the future due to the continuing increase in population. Annual per capita rice consumption of 127.6 kg/year in 1995 remained almost the same as in 2009 at 127.4 kg/year. IRRI estimates that Indonesia will require 38% more rice in 25 years, which means that the present average rice yield of 4.6 t/ha must increase to more than 6 t/ha to fill the gap. To avoid huge imports, most rice policies in Indonesia have been aimed at achieving rice self-sufficiency by increasing production. The government set a production target of 10 million t of annual rice surplus for 2015 and it provides fertilizer subsidies to rice farmers cultivating less than 0.5 ha of land (<http://ricepedia.org/indonesia>). Trend of Indonesian rice export and import can be seen in Figure 1.

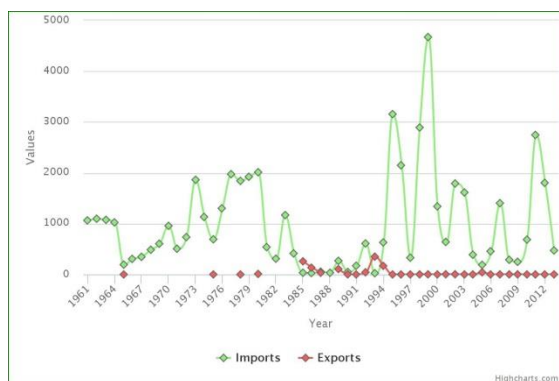


Figure 1. Indonesian Rice Import and Export 1961-2012

1. Potential opportunities for future innovation



From information above, it clearly seen that rice production plays an important role in Indonesian economic. However, like other agricultural commodities, rice production also under uncertainty created by socio-economics and political condition and climate change. In order to face all these challenges, innovation should become integrated part of the rice production in Indonesia. According to Smith & West (2005) innovation is the development of new products, services, processes and business models under conditions of risk and uncertainty. Although enterprises make these decisions, they do not make them in isolation, but within persistent structures of business firms, economic institutions, science and technology infrastructures, policy frameworks and knowledge and resource bases and under varying degrees of risk.

Pitt & Nelle (2008) mentioned that within a systems approach, innovation performance is seen as a coordination problem, with components of the system needing to work in a coherent way. A systems approach can therefore provide the framework for understanding how the mentioned interactions within

Buletin Inovasi Pertanian, Volume : 3 No. 1, Juli 2017, 1-5

a system work together to facilitate (or hinder) innovative behaviour. Thus, a sectoral system of innovation (SSI) framework provides a means for industry and public policy makers to assess how effectively elements of a system operate and interact under current conditions. It can also be used to assess a system's fit for future purpose when drivers of innovation affecting that sector change.

2. Potential Opportunity Spaces chart

 <p>Drivers</p>	 <p>Constrai</p>
Propelling trends that could create potential opportunity spaces	Roadblocks that if removed could create potential opportunity spaces

1. Political driver Concern about food security and rice self-sufficiency.	1. Technological constraints such as the lack of storage and the lack of extension services.
2. Technological driver More access to Research and Development, better agronomic practices, and knowledge training.	2. Institutional constraints Inefficient in the value chains and the lack of good governance.
3. Institutional/organisational driver Capacities of company	3. Economic constraints The lack of incentives and infrastructures support such as road and irrigation channel.
4. Economic driver Rising disposable income, incentives to farmers.	4. Political constraints Government interest, change in preferences and conflicting signals.
5. Socio-cultural driver Increasing population, personal motivation, gotong royong spirit (farmers work together to overcome the problem).	5. Socio-cultural constraints Social acceptance, the lack of farmers' awareness to use improved seed, the lack of social participation and the lack of social benefits.
6. Ecological Adaptability of the varieties	
7. Special Attribute Nutrient richness.	

3. Sectoral System of Innovation (SSI) for the Development of Rice Industry

a. The industry currently structured

The Indonesian experience in the mid and late 1970s is even more conclusive. Its harvests in 1975/76, 1976/77, and 1977/78 were persistently poor because of heavy brown plant-hopper. Infestation, at a time when rice was available at a low price in the international market. Furthermore, the plentiful foreign exchange earnings from petroleum would normally have adversely affected production of all tradable crops, and indeed production of Indonesia's export crops was stagnating at the time. The general presumption then was that rice would be no exception. However, the prospect of importing rice in ever larger quantities-Indonesia was then importing about 2 million tons per year- led to some major policy shifts. Irrigation projects were accelerated and rice prices were increased. Of greater importance, however, were a sharp increase in fertilizer subsidies and a stepping up of research efforts. On fertilizer, there was a sharp downward revision in the urea/paddy price ratio from 2.46 in September 1978 to 1.11 in December 1978. This was done in connection with a devaluation of the rupiah. Rice prices were allowed to move up almost the full extent of the devaluation, but fertilizer prices were kept essentially at the same level, making the third strand of evidence concerning the Indonesian fertilizer/rice price ratio one the higher value placed on domestic supply of the most favourable in Asia.

The actors involve in rice production:

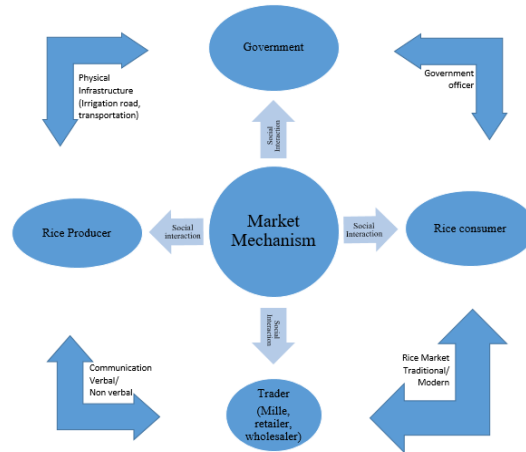


Figure 2. Rice Actors Interaction

b. Value chain integration

Overall Rice value chain in Indonesia

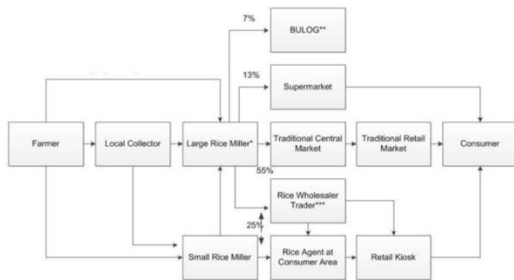


Figure 3. Overall Rice Value Chain in Indonesia

- Increasing integration of production, planting, harvesting and trading along the chain.
- The management of paddy to rice production through the chain is affected by the middleman.
- Most of rice producers integrating through marketing alliances.
- Increasing scale of marketing efficiency of rice production facilities and processing works by having collaboration among actors such as rice field owner, production input-shop, peasant labour, miller and middleman (trasher, retailer and wholesaler).
- Farmers higher dependency to middleman along the marketing chain

c. Innovation in the rice Industry

Indonesia has developed a cadre of researchers capable of undertaking rice research and collaborating with colleagues in other countries. The Indonesian Centre for Rice Research (ICRR), formerly the Research Institute for Rice (RIR), located in Sukamandi, West Java, is the main institute

conducting biophysical rice research. Some trials and assessments on rice are also conducted by the regional institute of the Assessment Institute for Agricultural Technology (AIAT) at the provincial level. The Centre for Agro-Socio-Economic Research (CASER), located in Bogor, has a long tradition of conducting socioeconomic research on rice and the broad agricultural sector.

Together with all concerned institutions, the government should exert every effort to develop more rice varieties that are high-yielding, disease-resistant, and tolerant of drought and soil toxicities; and continue the development of improved nutrient management strategies.

In addition, extension personnel need to be mobilized to promote and disseminate the new varieties to prevent or overcome stagnation of rice production. Performance incentives could be given to the government's extension staff.

d. The principal providers of R&D and technology support to the industry

Agricultural Innovation System

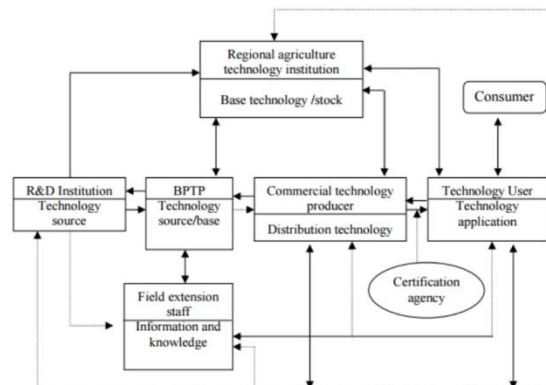


Figure 3. Agricultural Innovation System
Source: IAARD

e. Regulations (or laws) have a major impact on rice industry

- **UU 19-2012 APBN** Law of National Budget to increase the speed of rice self-sufficiency programme.
- **UU-41-2009** Law of Protecting Agricultural Land (Land Reform) to limit agriculture land use shift.
- **Gov. Regulation 859-1998** Regulation on rice milling/rice processors to improve millers performance
- **Presidential Decree No. 8 – 2000** Rice floor price at farmers' level to give proper selling price for farmers

4. System failure/ weaknesses

Most farming system in Indonesia has been done efficiently in terms of production based on their land area. Unfortunately the rice marketing system has been done imperfectly due to (1) climate change;

Buletin Inovasi Pertanian, Volume : 3 No. 1, Juli 2017, 1-5

(2) lack of capital (at farmers position); (3) information asymmetry of rice price value chain (less transparency of market prices and costs provides an adequate market signals to middleman to take part on rice price; decision of selling and buying handled by middleman;

price reflects cost of seller); (4) rice import and (4) inability of government to give sanctions to someone who violate (such as illegal rice import found in market, rice price fluctuations).

From the farmers' perspectives, inability of them to get real information of rice price at the market is important. Since the farmers bargaining power are less than they are less profit receiver. The big profit

receiver is trader at wholesale rice market (Pasar Induk). This situation is worsened by the inability of farmers buying miller and having warehouse to increase their bargaining power of rice. But, the long working relationship/social relationship found among actors related such as trust, norm and role. These is Increasing scale of marketing efficiency of rice production facilities and processing works by having collaboration among actors such as rice field owner, production input (saprodi) shop, peasant labour, miller and middleman (trasher, retailer and wholesaler). Though the social relationship has been strengthened their cooperation but still farmers receive less benefits compare to others actors in value chain. Moreover, the growth of private label in rice retail and strong customer segmentation in retail market between rice premium and mid-range impose the rice competition among middleman (traders).

5. Policy option that would explore to address asymmetric market information

The government should increase rice productivity especially to the fertile paddy fields area; (2) Infrastructure should maintain properly (irrigation channels, road); (3) intensive dialogues between private and public sectors in terms of sectoral economic policy to discuss Indonesia rice dependency; (4) government rice price control mechanism and (5) crops insurance programme for farmers should be implemented to protect farmers from climate changes. All actor rice value chains can collaborate properly under government attention to determine right quantity, right price and right place. All actors must be benefited equally In order to decrease asymmetric market information.