

# The Innovation System on Health Public Service: A Case Study of Posyandu in Makassar, Indonesia

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## Abstract

The purpose of this study is to identify the dynamic development of the national, cross-departmental, and complex program of Integrated Health Service Post or called *Posyandu* in Indonesian. By using the innovation system approach, this paper aims to view this program in terms of the involved actors, the linkages between the actors, and the possible knowledge sharing and diffusion. The main result from this study is that there is a dynamic and multi-relationship between actors engaged directly and indirectly to this program. In sum, there is a critical suggestions found to improve *Posyandu* program within the future.

**Keywords:** posyandu, innovation, organization, knowledge transfer, case study

## 1. Introduction

To date, Indonesia is recognized as one of the developing countries in the world and considered as the fourth most populous country after China, India, and the United States demographically. Geographically, Indonesia is recognized as the largest archipelago country in the world or having around 1.9 million km<sup>2</sup> total area. Moreover, Indonesia has five main islands namely Sumatra, Java, Kalimantan, Sulawesi, and Papua (Irian), and thousands of small islands. Having the great number of islands, Indonesia thus consists of numbers of rocks, reefs, sandbanks and so on.

Population has become the main concern by the government of Indonesia since 1971. Such concern later suggests the government to improve public health status in related with the public welfare as well as poverty alleviation. Eventually, to support the improvement on public welfare and alleviating the poverty, the government, under control of Soeharto, who was the president of Indonesia during the emergence of population problem, implemented national Family Planning program, called “Keluarga Berencana” (KB) (Handayani, 2010). Such program organized by the Coordination Board of National Family Planning or Badan Koordinasi Keluarga Berencana Nasional (BKKBN). Additionally, KB also improved the basic health services for people, especially those who are poor and living in rural area.

In order to support KB program, in 29 June 1983, the government of Indonesia established a national program called Integrated Health Post Program or Pos Pelayanan Terpadu (*Posyandu*) (Widagdo, 2000). A great number of literature explains the development of *Posyandu* and together the role of the government in supporting *Posyandu* during its development. However, limited literature explains the role of business sector on *Posyandu*'s development phase during the pre, beginning, and after economic crisis. As a result, this study subsequently conceptualizes several research gaps namely how the role of (1) business sector, government, and people on *Posyandu*'s development as well as the emergence and establishment of innovation system on *Posyandu* during its revitalization phase.

Based on the research gaps found within this study, consequently this study applies a qualitative approach, which is a case study undertaken from March 2014 to March 2015. Through the application of such research methodology, this study discovers several findings in explaining the research gaps above. The findings of this study firstly determine the role of three actors involved on *Posyandu*'s development. Secondly, this study's findings then explain how the innovation system takes a part during the revitalization of *Posyandu*. Finally, the findings of this study also suggests future studies to provide more detail explanations regarding the complex relationship between *Posyandu* and other factor that may affect the development of *Posyandu*.

## 2. Literature Review

### 2.1 The Theory of Innovation System

Innovation system theory has captured a great numbers of scholars and governments' attention since few decades ago (Cassiman & Veugelers, 2006; Drucker, 1984). Great number of definitions of such concept has been introduced in the literature. According to Carlsson et al. (2002) the definition of innovation systems can be defined differently and depends on several contexts such as national, regional, sectoral, or technological innovation. In spite such multiple contexts, nonetheless the main emphasis in innovation system is the involvement of the creation, diffusion, and use of knowledge. Carlsson et al. (2002) also define that components, relationships among innovation systems, and their characteristics or attributes are interrelated in the innovation systems at all. Others (Freeman & Soete, 1997) define that innovation system, particularly national innovation system is the network of institutions in the public and private sectors whose activities interactions initiate, import, modify, and diffuse new technologies (Shavinina, 2013). To be more specific, the significant point in national innovation system is the actors and its complex linkages (Caloghirou et al., 2004; Feinson, 2003). Understanding the linkages among actors involved in innovation is the key to improve the performance (Caloghirou et al., 2001; Shavinina, 2013). Additionally, OECD (1997) also states that innovation and technology development are the result of a complex set of relationships among actors in the system, which includes enterprises, universities and government research institutes. Study of national innovation system focuses on flows of knowledge, and on managing knowledge, interactions, and institutions (Drucker, 1984; Janhonen et al., 2012; Johannessen, 2008; Shavinina, 2013).

Furthermore, innovation in health system has been extensively discussed within the literature since few years ago. For example, the case study of Windrum and García-Goñi (2008) shows that innovation assists public health service in explaining the complex interactions between service providers, patients and policy makers. Windrum and García-Goñi (2008) also provides the analysis that the systematic innovation process gives a great contribution in explaining the role of such complex relationships above in defining the timing, direction, and success of innovations in the public health area. In line with the study of Windrum and García-Goñi (2008), others (Ball & Lillis, 2001) also acknowledge that the role of innovation system in public health sector helps clinical decision-making, increased efficiency, and strengthened the communication between the physicians and the patients.

Consistent with the prior studies abovementioned and the main emphasis of this research, this study suggests that all the actors inside *Posyandu* is centered to government and the society, public and private sectors, and consequently it generates a complex linkage concurrently among each other. Hence, in line with such suggestions above, this study is then justified to explain *Posyandu* program through the emphasis on the involvement of actors in- or outside *Posyandu* and the possibility of innovation system established on *Posyandu* program.

### 2.2 *Posyandu*

Historically, *Posyandu*, in its early stage has no managers. This organization only consists of midwives. Within the following years, one of public institutions called the Family Health Improvement or Pembinaan Kesehatan Keluarga (PKK) mingled with *Posyandu*'s organization. This PKK, which only consists of women, took the role of manager under the supervision of the government (Zamroni, 2012). Additionally, Zamroni (2012) concedes that the main role of *Posyandu* in Indonesia is as the pioneer in developing and early detecting the public health problem and formally tasked in rural, marginal, and poor area.

*Posyandu* is identified as the center of activity where people can have both family planning and health service (Zulkifli, 2003). The study of Zulkifli (2003) acknowledges that in the beginning of *Posyandu* development, there were approximately 50 thousand field volunteers. Those volunteers invited the infant and the pregnant mother to come to *Posyandu*. The main services that *Posyandu* provides are for nutrition and mother-infant health check, vaccination, and diarrhea prevention.

Furthermore, the serial main activities in providing health service by *Posyandu* are namely: (1) registration; (2) weight checking; (3) healthy card checking; (4) communication checking; and (5) execution. The midwives undertake these activities (Hidayat & Jahari, 2012; Setyatama, 2012). However, lack of midwives resource hindering the service of *Posyandu* at the end of 1970s (Kurniati & Efendi, 2012). As a result, in 1984-1985, the government promulgated the letter of President's Instruction called Instruksi Presiden (INPRES) regarding such midwives issue. This letter asked for facilities (academies and/or higher school for health services) and trainings in order to provide more quality resources in health field generally and especially midwives. Consequently, there were about 70 thousand midwives available in 1990. The increasing of this resource later offers a great number

of health services in Indonesia in general and *Posyandu* service specially.

### 2.3 The Dynamics Development of *Posyandu* in Indonesia

In determining the development of *Posyandu*, this study accordingly differentiates such development within two periods: the first period (1983-1998), and the second period (1999-present). The first period explains the development of *Posyandu* during the pre- and beginning of economic crisis in Indonesia at the year of 1998. The second period is between 1999 and 2000. This periode describes the revitalization of *Posyandu* in Indonesia.

#### 2.3.1 The Development of *Posyandu* from 1983 to 1998

*Posyandu* has shown its success role in the first period. The success role of *Posyandu* is recognized through (1) its increasing numbers of *Posyandu*; (2) the effects on the health public services; and (3) the growing public health awareness (Handajani et al., 2009). In line with the study of Handajani et al. (2009) this study finds that at the end of 1980s, the number of new *Posyandu* has reached 60,000 units of service. According to the Health Ministry of Indonesia, 1990 and 1994, units of *Posyandu* have increased from around 134,000 to 216,000 (Indonesia, 2014). In addition, in the year of 1995-1999, *Posyandu* units again have increased at 222,000 units. Furthermore, the contribution of *Posyandu* in public health service is acknowledged within several studies. For instance, the study of Håklev (2008) states that during the development of *Posyandu*, it has reduced the rate of infant mortality from 73 per 1,000 in 1985 to 58 infants in 1990 in Indonesia. *Posyandu* also contributed to experience exchange to other countries. Leimena (1989) also concedes that *Posyandu* also improves the child survival and development especially in controlling the nutrition, immunization and diarrheal at the village level.

On the other hand, although the previous discussion emphasizes on the increasing number of units, nonetheless *Posyandu* also encounters several problems such as the decrease of its units and services. Such problem can be found during the 1998 economic crisis in Indonesia. *Posyandu* has declined in terms of its units and consequently affects to its services. This mainly caused by: (1) the rapid changes on government system; and (2) the problem of human resource.

#### *Rapid Changes on Government System*

Due to the economic crisis hit Indonesia in 1998, a great number of problems existed and rapidly striking out Indonesia at a whole including political situation. A rapid change on political situation caused several major events such as the resignation of the incumbent president. After such resignation, the “reformation order” has been officially declared by the following presidential. Such order later has generated and implemented a new government system in Indonesia known as decentralization system. This system has rapidly changed the government system in Indonesia generally and especially in priority index of local policy implementation. For example some regions in Indonesia consider that *Posyandu* program is not important to be implemented immediately and vice versa (BKKBN, 2014; Bogor, 2014). To this knowledge, the diversity of proiority index of *Posyandu* implementation then leads *Posyandu* becoming a program in which does not apply optimally in all regions in Indonesia. As a result, people who are involved in *Posyandu* then considering to not actively contributing in optimizing *Posyandu* in bringing *Posyandu* become the first frontier in detecting the public health problems (Bogor, 2014). The other barriers of *Posyandu* development can be also seen on its performance in 2003 (Wirapusita, 2013). The main reason is that *Posyandu* units, which are formally registered by BKKBN and actively operated in the district areas during 1998 crisis previously, has declined for around 60% or only 40% registered units performing health service in 2004, regarding the report of the Director of Public Health from Ministry of Health, dr. Wandaningsih, MPH (Indonesia, 2014). Such issue becomes worse due to the decrease of the numbers of midwives based on the report of the head of Indonesian Midwife Association (Setyatama, 2012). Accordingly, all the 60% inactive *Posyandu* units later affected public health generally and particularly on public nutrition. Regarding effect on the public nutrition, there are many malnutrition cases has been found such as in Central Java province that malnutrition cases previously has increased 3.01% in a year or 11,78% malnutrition cases in 2003 becoming 14,79% malnutrition cases in 2004 (BKKBN, 2014).

#### *Problem of Human Resources*

*Posyandu* has been considered lack of human resources especially skilled human resource since few past years (Djuhaeni et al., 2010). This is because several reasons such as unskilled midwives and limitation regarding qualified trainings for midwives. As such, this study implies that such limitation indicates the health service provided by *Posyandu* also depends on the availability of skilled human resources as conceded by Kurniati and Efendi (2012).

#### 2.3.2 The Revitalization of *Posyandu*: A Future Prospect (1999-present)

In 1999, the president of Indonesia, Mr. Susilo Bambang Yudoyono has reactivated *Posyandu*. The program is

called Revitalizing *Posyandu*. This program mainly aims to improve the basic health services. Other objective is to develop the role of *Posyandu* as the first line in monitoring the public health and expanding *Posyandu* as the alternative of public health service especially for those who are recognized as underprivileged people (Indonesia, 2014).

The revitalization of *Posyandu* strongly suggested by the government due to several primary reasons: (1) the current declining trend of *Posyandu* role in providing health service nationally (Kurniati & Efendi, 2012); (2) less public-awareness of *Posyandu* importance in detecting and monitoring the public health issue; and (3) minimizing the trending increasing rate of bearing mother mortality (Sembiring, 2004).

Other reason encouraging the government to revitalize *Posyandu* is to maintain the role of *Posyandu* role in educating the public regarding the current health issue. In addition, *Posyandu* has been suggested to take the role as the national instrument in informing and distributing the free public aids provided by the government for instance “direct cash aid” or Bantuan Langsung Tunai (BLT) for 1.9 million underprivileged people in 2006. There, *Posyandu* is recognized as one of the government tools in strengthening the economy of the people.

In the business fields, the revitalizing *Posyandu* also plays important role, which is encouraging the entrepreneurs to involve in developing and supporting *Posyandu* especially financial aid. This is because this study finds that in Makassar, the entrepreneurs are encouraged to support *Posyandu* together in addressing the financial issue of *Posyandu*. This also indirectly attracts people to contribute in supporting both parties’ coordination. For example regular patient who is satisfied with *Posyandu* services voluntarily supports and informs their relatives who are entrepreneurs to participate in assisting financial issue of *Posyandu*. To this knowledge, this study indicates that the government plays significant role as the coordinator, regulator, stimulator, and facilitator among the positive collaboration between the entrepreneurs, people (volunteer), and *Posyandu*. Through such collaboration, all the organization members of *Posyandu* especially the midwives in every unit play important role in providing all necessary information for the entrepreneurs in order to investigate which *Posyandu* is eligible for the aids. Accordingly, through such collaboration, there is a link is established among such three involved parties (government, business sectors, and local community) and such link is intertwined. In this respect, the intertwined links among government, business sector, and local community tends to be complex and considered as the matter of coordination.

### 3. Research Methodology

This study mainly acknowledges that in order to fulfill the body of knowledge in line with the research gap found within prior discussion this study intends to explain such gaps through the case study that occurred for a year (March 2014-2015). In order to apply case study, this study finds that according to the study of Stake (1998), the vital point to a case study research is not the methods of investigation but research objective itself. In contrast with Stake (1998), Yin (1994) previously suggests that in constituting a case study, the researcher should place more emphasis on the research method and technique (Johansson, 2003). To this knowledge, this study accordingly emphasizes on both such suggestions namely this study’s research objective and the research method. In doing so, this study firstly aims to fulfill the literature limitation that found within the body of knowledge through a single case study method. Through the application of such method, this study secondly intends to conduct data collection at the target region in Indonesia which is Makassar, the capital city of Sulawesi Selatan Region. In this phase, this study gathers the data from the several units of analysis namely the midwives, entrepreneurs, and the government. This study gathers the information from midwives through interview sessions. The interview sessions consist of two steps. The first session is 273 midwives, who are active members in *Posyandu*, and 78 active managers of *Posyandu* are interviewed. The second session is the interviews of 7 entrepreneurs who actively participate in funding the *Posyandu* program. Other data collection source is from the government. This study gathers several related information either through the government’s official website or mailing service.

Through the application several methods from Stake (1998) and Yin (1994), this study is assisted to explain how all the elements in *Posyandu* interrelated complexly during several development phases. By investigating such complex relationships among the elements in *Posyandu*, program, this study also provides the explanation regarding the emergence and establishment of innovation system in revitalizing the *Posyandu* program. To present a whole picture of the innovation system on health service in Indonesia, especially *Posyandu* in Makassar, this study therefore applies theoretical supports from several studies (Caloghirou et al., 2004; Caloghirou et al., 2001; Carlsson et al., 2002; OECD, 1997; Shavinina, 2013; Windrum & García-Goñi, 2008).

### 4. Findings

According to the literature, ever since the first period of *Posyandu* development, there has been lack of resources

in providing and distributing public health service (Kurniati & Efendi, 2012). In spite of such limitation, nevertheless this study finds that currently the health awareness of people in Indonesia tends to increase in all of Indonesian regions. This is because from 2012 to 2014 around 90% people in Indonesia periodically visit public health service including *Posyandu* in order to check their health either they are sick or not as well as to gather any information regarding the latest health issue. They can acquire such information through the midwives, educating banners and/or brochures, and so on. To this knowledge, the information flow of health that is spread frequently in *Posyandu* indirectly educating people in terms of health issue such as the first aid prevention of diseases etc. As such, this study finds that through the revitalizing *Posyandu* has been applied, *Posyandu* program regularly contributes in providing knowledge for the people in terms of health and simultaneously stimulates people to increase their health awareness and indirectly induces those who are previously not interested to visit *Posyandu*.

Moreover, this study also finds other findings that describe the positive achievements of *Posyandu* which are grouped into two parts namely direct and indirect success.

- Direct Success

During the era of 80s to 2000s, the public empowerment to this program is a salient point. Ever since such era, the emergence of *Posyandu* has given contribution in the public health awareness, especially for infant and the pregnant mothers.

The contributions are: (1) the increasing in nutrition development of infant; (2) direct involvement from public in *Posyandu* autonomously; (3) the increasing nutrition rate of the infant; and (4) the complex linkage of cross-department established after being revitalized.

- Indirect Success

Educating people's through the diffusion of basic knowledge in terms of general information of health such as first prevention of disease, online registration for health service, and so on.

## 5. Discussion

Based on the prior discussion, this study recognizes the appearance of a co-evolutionary development on people who are involved inside *Posyandu*. This is because from 1984 to 1998, this study concludes that *Posyandu* has two basic developments.

Firstly, when establishing *Posyandu*, the management was in simple form. This is due to *Posyandu* was recognized as the only place for the infant and the pregnant mother who were served by the midwives. The member of *Posyandu* was midwife solely. The government helped *Posyandu* through the provision of the midwives. Furthermore, within this period, *Posyandu* also enhanced a new member on its organizational structure, which was the manager who was strictly supervised by the government.

Secondly, within the period of Crisis (1999-2006) the management of *Posyandu* has been improved. This can be seen on its new management structure. For instance, the local government in Makassar has supported *Posyandu* program by promulgating specific regulation regarding *Posyandu*. The members of *Posyandu*, which were previously consisted of midwives and manager, have been improved the introduction of additional level of management especially those who are from the business sector i.e. the entrepreneurs. Such entrepreneurs directly involve to this program in funding the revitalizing *Posyandu* program. Respect with such involvement, in 2005 there were 268 private organizations funded all *Posyandu* program in Indonesia (Indonesia, 2015) and in 2012 the organization are not only from private organizations such as Kraft Foods (Posyandu, 2012a) but also public organizations i.e. PT. Pertamina (Posyandu, 2012b).

Based on the discussion above, this study identifies that there is a probability of the innovation system emerged and established. This is because the more actors involved in revitalizing *Posyandu*, the more possible dynamic linkages among actors constituted. To this knowledge, this is in line with the study Feinson (2003), Caloghirou et al. (2001), Caloghirou et al. (2004) and Shavinina (2013). Through the emergence of dynamic linkages among government, public, and business sector on the revitalization phase of *Posyandu*, the innovation system has been triggered since the vital role of entrepreneurs in assisting *Posyandu* financially initiated especially in the case of Makassar. In sum, this study suggests that the innovation system established on the development of *Posyandu* particularly on its revitalization phase and together with all the actors involved (government, public, and business sectors) playing a vital role on its revitalization phase. This study however has less justification to completely acknowledge that the system of innovation is fully established on *Posyandu* or else is still premature.

## 6. Conclusion and Suggestion

*Posyandu* is the national, complex, cross-departmental and innovative program in public health service. This program is complex as it is implemented to almost all regions of Indonesia, which is characterized as heterogeneous and varied in languages, cultures, and geographies. In *Posyandu*'s first period, *Posyandu* is recognized as an organization whereby directed by three different public departments which are BKKBN, Ministry of Health, and PKK. Respect with *Posyandu*'s development, *Posyandu* is identified as an organization that supports and improves the family planning program, provides the understanding of health, and indirectly facilitates the knowledge transfer among *Posyandu*, government, private and public organizations, and public. Accordingly, this study suggests that this program is perceived as one of the good models in formulating a program with national and complex scale.

Finally, research on *Posyandu* has run largely its course and the existing dominant theoretical paradigms are unlikely to take this study much further, as the case of the premature discussion regarding the establishment of innovation system on *Posyandu* program. Therefore, this study recommends that future investigation is necessary suggested in order to provide a better understanding regarding the innovation system on *Posyandu*. Also, the policy which is from government is considered should be taken into consideration due to its role in supporting the innovation system. To this knowledge, this study strongly suggests future studies to pinpoint the role of government policy in supporting the innovation system on *Posyandu* especially or other public service providers in Indonesia generally.

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