

## Conference Paper

# Thousands of Babies Saved by the Community Empowerment: Free Lending Home Incubator for All

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## Abstract

One of the 17 frameworks for the Sustainable Development Goals (SDGs) program concerns a healthy life and encouraging prosperity for everyone. The Indonesian government within the framework of SDGs targeting NMR can decrease to 12 deaths per 1000 births. The existence of an incubator as a premature baby warmer device is very important. But such health facilities are still lacking in the area. The Grashof Portable Home Incubator, which is one of the innovations from Universitas Indonesia, was lent free of charge as one of the product-based community engagement activities from 2012 to the present. It was lent freely to the mothers with newborn babies from lower-class communities. The network of volunteer agents is at the forefront of implementing this activity in many locations in Indonesia. The volunteer agents replace the basic cost production of the incubator so the problem of funds can be overcome. Socialization and collaboration with all levels of society, both individuals and institutions, is carried out so that more premature babies can be helped. Since 2012 this activity has helped more than 3,000 babies in 21 provinces spread over 94 cities/districts. This activity has increased to community empowerment, which directs or indirect helps government programs in reducing infant mortality. Public awareness to help others, especially poor people can make life's welfare better.

**Keywords:** SDG, People Empowerment, Infant Mortality Rate, Free Lending Incubator, Grashof Incubator

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## 1. Introduction

Newborn's baby in medical terms is called the neonatal period. The neonatal period is calculated from birth until the baby is 28 days old [1]. Data in 2017, the Indonesian Health Demographic Survey (IHDS) explains that the neonatal mortality rate (NMR) in Indonesia is declining. In 2012, NMR in Indonesia reached 19 cases of death from every 1000 births. And in 2017 it has decreased to 15 cases of death from every 1000 births [2]. Although statistically it has declined, NMR in Indonesia is still high compared to other countries. According to data from the United Nations Children's Fund (UNICEF) in 2017,

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NMR in Thailand was only around 6 cases of death from every 1000 births, Malaysia 5:1000, even Singapore only 2:1000 [3]. In the 2018 report, UNICEF stated that 47% of children under-five (toddler) deaths were dominated by the neonatal period [4]. And NMR cases are more common in rural than in urban areas [5].

Premature babies need an incubator as a means of heating to maintain their ideal body temperature. Health care facilities in Indonesia, especially baby incubators, have not been evenly distributed to remote areas. Community health centers in Indonesia are still more in urban areas. According to data from the Indonesian Health Profile in 2018, it shows that the number of community health centers in the islands or rural areas is still small compared to cities [6].

There is a relationship between economic status and the powerlessness of the community in developing health [7]. This causes NMR in some remote areas to be greater than in urban areas because it does not have sufficient health facilities. Independent community empowerment carried out by the local community can be a solution to improve welfare in the health sector [8]. Activities that involve the community in empowerment efforts are proven to help reduce health inequalities [9].

Community engagement in the form of free lending incubator to underprivileged communities is one of the efforts in helping to reduce NMR in Indonesia. The purpose of this study was to look at the effect of the impact of community engagement on opportunities for creating community empowerment in helping premature babies. It is hoped that with this activity, not only babies will be helped, but also the creation of community sensitivity in finding solutions to problems around them with their respective efforts. So that health welfare, especially in helping premature babies from underprivileged communities, can be improved. The application of community empowerment results from community engagement is the key to the sustainability of the program or activity.

## 2. Literature Review

### 2.1. Sustainable Development Goals (SDG)

Of the 17 points of the SDG framework, point number three discusses the topic of good health and well-being. The point explains that the state has a stake in the guarantee of a healthy life and encourages welfare for all people of all ages [10]. One of the unsolved matters in the health sector is the reduction in neonatal mortality rate (NMR), the infant mortality rate (IMR), and maternal mortality [11]. The target of the Indonesian government, neonatal mortality rates can decrease to 12 deaths per 1000 births. Of

course, cooperation between the government and the community is needed to achieve the targets to be achieved.

## 2.2. Community Engagement -- Free Lending Baby Incubator

Product-based community engagement from Universitas Indonesia in the form of free lending incubator to parents' homes is one of the solutions in reducing neonatal mortality [12]. Many factors cause the middle and lower classes not to be able to get incubator facilities in hospitals. The most common thing that happens due to bad financial conditions is that it cannot use an incubator in the hospital, so the baby is treated at home with the poor condition [13], [14]. Health facilities in remote areas that have not been evenly distributed are also the cause of many cases of untreated premature babies.



**Figure 1:** Premature babies in grasshof incubators.

Figure 1 shows one premature baby who benefits from a free lending incubator. This humanitarian activity has run from 2012 until now. The baby incubator is lent free of charge to underprivileged communities and is specifically designed for home use [15]. The organizer of this activity is the Universitas Indonesia Incubator Team (UIIT), which not only makes portable incubators but also runs free lent to those who need them. The use of the SMS Center as an incubator lending database helps the performance of data processing activities [16].

### 2.3. Grashof Incubator

A portable grashof home incubator is a premature baby warmer. Grashof incubator is designed with the concept of green technology, including saving energy consumption, organic wood material, portable, and lightweight. Specially designed using only two 25 watt incandescent bulbs as heaters. Figure 2 shows the parts of the grashof incubator.

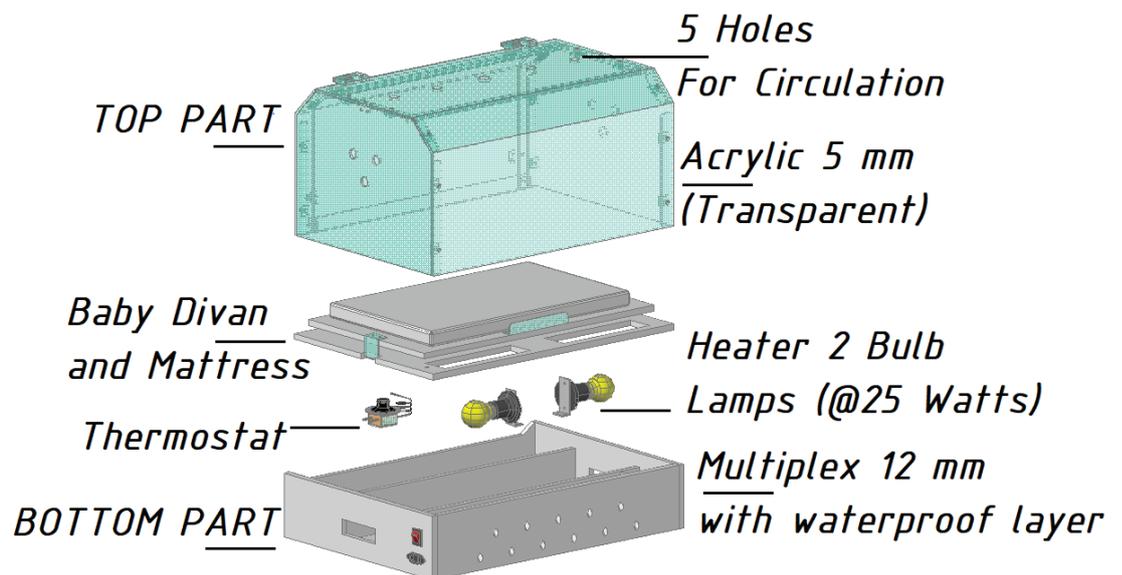


Figure 2: Grashof incubator parts.

The weight of a home incubator is only about 14 kg, easily carried over difficult terrain. Compact dimensions can be placed even in a small room. The working principle uses natural convection so that there is no noise in the cabin [17]. The incubator has been tested to be following applicable standards to obtain a quality product [18].

### 2.4. Community Empowerment

Community empowerment is an interactive process of change, where institutions and communities become transformed as people who participate in changing them become transformed [19]. Community participation is very influential in realizing community empowerment, in this case regarding health [20], [21]. The powerlessness of the underprivileged community needs to be assisted by the able communities around it. By knowing local wisdom from cultural, linguistic, and other aspects, the community is more receptive to input or direction from residents compared to outside communities [22].

## 3. Methods

### 3.1. Volunteer Agent

In the first year of this activity, from 2012 to 2013, premature babies who received free lending incubator assistance were still few. That is because of the limited area that can be reached and the number of incubators at that time is not much. After appearing in the news in one of the media [23], many people who want to help these activities in their respective regions. People who want to help are called volunteer agents.

Cooperation is the key to this activity. Volunteer agents are ordinary people who want to help free lending incubator programs on their own free will. The role of volunteer agents also bridges this program with professionals and medical workers who know better the conditions on the ground, so that it becomes a network of benefits in the community.

This incubator is not for sale. There are four main requirements if the community or volunteer agents want to participate in this program. First, it reimburses the production cost of one unit incubator of four million rupiahs. In other words, UIIT will turn the fund into an incubator that is ready to be used in the area where volunteer agencies are located. So there is no financial problem in producing the incubator.

The second requirement is that volunteer agents must not commercialize the incubator in their use. The purpose of this activity is to help underprivileged people who were already very low economically. Third, volunteer agents are willing to take the incubator to the baby's parents' home and pick him up again when the baby is healthy. The underprivileged certainly do not have vehicle facilities that can carry the incubator safely. Therefore, volunteer agents were assigned to this matter. By delivering it, the voluntary agent knows exactly the condition of the community he is helping, so it is expected to grow concern among others.

And the last requirement is to maintain the incubator. Cleanliness and damage are the responsibility of the volunteer agent, not the parents of the baby. After being lent by a family of healthy premature babies, the incubator must be maintained so that it is ready to be used optimally for other premature babies [24].

This method is an implementation of community empowerment after community engagement activities. This method was created as an effort to sustain this activity so that it can be carried out independently in the community.

### 4. Results

Since 2014, several communities or volunteer agents from various locations in Indonesia have joined in free lending incubator activities. Figure 3 shows the growth in the number of volunteer agents each year until September 2019.

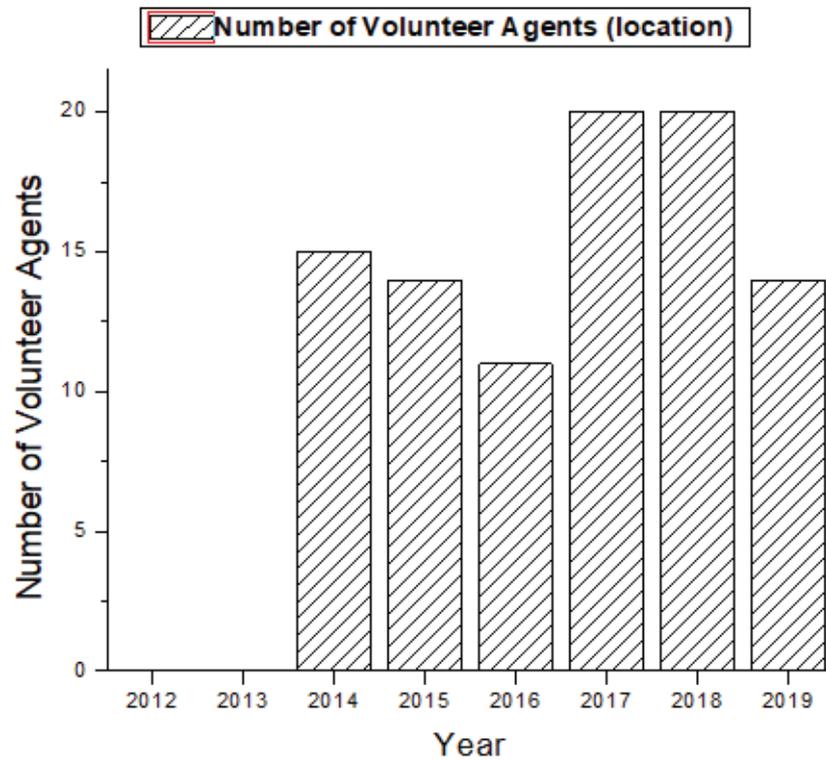
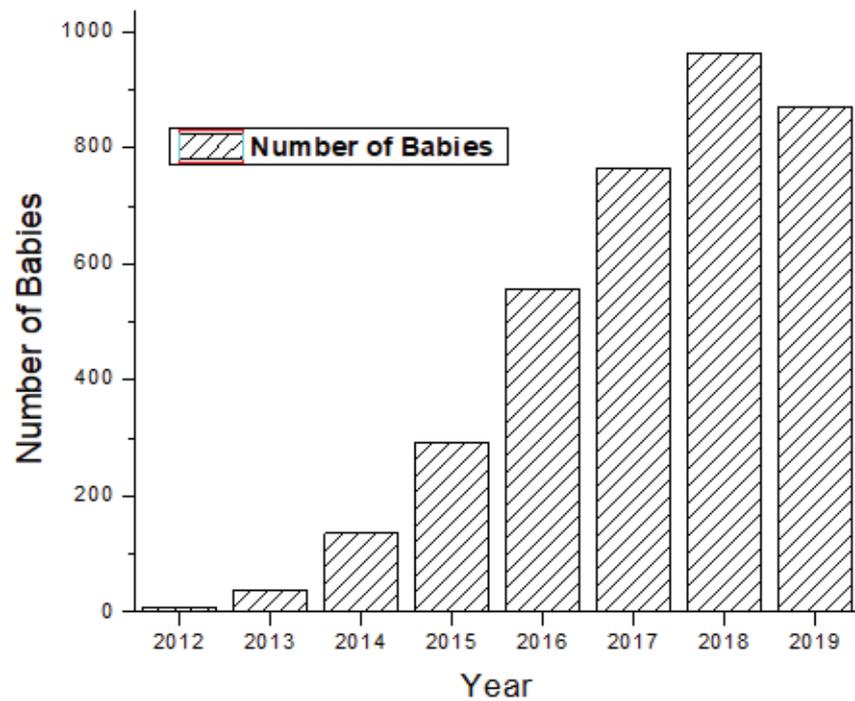


Figure 3: Growth in the number of volunteer agents.

From 2012 to 2013 there were no volunteer agents who joined because this activity was not yet known by the general public. After this activity was covered by a lot of media from 2014 until now, some communities are interested in implementing community empowerment. The growth in the number of volunteer agents does not show an increasing trend every year. Until September 2019, there were 94 volunteer agents or locations spread across 20 provinces in Indonesia.

Figure 4 shows the development each year in the number of babies who have taken advantage of a free lending incubator. The data is processed from the SMS Center database, which is used as a communication center for this activity. The number of babies from year to year is increasing along with the increase in volunteer agents who help premature babies. The desire of volunteer agents in adding incubator units also impacts the increasing number of babies that can be helped. The addition of units based on their desires because seeing the number of premature babies who need



**Figure 4:** Number of babies that have been helped.

help. This is known after the lending and information began to spread to the general public. From 2012 to September 2019, there have been more than 3000 premature and yellow babies that have benefited from this activity.

## 5. Discussion

From this activity, many positive impacts emerged. Community empowerment works with the existence of volunteer agents who participate in helping premature babies. Not only individuals who become volunteer agents. Entities from volunteer agencies develop along with the local wisdom of each region. For individuals, married couples, whole families, village midwives, youth communities, clinics, hospitals, to agencies, all work together to help this activity.

Figure 5 shows the various types of volunteer agency entities involved in the free lending incubator activities. One of the volunteer agents from individual entities is Dimas Riszaldi from the Kediri area of East Java. Since December 2016 it has been established to become a volunteer agent. Dimas has two incubator units that can be lent and to date, more than 20 families of premature babies have been helped [25]. Figure 5(a) shows another volunteer agent from the Kudus region of West Java, Budiyo, who has

joined since January 2017. The desire to join these activities is only to be of benefit to the surrounding community, specifically helping premature babies from underprivileged communities [26]. The same thing was felt by Delima as a volunteer agent from the Pamulang region, South Jakarta. Since joining November 2018 it has had five incubator units that can be lent free of charge. His participation was based on seeing a premature baby whose difficulties with hospital costs and her desire to care at home [27].



(a)



(b)



(c)



(d)

**Figure 5:** Various types of volunteer agency entities that help premature babies. (a) Budyono, Individual. (b) Sudarsono and Yulian, Married Couple. (c) Adj'i's Family. (d) Clinic or Hospital.

Not only individually, but Figure 5(b) shows a married couple also compactly becomes a volunteer agent in helping premature babies. Sudarsono and Yulian, volunteer agents from the Malang region, since February 2017 have helped more than 50 premature babies. Yulian who has a health background even educates parents of premature babies on how to care for them [28]. Another example is Lugi and Enny, as a married couple who joined since February 2015 already has ten units of incubators. More than 150 babies have benefited from the incubator managed by the married couple. As a social activist, his life is devoted to one of them as a volunteer agent [29]. Even the community empowerment he has done has grown not only to help premature babies by free lending incubators. The married couple also free lending wheelchairs to people who need them [30].

Figure 5(c) shows the volunteer agency entity in the form of a whole family is the family of Adj'i and Lutfia. The participation of her three children in helping premature

babies is done with all her heart. This collaboration can help each other when there are those unable to participate in delivering the incubator. Since joining in July 2015, it has helped more than 110 families of premature babies with six units of incubators. A strong urge to be a volunteer agent because he wants to be useful for many people in the long run [31].

A community of young people who have emerged today also participate in helping premature babies. One example is Zona Bombong. The community that was formed five years ago has done a lot of social activities for the community [32]. This extensive network owned by the community makes distance not a problem. The lending is done in a relay and helps each other to help premature babies who are far away [33], [34].

Clinics and hospitals can be voluntary agents, as shown in Figure 5(d). With the same vision and mission of helping premature babies, there are already five hospitals working together to lend free incubators to the parents' home. All forms of volunteer agency entities prove that community empowerment can be carried out by anyone in any form. This goal is aligned with government programs within the SDG framework, one of which is to reduce the neonatal mortality rate. Not only premature babies have become healthy; the baby's family is also happy with this activity. With this activity, positive energy in society can grow and spread by itself.

## 6. Conclusion

The application of community empowerment is one way for the sustainability of community engagement. Free lending incubator activities have proven this. The transformation of awareness, commitment, willingness, knowledge, skills, and affection of the community to other communities becomes evidence of indicators of increasing community empowerment. With public awareness of efforts to save premature babies, directly and indirectly, can help government programs in the SDG framework, one of which is to reduce neonatal mortality in Indonesia

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