INSTITUTIONAL INNOVATION IN AGRICULTURE AND INDUSTRY SECTORS: A CASE OF INDONESIA

Abstract:

The experts believe that the institutions factor is the successful key of the country (Robinson and Acemoglu, 2012). In the economic development point of view, institutional change as same as important with institutional design itself. Institutional change is the permanent process that will always happen. In the institutional change process, institutional innovation is one of the important thing. Institutional innovation is very important because it will accelerate the economic activities and contribute the economic value-added. The institutional innovation process is begun from build-up institutional environment, networking development, institutional arrangement, institutional change, and institutional innovation as the last process. In Indonesia, recently, the economic sector need to be developed institutional innovation are agriculture and industry sectors because both sectors absorb many labour, create value-added, and increasing income (middle-low level of income); therefore the poverty problem, unemployment, and income inequality can be solved. Institutional innovation that is needed in agriculture sector are the development of market information system, the transformation of agriculture to agro-industry, the method of collective plant, the programme of land reform, and the market preparing. While, the institutional innovation in industry sector are strengthening value-added economy, bureaucracy reform, development of new industrial cluster, expansion of export market, and deepening of production process and technology.

Keywords:

institutions, institutional innovation, agriculture sector, industry sector

JEL Classification: E02
Institutional Change and Innovation

Today's economy is increasingly competitive, which among other things is triggered by sharply increasing global competition. The increase of population is also one of the factors triggering competition. This phenomenon is causing innovation becomes an important agenda for economic executant, including the government. Effective and efficient economy requires stimulation of innovation, which, among others, fueled by government intervention, private sector participation, and the will of the people. Innovation is not only on the activity level, but also at the policy level as endeavor to maintain the position of economic competitiveness. Stam and Nootenboom (2010:1) state, innovation is also seen as a tool to move nations through economic crises more quickly and position the nations to have a stronger economy as crises ease. At this point, the economic crisis could also result in the opportunity to transform destruction into prosperity through innovation.

Those factors lead a lot of countries do technological and institutional innovations in developing economies to boost economic performance. Creativity and innovation become a necessity along with the development of technology and science today. Mature development planning and modern systems further accelerate the development of the economy. Government policies are aimed at encouraging the development of creative planning and innovative. Parrado (2008:232) builds the argument that institutional innovation is the key to quest for change scores high in the political agenda and decision-makers take the lead in bringing about institution innovation.

Recent studies indicate two important infrastructures for the successful completion of development, namely the development of policy and management. In the context of construction management, the most important aspect to consider is the repair or institutional rules. According to Ducker (in Wallman, 2009:61-62), the main thing is the development of governance and institutional aspects of how the institution works. Institution plays role in shaping a system that can integrate policies and economic conditions. In general, institutional innovation can be done by the central and local governments, depending on the context of the measures taken. In this case the institutional innovation can not be harmonized due to inter-regional differences in the needs and goals of each area of development.
Improvement of institutional side is one of the means used to establish a link between the political and economic framework in taking a decision (Zhang, 2012:991). Chao (2012:679) states that an “institution” represents the combination of philosophical approaches to solving a problem (e.g., implementing government policy), the bureaucratic institutions that evolve to deal with the problem, and the cultural context for both the problem and the proposed solution. In other words, institutional has three major aspects, namely the philosophical approach, bureaucratic institutions, and cultural contexts in addressing the issues (policy implementation). Here, there are several ways to improve institutions, one of which is to make institutional innovation.

Institutional innovation spreads not only across firms, but also across institutional level, which leads to institutional change (Yoshikawa et al, 2007:979). Chao (2012:679) also underlines that the institutional change was improvements in government policy-making efficiency have been responsible. China’s experience shows that changes in the institutional and socio-economic development can be achieved simultaneously. Without some institutional change the dynamics of market capitalism will bring on the end of economic growth as we know it, with the natural rate falling the closer the system comes to its limits (Klitgaard and Krall, 2012:250). Therefore, an increase in economic performance requires institutional change through institutional innovation.

Institutional change through innovation system can result in increasing productivity. According Hounkonnou et al (2012:65), innovation smallholder production systems in Africa have prompted organizational changes and increased productivity impact of agricultural materials and animal husbandry. In fact, innovation systems in Africa become the backbone of efforts to improve global food security in the long term, ie until 2050. This proves the need for innovation systems and institutional change to encourage productivity advances in micro and macro national economy.

The term institutional innovation is derived from the concept institutionalizations which is defined as the development of a stable without any significant changes that occur continuously. The concept is inherently less innovative and usually associated with political and administrative systems. In addition, public institutions are often used to serve and protect the interests of power holders. Based on this fact, ideological framework is necessary which is called as the concept of institutional innovation (Jones and Mills, 1976:324). The concept of institutional innovation is used to repair and maintain systems
that run in the community. In short, institutional innovation is at the core of economic behavior in the aspects of government policy as well as economic activities. Shiler (2005:269) elaborates behavioral economics is really the application of methods from other social sciences-particularly psychology-to economics. Behavioral economics is central to institutional innovation because it rounds out the details, the frictions or imperfections that might make some grand idea for a new economic institution unworkable if not appropriately dealt with.

According to Muller (2005:1), the concept of institutional innovation departs from the concept of institutional economics which later is evolved into the new institutional economics (NIE). The new institutional economics utilize property rights and transaction costs as an analytical tool, which later give rise to the term institutional change. The concept of institutional innovation is part of the institutional changes. One of the mechanisms of institutional change is institutional innovation. Ruttan and Hayami (1984:3) state that the institutional innovation is the technical institutional change. Activities undertaken in the process of institutional change is technically referred to as an institutional innovation. It can be concluded that institutional innovations are part of institutional change.

Institutional innovation that comes from the concept of institutional change is also reinforced by the statement of Hargave (2006:865), which implicitly states that institutional innovation is part of institutional change. The occurrence of institutional change can be explained through institutional innovation that started from institutional organization and institutional environment that emphasizes the legitimacy. Institutional organization will develop a network to establish institutional arrangements, which further contribute to institutional change. If the change is a new thing that has never happened in the past, it is so-called institutional innovation (see Table 1).
Table 1: The Concept of Institutional Innovation

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
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<tbody>
<tr>
<td>Definition</td>
<td>Derived from the concept institutionalizations. Is generally defined as a technical change in institutional or part of institutional change</td>
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<tr>
<td>Executant</td>
<td>Corporations / companies, organizations, government agencies and private</td>
</tr>
<tr>
<td>Process</td>
<td>Starting from the institutional organization and institutional environment→ build a network → institutional arrangements→ institutional changes → institutional innovation.</td>
</tr>
<tr>
<td>Impact</td>
<td>Increase productivity, increase economic growth, strengthening the resilience of the economy, changes in the macro system or change the government agenda</td>
</tr>
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</table>

Efforts of institutional innovation economy require a commitment of policy makers to leave the comfort zone by making strategic decisions. In this case the government takes guts to unravel the economic problems that arise and make the mapping policy priorities. According Roncoli et al (2009:709), the introduction of technical and institutional innovations must therefore be grounded in an in-depth analysis how such tools interact with a context defined by these multiple uncertainties. if institutional innovation takes place at the individual level of organisations and agencies, administrative tradition explanations are relevant for dealing with macros-changes of the system and/or government agenda but less important dealing with micro-changes (Parrado, 2008:230-232).

Institutional Innovation Approach

There are two approaches to the concept of institutional innovation, which is a top down and bottom up. Top-down approach to innovation implies that the introduction of the reform is high in the system or government agenda, and it entails changes either in constitutional or collective choice rules. Bottom-up approaches foster innovation through changes of operational rules and practices in root organisations that take place in absence of major changes in legislation (Parrado, 2008:233). In applying the economic policy, the government has made institutional innovation through two approaches. However, so far the government often implements institutional innovation through a top
down approach, namely institutional innovations that are tailored to central government decisions. Thus, the policy applied in each region will be the same, but the conditions and problems faced by the regions are different. This has lead to a lack of effective government policy at local level.

Stam and Nooteboom (2010:1) reveal that several policy instruments are considered in innovation policy, ranging from investments in public R&D, subsidizing private R&D and cooperation for innovation, to stimulating entrepreneurship. These three things are included in the innovation cycle that can be activated through institutional policies, both formal and informal institutions. The important role of the government here is to design, alter, or damage the institutional framework (creative destruction) for public welfare. The success of the innovation cycle depends on how the government places institutions in the innovation cycle.

Figure 1: The Cycle of Institutional Innovation

Source: Stamp dan Nooteboom, 2010:15

The basic idea of this innovation cycle combines the application of knowledge and competence in new contexts, such as the theory and application of new technologies, new markets for existing products, and the creation of new jobs, as well as other innovative ideas commonly referred to as a "generalization". The process of adaptation to the new environment and to maintain competitiveness requires differentiation. If
differentiation is not sufficient, it needs inspiration from outside parties to be combined which are referred to as "resiprocation". At this stage, exploration is a necessity in making decisions to survive in its current condition or it requires new innovations. The role of innovation through ownership is very important to do as exploration to maintain competitiveness. Of course, to continue the process of innovation needs development activities (development). The movement of the next innovation cycle leads to commercialization, diffusion, and finally at the stage of consolidation. In the process of commercialization technical and commercial feasibility occurs, in which the process is commonly referred to as the dominant design. Furthermore, the consolidation phase is the determiner in the success of innovations that require updating the system (see Figure 1). This stage is also commonly referred to as creative destruction which basically also requires institutional changes. This is the last of three stages in a common logic in innovation (Stamp and Nooteboom, 2010:7-8).

Strengthens the concept of the economic cycle, most of the research has often linked the concept of institutional innovation with technological innovation in driving economic performance. They are exemplars of institutional innovation on an international scale catalyzed by technological change (Muller, 2005:1). Technological innovation requires clear ownership rights and low transaction costs. Property rights and low transaction costs are required as the altar of institutional change. Institutional change can be performed with institutional innovations to address the issue of competition to obtain ownership rights, one of which gives the certainty. In addition, institutional innovation is also done to resolve the conflict in the distribution of transaction costs by utilizing the opportunities involved in the changes that occur.

In the context of institutional innovation in Indonesia, the thing to do is to increase public investment in R&D activities, enhance the entrepreneurial spirit of society, and technology development. The role of government is to strengthen the policy tenure. The unclear property rights on economic objects often become an obstacle to economic development, both at national and regional level. Exploration phase in determining property rights needs special attention to smooth the economic cycle. If the exploration stage is blocked, it will complicate the development stage, so it can not compete with other countries.
On the other hand, the increasing economic executant at micro and small-scale signifies an increase of entrepreneurial spirit in the community, so it requires strengthening government capacity to innovate. Creative potential of the national economy is quite high open for the government's role in making innovations for the economy strengthens people's business. Small and medium industries contribute significantly to the national economy, the contribution to GDP and to employment, stretching signifies a great effort in the community. It was so, when seen from the contribution of small and medium enterprises is low on export, for example, it means that the majority shows a deficit of innovation in the business activities.

Noughton (1994:266) explains that one of the most distinctive features of China's transition to a market economy has been the role played by rural township and village enterprises (TVE's). Institutional innovation conducted focuses on the efficiency and effectiveness of the industrial sector is small towns and villages can adapt to environmental changes. Institutional innovation in China is done through strengthening the property rights of each product produced by small industries in the town and in the villages. Legalization of government encourages rural and urban communities to produce the goods, thus increasing China's macro economy.

If observing developments lately, one of the problems of the national economy lies in the weakness of the real sector, namely agriculture and industry sectors. Technically it should changed in institutional or institutional innovations made in the development of technology to boost agricultural productivity and industrial sectors (Rutan and Hayami, 1984:1). Thus it needs to change the system and innovation policies that affect the development of the agricultural sector and the national industrial sector. According Hye (2009:1), the industrial sector engine of growth, growth enhances by employing the surplus labor of agricultural sector. Oladipo (2008:75) states that past rural development efforts have taken many forms including agricultural development rural-based industrialization, infrastructural development and integrated schemes combining all the elements of agriculture, industry and infrastructure. In general, the agricultural sector and the industrial sector have linkages in economic development, so that it needs institutional innovation through these sectors to improve the performance of the national economy in the long term (see Table 2).
### Table 2: Institutional Innovation Approach

<table>
<thead>
<tr>
<th>Type of Approach</th>
<th>Process</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom-up</td>
<td>Changes in the operational rules and practices within the organization that replaced the law change</td>
<td></td>
</tr>
<tr>
<td>Top-down</td>
<td>The introduction of the reform agenda of the government or the system that needs changing, both the constitution and the rules of collective choice</td>
<td>Investment, R&amp;D, technology, Enterprise</td>
</tr>
<tr>
<td>Innovation Cycle</td>
<td>Conducted through institutional policies, both formal and informal institutions strengthens the government’s role in designing, modifying, or changing the institutional framework (creative destruction) available to the public welfare</td>
<td></td>
</tr>
</tbody>
</table>

### Case of Agriculture Sector

In some countries, many institutional innovations are made in the agricultural sector. This is because the agricultural sector is a vital part in sustaining human life. China, South Korea, South Africa, and the developed countries like the United States, the focus of institutional innovation in the agricultural sector is on the food sector in particular institutional innovation. Institutional innovations aimed at improving the effectiveness of the agricultural sector and agricultural policy in improving the efficiency of agricultural production. In the agricultural research and development (R&D) also consist of impact evaluations conducted to test the effectiveness and impact of institutional innovation (Maredia et al, 2014:214).

The agricultural sector itself is a vital economic activity in Indonesia because it supports many people. The amount of labor involved in it is about 35% of the total workforce; contribution to GDP is about 15%; and an important contributor to exports (especially in the plantation subsector). It was so, until the current problems in the sector increase, such as limited infrastructure (broken irrigation), land ownership households that narrow (average below 0.5 acres), a very high price fluctuations, the long distribution of chain, mostly consumed in the form of raw materials, and many other problems. The series of problems that lead to sub-optimal performance of the agricultural sector and
farmers’ welfare is difficult to increase. With this understanding, it becomes important for institutional innovations to design the advance of the sector.

Efforts should be made to institutional innovation is to increase R&D in the field of agriculture. It will result in new performance that encourages creativity of farmers. In addition, R&D is also encouraging farmers who are aware of the technology, because for these activities in the traditional agricultural sector is less efficient. The presence of technology and also high creativity will create a good business climate agriculture. If this occurs, it will cause an increase in agricultural production, which ends will improve the welfare of farmers.

Effective institutions are those that proactively explore innovative and effective approaches to restructure the delivery of “content” in conjunction with institutional change and the increased use of external partners (Baker et al, 2012:230). The innovation approaches and also key is an understanding of the benefits as well as consequences of implementing technological solution, especially given rapid technology changes Baker et al (2012:230). In other words, institutional assessed the effectiveness of institutional innovation and institutional change through the use of technology. In short, institutional innovation in the agricultural sector is concentrated to make agricultural policies that lead to the use of agricultural technology.

Technically, agricultural institutional innovation needs to be done in Indonesia to develop the agricultural sector through technology. The government must prepare and facilitate the farmers with agricultural equipment technology (low/intermediate). Agricultural subsidies not only on fertilizers, pesticides and seeds, but also facilitation of agricultural equipment or assistance. In addition, the government could also set up a mentoring and dissemination of agricultural technology in an effort to improve return agricultural products. Beyond that, Indonesian farmers generally have a great spirit of innovation, such as the discovery of seeds. However, due to regulations that are difficult and expensive to patent the findings could lead to not so massively distributed manufacturing productivity that improvement opportunities be lost.

Institutional innovation can also be done through institutional change in a community. According to Daly (2008:222), institutional innovation on the funding community in the UK and USA is executed with institutional change in each rule. To develop a community should have institutional innovation through institutional changes
adopted from the rules and strategies of other successful community developments. In this regard, institutional innovations has also been characterized by the institutional change such as new structure of foundation. The form of community foundation was exported from US to UK. New approaches of structure allow for greater donor input and controls than others.

Indonesian farmers have a community that is commonly referred to as farmers' groups, but so far it has not contributed significantly to agricultural production. Therefore, institutional innovation through the organization of farmer groups is necessary. By changing the existing regulations on farmer groups and research on implementation strategies farmer groups in other countries will produce farmer groups that benefit the national agricultural production. One thing to consider is "collective planting mechanism" (in a cluster of land) to deal with a very narrow land ownership, particularly in Java. According to Wallman (2009:62), institutional innovations concentrates on institutional management processes. Institutional management refers to both the managements of organization and the management of institutional processes.

The most challenging jobs in the agricultural sector is institutional innovation agenda to support the agrarian reform program. This policy contains a high degree of difficulty because it involves the provision of new land, mechanisms for sharing/distribution of land, preparation of infrastructure (roads, irrigation, dams, etc.), production support in the early days, chain marketing/distribution, and so forth. In the case of provision of land, the institutional innovation acceleration of land acquisition and legal certainty become an urgent agenda. Next, infrastructure development will be hampered by the limitations of budget and management, so that the solid rules is required. Similarly, institutional innovations are related to production and marketing support, because it requires precision governments and the creation of markets that are not simple. It is the whole program that should be run as the situation requires immediate agrarian reform policy is made (see Table 3).
### Table 3: Institutional Innovation of Agricultural Sector in Indonesia

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D in Agriculture</td>
<td>Increasing R&amp;D in agriculture for:</td>
</tr>
<tr>
<td></td>
<td>1. Encouraging creativity of farmers</td>
</tr>
<tr>
<td></td>
<td>2. Encouraging farmers who are aware in technology</td>
</tr>
<tr>
<td></td>
<td>3. Improving the efficiency and also creating a good</td>
</tr>
<tr>
<td></td>
<td>business climate in agriculture.</td>
</tr>
<tr>
<td>Community</td>
<td>1. Turning on the role of farmer groups and research</td>
</tr>
<tr>
<td></td>
<td>on the implementation of the strategy of farmer groups</td>
</tr>
<tr>
<td></td>
<td>2. Strategy &quot;collective planting mechanism&quot; (in a cluster of land)</td>
</tr>
<tr>
<td></td>
<td>to deal with a very narrow land ownership, particularly in Java</td>
</tr>
<tr>
<td>Land Reform</td>
<td>1. Acceleration of land acquisition</td>
</tr>
<tr>
<td></td>
<td>2. Creating legal certainty</td>
</tr>
<tr>
<td></td>
<td>3. Creating rules in building a solid infrastructure and budget management</td>
</tr>
<tr>
<td></td>
<td>4. The creation of market</td>
</tr>
</tbody>
</table>

### The Case in Industrial Sector

The same argument also occurred in the industrial sector, where this sector has great potential but is plagued with many problems. Until now this sector still contributes about 23.5% of GDP and provides employment for 12% of the total workforce. Similarly, exports is partly driven by this sector. However, in the last 8 years the sector's performance continues to decline, whereas before the contribution to GDP had reached 29%. The decrease in the contribution process is referred to as "de-industrialization". The main problem in this sector is the dependence on imported inputs, linkages with sectors weak base, innovation and technological development are limited, and often colliding policies (for example the case of rattan export ban). If the government wants to create an integrated step, institutional innovations in agriculture can be linked with the industrial sector to produce agro-industry innovation. In the last few years the concept of agro-industry into one of the breakthrough increases the value-added agricultural products. Important component in developing agro-industry is none other than technology. The role of technology is not only to increase the economic value of goods, but also to increase the shelf life of agricultural commodities and product diversification. This concept will play in agribusiness agriculture and industrial sectors in tandem.
Increased agricultural production will have an impact on the improvement of industry sector output. Increasing trade is also create new opportunities in the form of food diversification and increased value-added farmers. In the current era, many agricultural products are processed into products processed goods. According to Wilkinson and Rocha (2009:46), agro-industry understood hare broadly as postharvest activities involved in the transformation, preservation and preparation of agricultural production for intermediary or final consumption. As is the case in the agricultural sector, innovation in the industrial sector also requires institutional innovation through management. The industrial sector will absorb a lot of labor to require institutional management to regulate the industry and the industrial workforce.

One thing that can not be omitted, to create a business climate that encourages the development of the industrial sector should be the role of government in case of bureaucratic convenience. Inefficient state bureaucracy requires institutional innovation through changes in the bureaucracy. According Urpelainen and de Graf (2014:3-4), the creation of a new bureaucratic system become the basis of extraordinary economic movement. Industry sector's contribution can be increased again with the availability of national bureaucracy. Ease bureaucracy, among others, is created in the form of the government's commitment to implement the service access facility licensing, investment, and others (see Table 4).

In liberalization period many policies spawned a new industry, especially in developing countries in Asia and Latin America. To compete with the industry in developed countries, the national industrial institutional innovation should also be directed to support policies to bring new industry. The new industrial policy will help companies venturing into the global market demand, so it is not just stagnant on the domestic market demand. In other words, institutional innovation is also done to protect the domestic industry to compete in the global market. Domestic industry policy should be able to protect the interests of domestic companies today (Jenkins, 1992:589).
Table 4: Institutional Innovation in Industrial Sector

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added Value and Competitiveness</td>
<td>1. Developing technologies in agro-industry</td>
</tr>
<tr>
<td></td>
<td>2. Formulating a strategy of international trade with good</td>
</tr>
<tr>
<td>Business Climate</td>
<td>Bureaucratic reform to facilitate business license</td>
</tr>
<tr>
<td>New Industrial Policy</td>
<td>Protecting domestic industry to compete in the global market</td>
</tr>
</tbody>
</table>

Concluding Remarks

Economic progress must be recognized as having run in Indonesia, but when compared with other countries, it is slow. At this point it requires policies that are more specific to encourage the movement of the economy more quickly. One of the efforts that should be ogled by the government to improve the performance of the economy is the repair of institutional innovation. To improve the real sector, the government needs to focus on institutional innovation in agriculture and industry. Agricultural sector in institutional innovation can be done through the R&D aimed at improving the effectiveness and national agricultural production. In addition to technology, innovation in institutional agricultural sector can also be done through the institutional organization of farmers, including financing and growing collective organizing. Another homework is crucial institutional innovation to support agrarian reform in order to build food sovereignty and farmers' welfare.

Institutional innovation also needs to be done in the industrial sector. Similarly, the agricultural sector, institutional innovation through technology should also be carried out on the industrial sector. Increased industrial output needs to support the use of technology to domestic firms. The era of globalization also requires the production of domestic industries which are highly competitive, so it is not inferior to the other state industries. Institutional innovations can improve the competitiveness of domestic industry products on the international scene. In more specific cases in Indonesia, institutional innovation needs to be directed to process of raw commodities by using low technology/middle so it does not close the job creation effort. Fiscal incentives and non-
fiscal should be designed to capitalize on the plan, including the development of the maritime industry.

References


