

## Rice Industry and SMEs Development in South Sulawesi

<sup>1</sup>Rahim Darma, <sup>2</sup>Musliar Kasim, <sup>1</sup>A. Nixia Tenriawaru and <sup>1</sup>Letty Fudjaja

<sup>1</sup>Department of Agricultural Socio-Economics, Hasanuddin University, Makassar, Indonesia

<sup>2</sup>Department of Agronomy, Andalas University, Padang, Indonesia

---

**Abstract:** Rice as a major staple food for the population of Indonesia is a strategic commodity not only from social and economic aspects but also political views. Rural and agricultural characteristics with poverty and limited employment opportunities have encouraged job migration out of agriculture. The development of rice cultivation and post-harvest technologies that support the development of equipment and machinery create the division of labor in the production process of rice. Work specialization of SMEs and farmers as the main actors initiate the development of rice industrialization. Most of rice SMEs are specialised in providing services include procurement of input production, machinery and agricultural equipment in the upstream business processing and marketing in the downstream business, warehousing, transport and financing. Rice industrialization with a major share of domestic market will increase the competitive market, value added, employment, income and may eventually boost economic growth of the region. Agricultural development policy is considered to change from merely on-farm focus to become more prevalent from upstream to downstream to encourage rice industry with the SMEs and farmers as the main actors.

**Key words:** Industrialization, labor specialization, job migration, employment, industry, machinery

---

### INTRODUCTION

Rice as a staple food for the people of Indonesia is a strategic commodity not only from the social and economic aspects but also from the political view (IAARD., 2005). Rice is produced by many farmers in rural areas and consumed by almost all of Indonesia's population. The total population of Indonesia in the 2010 population census was amounted to 237,641,326 mln. people. This number is expected to continue to grow with a projection of 255 mln. in 2015 and 305 mln. in 2035 (CBSP., 2011). Indonesia is the third highest of rice consumption per capita in the world after Vietnam and Bangladesh. In 2012, rice consumption per capita of Vietnam was 191.1 kg, Bangladesh 169.5 kg, Indonesia 133 kg, Thailand 142.5 kg, Philippines 121.9 (FAO., 2015). High demand of rice that could not be fulfilled by domestic production causes Indonesia has to import continuously to meet the demand as well as to anticipate the shortage of rice. During the period of 2011-2015, rice imports on average 1.3 mln. ton per year with the highest imports of 2.75 mln. ton in 2011 (CBSP., 2015). The rice import shows that Indonesia's food security status is moderate. Indonesia ranks 71th out of 113 countries in the Global Food Security Index far below its neighboring countries such as Malaysia, Thailand and Vietnam (EG., 2016).

Rice is produced through various stages ranging from the provision of production facilities on farm

activities and post-harvest to market to final consumers. All these activities create business opportunities, especially farmers and SMEs as the main actors. Some challenges facing the SMEs are the lack of management, technology, labor skills as well as the regulatory burden, market limitation and competition and low turnover profit (Gomez and Jomo, 1997; Saleh and Ndubisi, 2006). However, these problems could be solved by the potency of SMEs in the rice industry. SMEs in rice industry could be considered as key drivers in improving the development of new products, markets and sources of supply for sustainable performance and growth in the coming future (Bhuiyan *et al.*, 2016). Rice industry in Indonesia is expected not only to encourage the development of SMEs but also to overcome the problem of food, poverty and job opportunity that can finally, achieve national food sovereignty. Rice industrialization can be supported by the role of SMEs which play an important role in Indonesia's economy. It encourages SMEs entrepreneurship and innovation (Nnadi, 2014; Bhuiyan *et al.*, 2016). It is also expected that the rice industrialisation is able to dominate the domestic market to create more competitive market structure and to reduce import even further transforms into export of rice.

The objectives of the study are: to describe the role of rice as a strategic commodity to achieve national food sovereignty, to explain the role of rice and its potential for food products diversification that is suitable to be

developed by SMEs and to encourage changes in food development, especially, rice from the dominant role of government to private sectors. Thus, a reorientation of agricultural development policy is needed, rather than focusing on the on-farm sector to become more prevalent, from upstream to down stream to encourage rice industry with the SMEs and farmers as the main actors.

**Literature review:** Rice is developed as a major economic-driving commodity because it creates many types of employment opportunities, both on-farming and off-farming supporting businesses. The industrialization of food commodities is a driver of rural economic development as it contains various types of businesses with diverse products and services that generate strong value added and competitiveness, thereby creating a multiplier effect on income and employment (Darma and Arsyad, 2010). It starts from input, cultivation, harvesting, processing, marketing and supporting services to food products and distribution to consumers, all of these activities create value added and employment opportunities. The nature of rice farming are very suitable for rural labor characteristics. Low human capital, education and experience are dominant characteristics for rural labors (Renes and Ridder, 1995; Gorgens, 2002; Wolf, 2002). In fact, the rural labor development is a key strategy for the rural development of agricultural countries (Ellis, 1998; Foster and Rosenzweig, 1995). The industrialization of rice that creates new employment opportunities has positively influenced the growing of non-agricultural sectors (Brazil and Bukenya, 2012; Akingunola, 2011). This means that development of rice industrialisation triggers the development of other sectors such as agricultural machinery for industry, financial and insurance services.

Rice is produced through various stages ranging from the provision of production facilities, activities on farming and post-harvest to marketing to consumers that mostly run SMEs. SMEs in rice production account a large portion in mainstream business. The development of SMEs in rice industry is supported by huge potentials such as suitable tropical agricultural climate, large agricultural land, rice planting is a way of life or culture of rural communities, rice as the staple food of the population and the work of the stage of production process has led to the specialization of work. It shows from the number of people working in the agricultural sector decreased from 64.14% in 1970 to 33.32% in 2011. This occurs because work in the agricultural sector transforms from working on farming or cultivating to non-farming work and services in agriculture (Darma and

Arsyad, 2010). Specialization of activities include agricultural inputs, agricultural machineries, irrigation, service providers on land preparation, crop maintenance, harvesting, transportation, milling and warehousing. These different specialization of work and business are associated with the rice commodity is referred to as the rice industry or agribusiness (Cramer and Jensen, 1979).

SMEs are reliable for poverty alleviation, economic development and will also play an important role in the acceleration and sustainability of growth. Generally, some literature explains the complementary advantages of SMEs as follows: providing job opportunities, engine of growth and low investment (Advani, 1997; Agyapong, 2010; Fatusin, 2015), serving as an agent of change with a dynamic characteristic and evolutionary properties of the firm scale (Audretsch, 2000). SMEs are not affected by the impact of the global crisis such as the economic crisis experienced both in 1998 and 2008 (Henning, 2013). SMEs promote entrepreneurial and innovative efforts to increase competition and generate benefits widely. SMEs that are spread out both in rural and urban areas can help for economic stability (Beck *et al.*, 2005; Mukras, 2003). SMEs contributes to higher local economic growth above the national average (Eravia and Handayani, 2015; Gibb and Li, 2003). SMEs serve as a catalyst for technology development through innovation and technology as well (Ojo, 2006).

## MATERIALS AND METHODS

This study used two datasets from a study entitled “The Development of Rice Cultivation Technique and Community Based Water Management to Support Stock and Food Trade Liberalization” conducted by Ternriawaru funded by the Directorate General of Higher Education of the Ministry of National Education and a research entitled “Analysis of Rice Consumer Preference in South Sulawesi conducted by Fudjaja funded by PERHEPI” (the Association of Agricultural Economists Indonesia). Both of these studies conducted surveys on rice production centers in South Sulawesi such as Sidrap, Wajo and Bone District. The dataset used include Indonesian rice exports and imports for 5 years (2010-2014), type of service businesses and cost of services and inputs produced by business actors, business variation in rice industry, potential of SMEs as the dominant and potential business actors in rice industry. The dataset is analyzed descriptively to illustrate the business potential with various products of rice that can be developed as a business and as a whole

describes as an industry. The description of rice industry is closely related to the status of national food sovereignty in South Sulawesi and Indonesia.

**RESULTS AND DISCUSSION**

**Status of rice commodity:** South Sulawesi Province is a rice production centre outside Java that has a big contribution to the provision of national food supply. South Sulawesi has distributed rice produced by it local farmers to various regions of the Indonesia Archipelago. Rice from South Sulawesi is not only marketed to the entire eastern part of Indonesia but also distributed to the western part of Indonesia including Java that is claimed as the largest rice producer in Indonesia. In the year 2014, about 27 provinces were targeted to be rice market for rice produced by South Sulawesi. The surplus of South Sulawesi rice was 2.24 mln. tons achieved in 2014 from the targeted 3 mln.tons in 2018. This makes South Sulawesi’s economic performance is above the national average. During the period of 2008-2014, the economy of South Sulawesi grew about 7.57% or above the national average growth (5.5%). This growth rate is certainly supported by the growth of agriculture sector around 10%, so the income (GDP) per capita increased sharply from Rp. 35.59 mln. in 2014 to only Rp. 10.83 mln. in 2008 (CBSP., 2015).

The surplus of rice is achieved because it is supported by the availability of land resources, infrastructure and application of appropriate and advanced technology, work specialization on rice farming and post-harvest. The area of rice field is about 643,784 ha which consists of 59.01% of irrigated rice field and the remaining is rainfed field and other rice fields. The area of cultivation achieved in 2014 was 1,094,302 ha or with CI (Cultivation Index) of 166.67% and average productivity 5.24 ton/ha. The average productivity is still low when compared to the productivity achieved in many locations in rice production centers with productivity of 7-9 ton/ha. Even, there are farmers in specific area that have produced 10-12 ton/ha. It indicates that there is still a considerable potential to increase rice production in South Sulawesi

(Table 1). About 65% of irrigated rice fields are planted two to three times a year or with a Cultivation Index of 166.2% for rice. If the crops are calculated in general, rainfed lowland field rice is used in the dry season, the use of rice fields in Sulawesi has reached around 200% of Crop Index. This achievement is supported by application of highly developed agricultural technology such as improved varieties, fertilizer used method, planting supported by agricultural machinery. Modern and appropriate agricultural machines facilitate more efficient activities and at the same time improve productivity that in turn increase farmer’s interests in rice industry in South Sulawesi.

The industrialization of rice has potential to grow rapidly because rice is one of the most highly developed agricultural commodities from the technical aspects of cultivation, processing and marketing aspects. Therefore, it can provide enormous business opportunities. The development of technology in the field of rice will encourage rural industrialization rice-based and have great potential in the economy of South Sulawesi with some opportunities. First opportunity is to increase production to fulfill demand of staple food and food as raw materials for food diversification products. Second opportunity is to support businesses such as in input providers (production facilities and agricultural machinery) in cultivation activities (land preparation and maintenance activities, harvesting, water supply and transportation) in provision of support services such as financing, post-harvest providers distribution, drying, warehousing) services including insurance and warehouse receipts. It is expected that the industrialization of rice is able to increase rice production, value-added products, employment opportunities and income of rural communities. The industrialization of rice from upstream to downstream consisting of supporting industries, cultivation industries and manufacturing/marketing industries creates more employment opportunities, increases productivity and value-added products while enhancing the prosperity of business actors in the rice industry.

Rice as a staple food of the Indonesian can also be categorized as local food because almost all the tools and production technology is produced from all the resources

Table 1: Rice industry performance in South Sulawesi in 2014

Uraian	Parameters	Condition in South Sulawesi
Cultivated area (ha)	624,171	61.71% irrigated, 38.29% rainfed, 2.42% uncultivated
Productivity (ton/ha)	5.2	Range 4-12
Crop index (%)	166,2	Planting 3 times a year 27,531 ha (4.41%). Planting 2 times a year 2×378,425 ha (60.63%) planting once a year 218,215 (34.96%)
Rice production (ton)	3,249,350	Grain production 5,426,353 tons with rendiment 59.88%
Local consumption and loses	1,003,427	Population 8,432,163
Rice surplus (ton)	2,245,873	Marketed to 27 povinces in in 2015, especially, to Java, Kalimantan, East Nusa Tenggara, West Nusa Tenggara and Sulawesi
Employment creation (people)	386,000	Value of production: 3.26 mln.ton×IDR 8000/kg×40% labor cost divided by regional minimum wage IDR 2.25 mln.×12 months. Around 10-11% from workforce, 3,715,801 people in 2014

Provincial Office of Food and Horticulture in 2015

Table 2: Various of service activities on rice farm in South Sulawesi

Type service enterprise	Wage (IDR or in kind)	Notes
Land preparation	1.2 -1.5 mln./ha	By using hand tractor
<b>Wage for planting:</b>		
Transplanting	1.2-1.5 mln./ha	
direct seed planting	150-200 thou./ha	
Mowing/fertizing	150-200 thou./ha	
Water for irrigation	20-25% of production	Practiced in n rainfed on dry season
<b>Harvesting:</b>	7.7-8% of production	Used in flate area
Combine harvester	10-12.5% of production	Used in hilly area
power thresher		
Transportation	10-15 thou./qveutal	Using Tassi

used locally available or can be produced in Indonesia. It starts from natural resources (land, water and climate), input resources and local farming needs are available. Furthermore, various cultures and ethnic in Indonesia creates many kinds of foods made from rice or rice flour which become the target of consumer markets. The diversification of rice products provide value added, employment opportunities and rural income sources. It also serves as import substitutes, that are now still imported and even if they are highly developed can be potentially to be export commodities.

**Industrialization based rice farm:** Rice industrialization in the cultivation sector in South Sulawesi has been highly developed. Farmers in South Sulawesi are more advanced compared to farmers in the main rice-producing areas in Indonesia including Java. Cultivation technology in the form of the use of land processing techniques using tractors, cultivation techniques using legowo row, tabela plant system, SRI (System for Rice Intensification), transplanting planting, use of quality seeds that all increase productivity both in unit area and time. The use of appropriate technology and advanced technologies such as plastic pipe rigs for direct seeding (tabela) saves manpower and time, power thresher and combine harrowers, rural transportation such as tassi and grandong, grain milling from (small scale) and modern with medium scale (capacity of 50-100 tons of grain per day) which makes economic activities in the rice cultivation sector is very dynamic. Tassi is a modified old motorcycle such as a trail bike that can be used to carry about 100 kg of rice in fields. Tassi substitutes the use of agricultural product transportation by horse and bycycle previously used. Moreover, grandong made from old cars (made starting in 1975) is a small size of four-wheel car with a capacity of 1-2 tons and diesel powered by about 10 HP used as a means of transporting agricultural equioment and products. Both vehicles are generally, made by the

workshop in rural areas (Table 2). The rice cultivation encourages rice industrialization because it is a focal point in terms of use of input utilization that results backward linkages both or up stream for rice production processed and forward linkage or downstream for marketing the products. The rice cultivation sector as the basis of the rice industry has been developed and is expected to encourage industrialization in the upstream and downstream sectors run by SMEs. Many activities on rice farming conducted with a wage system that at the same time assist the development of service businesses.

Rice farming is a great interest for most farmers in South Sulawesi because it is easily operated with supporting advanced and appropriate technologies, the product has high demand, price is relatively stable compared to other agricultural commodities and very profitable both in cultivation subsystem and in processing and marketing subsystem. Furthermore, the market structure is relatively competitive compared to other agricultural commodities, so, the margin obtained by marketing activities is in the form of transportation, harvesting and processing services. The technological advancements in agriculture that produce job specialization make rice cultivation has a diverse service providers making rice farming is easier to be cultivated by farmers and at the same time pushing rice industry on-farm.

**SMEs as the actor of rice industry:** Production business (farm-cultivation), processing and marketing can be developed if supported by supporting enterprises. Supporting enterprises include industry of fertilizer and pesticide (organic and non-organic), fertilizer production, seed production, machinery production and agricultural equipment, irrigation facilities, transportation, warehousing, financing, promotion (especially, non staple rice products) businesses. Supporting business on rice farming run by people in rice production centers in South Sulawesi are organic fertilizer (compost and liquid), workshop for repairing agricultural machinery and equipment, agricultural equipment manufacturing business (e.g., luku, combs, etc.), water supply of irrigation and transportation of farming. Warehousing and drying business are generally done by rice milli enterprise either in production centers or non-rice production centers in South Sulawesi. Most enterprices in rice industry are developed by rural entrepreneurs which is similar happened in Jakarta as the capital city of Indonesia (Purwanto and Wijajaya, 2016)

Table 3: The list of business activities done by SMEs in rural area in South Sulawesi

Type enterprises	Service/Products produced
Organic fertilizer	Manure, liquid fertilizer
Agricultural machinery workshop	Agriculture machinery and equipment repairment
Agricultural equipment	Agriculture equipment product
Farm transportation	Farm inputs and products transportation
Farm water irrigation	Irrigation
Rice Milling Unit (RMU)	Rice and other byproducts
Farm product dryer and warehouse	Storage

Table 4: Number, conversion factor and complementary facilities based on size of RMU in South Sulawesi, 2014

Description	Size of RMU (category)		
	Small	Medium	Large/modern
Number of RMU (unit)	4,489	2,714	494
Percentage of RMU (%)	58.32	35.26	6.42
Conversion factor (%)	55.71	61.45	61.54-65.5
Complement facilities	Husker, polisher	Husker, separator, polisher	Dryer, cleaner, husker, separator, polisher, grader

Provincial office of food and horticulture in 2015

(Table 3). There are SMEs that provide irrigation water in the dry season, even in the rainy season, when suddenly lack of water. Limitations of water can be solved through pumping system, making farmers in one area of rice farming more discipline in planting using pattern arrangement, so that, the productivity is higher than the area where the farmers have unlimited water supply (Sharafat *et al.*, 2014; Darma and Mahyuddin, 2012). This causes water supply enterprises are available, especially in areas where rainfed fields are dominated.

**RMU as a driver of rice industrialisation:** Rice Milling Unit (RMU) is an enterprises to process rice grain to rice which is one type of rice enterprise that has a big role in rice industry in South Sulawesi. RMU is a central point of rice industry which produce rice and supporting other rice based food industry, the glue in connecting to all production, processing and also marketing of rice. (Thahir, 2010; Rachmat *et al.*, 2016). Some large RMUs have post-harvesting facilities such as combine harrowers, paddy-grain trucks from paddy fields to RMU, drying floors or dryer machines, warehouses, trucks to the consumer center. The amount of RMU in South Sulawesi is sufficient, even more than milling capacity with grain production in South Sulawesi, so, there is a big RMU in South Sulawesi wants to buy grain from neighboring provinces such as Southeast Sulawesi and Central Sulawesi (Table 4).

The size of RMU is dominated by small category about 58% while large or modern category is only 6.4% of total RMU in South Celebes. Therefore, the rendiments achieved is varied, according to the grinding category

with a range of 55.71-65.5%. Modern mills have reached 65.5% or about 10% of the above from small-scale milling. Therefore, the industrialization of rice still has an opportunity to raise the rendiment at about 10% to close to the maximum rendiments achieved. Many grinding businesses is located in non-rice production centers becomes the core enterprises while farmers become the plasma in the scheme of core-plasma. The milling company provides all the necessities in the process of grain production including soil processing, agricultural production facilities, harvesting, transportation, warehousing and processing. Farmer's activities are producing grain, drying and storing the produce to the mill warehouse. Farmers sell their grain at a price that is considered to be remunerative by farmers. The obligation of farmers are only to pay the services of land preparation, transportation, milling/processing and interest on loans from production facilities. This pattern is mutually beneficial to both parties and almost all government functions have been taken over by milling companies efficiently and effectively.

The history of rice development begins with the green revolution and is carried out with various social engineering schemes such as the Bimas, Inmas, Insus, Supra Insus until the last with Upsus Pajale, whose main activity is the provision of agricultural inputs supplied by the government. All of these programs are provide fertilizers, pesticides and seeds for free or subsidized but it causes the production facilities are delayed which is incompatible with the rhythm of the growing season, so it is not effective. In addition, the pattern of assistance through a mechanism with long bureaucracy is inefficient because it must involve farmer groups from government institutions (from village to center), private party, farmer institutions, making the program ineffective, so that, the channeling of the facilities is always late. The significant role of RMU and other SMEs on rice industry in South Sulawesi can be obstructed the problems faced the government program in providing free or subsidized input factors.

## CONCLUSION

Specialization of enterprises on rice commodity with farmers and SMEs as the main actors encourage the industrialization of rice in South Sulawesi. It starts from upstream (production input, machinery and equipment) and downstream (processing and marketing) to supporting (warehousing, promotion, transportation, etc.) that create multiplier economy effects for the regional economy. The industrialization of rice with the domestic market as a major share will encourage more competitive

market structure, increase value-added, employment opportunities, farm income and simultaneously promote regional economic growth. It needs a reorientation of agricultural development policy, from just focusing on the on-farm sector to be evenly ranging from upstream to downstream and moving beyond not focus on staple food but also to diversified orientation of rice product in the form of non staple food, industrial raw materials and rice-based waste products whose principal actors are SMEs and farmers and empowering local people in the business.

#### **ACKNOWLEDGEMENTS**

The researchers would like to express their thanks to the Directorate General of Higher Education of the Ministry of National Education and PERHEPI (the Association of Indonesia Agricultural Economists) for supporting the study.

#### **REFERENCES**

- Advani, A., 1997. Industrial Clusters: A Support System for Small and Medium-Sized Enterprises, Private Sector Development. World Bank, Washington, DC., USA.
- Agyapong, D., 2010. Micro, small and medium enterprises activities, income level and poverty reduction in Ghana-a synthesis of related literature. *Intl. J. Bus. Manage.*, 5: 196-205.
- Akingunola, R.O., 2011. Small and medium scale enterprises and economic growth in Nigeria: An assessment of financing options. *Pak. J. Bus. Econ. Rev.*, 2: 78-97.
- Audretsch, D.B., 2000. The economic role of small and medium sized enterprises: The United States. Institute for Development Strategies, Massachusetts, USA.
- Beck, T., A. Demirguc-Kunt and R. Levine, 2005. SMEs, growth and poverty: Cross-country evidence. *J. Econ. Growth*, 10: 199-229.
- Bhuiyan, A.B., J. Said, M.D. Ismail, M.F.M. Jani and D.Y. Gun, 2016. The innovation drivers, strategies and performance of food processing SMEs in Malaysia. *Malaysian J. Soc. Space*, 12: 154-166.
- Brazil, L. and J.O. Bukenya, 2012. Analysis of non-farm employment growth in Alabama. *Am. J. Exp. Agric.*, 2: 288-305.
- CBSP., 2011. Agricultural statistical report. Central Bureau Statistical Pusdiklat, Jakarta, Indonesia.
- CBSP., 2015. Rice statistic of Indonesia. Central Bureau Statistical Pusdiklat, Jakarta, Indonesia.
- Cramer, G.L. and C.W. Jensen, 1997. *Agricultural Economics and Agribusiness: An Introduction*. John Wiley and Sons, New York, USA.,.
- Darma, R. and M. Arsyad, 2010. Determinants of unemployment in Indonesia: A study on development program of rural employment in pinrang district, South Sulawesi. *J. Econ. Dev.*, 50: 147-159.
- Darma, S. and R. Mahyuddin, 2012. Development elements in irrigation management (Elements of water development and management). *J. Dev. Econ.*, 13: 18-28.
- EG., 2016. Global food security index, Indonesia. Economist Group, London, UK. <http://foodsecurityindex.eiu.com/Country/Details/#Indonesia>.
- Ellis, F., 1998. Household strategies and rural livelihood diversification. *J. Dev. Stud.*, 35: 1-38.
- Eravia, D. and T. Handayani, 2015. The opportunities and threats of small and medium enterprises in pekanbaru: Comparison between SMEs in food and restaurant industries. *Procedia Soc. Behav. Sci.*, 169: 88-97.
- FAO., 2015. OECD-FAO agricultural outlook. Food and Agriculture Organization, Rome, Italy.
- Fatusin, A.F., 2015. Small scale industries and poverty reduction in Ondo State, Nigeria. *J. Econ. Bus. Res.*, 21: 57-68.
- Foster, A. and M. Rosenzweig, 1995. Learning by doing and learning from others: Human capital and technical change in agriculture. *J. Pol. Econ.*, 103: 759-790.
- Gibb, A. and J. Li, 2003. Organizing for enterprise in China: What can we learn from the Chinese micro, small and medium enterprise development experience. *Futures*, 35: 403-421.
- Gomez, E.T. and K.S. Jomo, 1997. *Malaysia's Political Economy: Politics, Patronage and Profits*. Cambridge University Press, New York, USA., ISBN: 9780521599962, Pages: 228.
- Gorgens, T., 2002. Reservation wages and working hours for recently unemployed US women. *Labour Econ.*, 9: 93-123.
- Hening, Y., 2013. Relationship between population growth with employees and poverty. *SMEs Contribution to Indonesian Economy*, Jakarta, Indonesia. <https://yasintahening.wordpress.com/2013/03/27/kontribusi-umkm-dalam-perekonomian-indonesia/>.
- IAARD., 2005. Prospect and toward rice agribusiness development. Indonesian Agency of Agricultural Research And Development, South Jakarta, Indonesia.
- Mukras, M.S., 2003. Poverty reduction through strengthening small and medium enterprises. *Botswana J. African Stud.*, 17: 58-69.

- Nnadi, C., 2014. Entrepreneurship development and its impact on small scale business enterprises in developing countries: A Nigerian experience. *J. Entrepreneurship Organiz. Manage.*, 3: 111-119.
- Ojo, A.T., 2006. Using small and medium enterprises to achieve Millennium Development Goal (MDG). *J. Bus. Soc. Stud.*, 1: 20-35.
- Purwanto, E. and B. Wijaya, 2016. The determinant of micro, small and medium enterprise development: A case study in Jakarta. *Res. J. Appl. Sci.*, 11: 816-821.
- Rachmat, R., 2012. Intergrated rice milling model to increase added value. *Pascalan Pertanian Teknologi Bull.*, 8: 99-111.
- Renes, G. and G. Ridder, 1995. Are women qualified. *Labor Econ.*, 2: 3-18.
- Saleh, A.S. and N.O. Ndubisi, 2006. SME development in Malaysia: Domestic and global challenges. Working Paper No. 06-03, Department of Economics, University of Wollongong, Australia, February 2006.
- Sharafat, A.L.I., H. Rashid and M.A. Khan, 2014. The role of small and medium enterprises and poverty in Pakistan: An empirical analysis. *Theor. Appl. Econ.*, 18: 67-80.
- Thahir, R., 2010. [The revitalization of rice milling through innovation in support of rice self-sufficiency and global competition]. *J. Agric. Innovation Dev.*, 3: 171-183.
- Wolf, E., 2002. Lower wage rates for fewer hours? A simultaneous wage-hours model for Germany. *Labour Econ.*, 9: 643-663.