



20 STORIES
OF SIGNIFICANT
CHANGE

PMI BUILDS RESILIENCE IN INDONESIA



Palang
Merah
Indonesia

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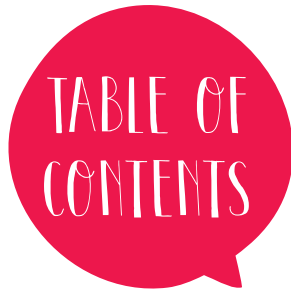
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The Junior Red Cross volunteer is conducting peer campaign on disaster risk reduction

Photo: PMI



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Greetings!

As the largest humanitarian organization in Indonesia, the Indonesian Red Cross (Palang Merah Indonesia/PMI) has been a partner of the government for 70 years. It continues to maintain its neutrality, work to provide humanitarian services in 34 provinces through various programs, such as blood donating, health services, disaster response and character education.

As outlined in our policy points, strategic plans and the PMI operational plan 2014-2019, the PMI upholds the mission of becoming the premier humanitarian organization that provides quality services to the public based on the Fundamental Principles of the International Red Cross and Red Crescent Movement. It also strives to improve the independence of the Red Cross organization through strategic and sustainable partnerships with the government, the private sector, movement partners, communities and other stakeholders at all levels, as well as improving the Red Cross organization's reputation at the national and international levels.

The book in your hands is a compilation of stories on the initiatives and innovation of PMI's programs and services, which are based on this mission. The services provided were aimed at providing benefits and changes for a better life and environment of the communities in which PMI works.

Our hope is that by reading these stories, our audiences become inspired to join the Indonesian Red Cross to help build the resilience of communities in Indonesia in disaster management and other social issues. Thank you for taking the time to read.

Headquarters Executive Board,
Deputy of Disaster Management Department

Letjend (Purn) H. Sumarsono, SH

STORY 1

Proliferating the Spirit of Disaster Resilience through Social Media



Website: www.pmi.or.id



Facebook: @palangmerah



Twitter: @palangmerah



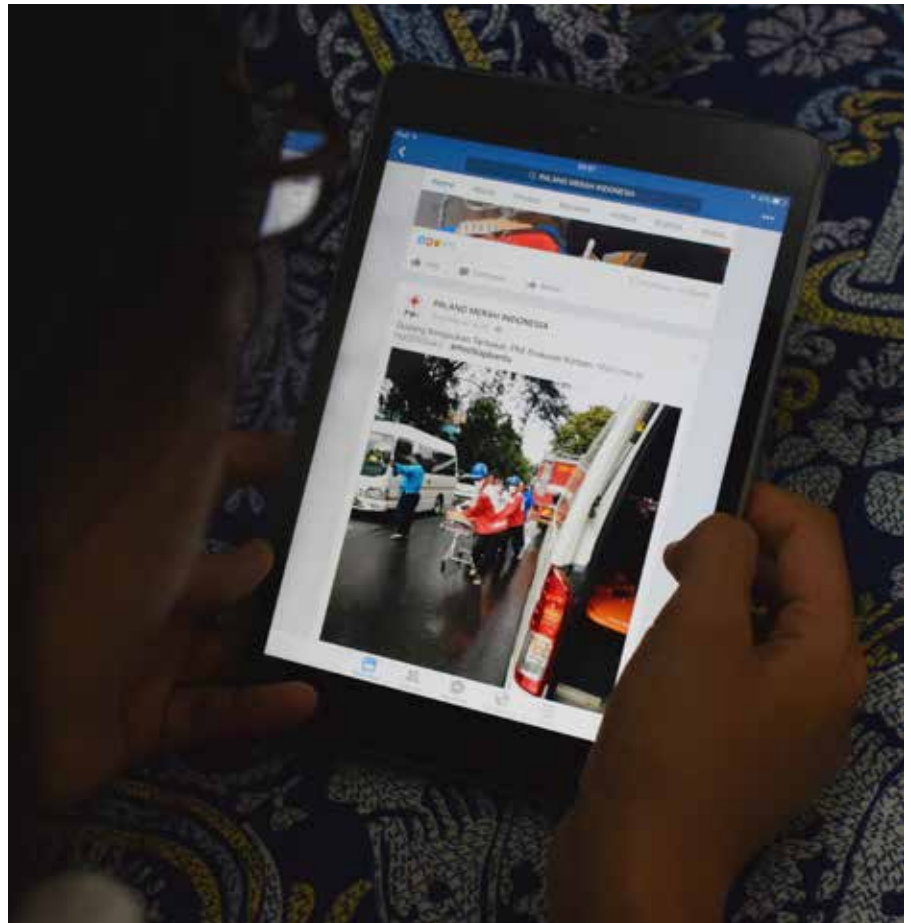
Youtube: palangmerahindonesia



Instagram: palangmerah_indonesia

Social media has gradually become an effective method of communicating messages. This has increasingly become the case as Indonesia has been ranked as the largest social media user in the world. Given this trend, the Indonesian Red Cross (PMI) has jumped on the bandwagon.

They created a fan page on Facebook to proliferate the spirit of disaster resilience. As a result, it has increased the effectiveness of socializing activities and encouraged disaster preparedness in disaster risk reduction efforts. This is demonstrated in an posting by the PMI admin on the fan page on October 13, 2016, which attracted a lot of public attention:



Facebook is one of social media that most accessed by public.
photo: Nasrullah for PMI

“Good morning disaster risk reduction..

This posting is to remind you all that we should prepare ourselves before a disaster strikes. One of the major disasters that have opened Indonesia’s paradigm on this issue is the tsunami in 2004. Aside from the massive destruction and casualties that it inflicted, it was also the starting point of the revival of disaster risk reduction paradigm in Indonesia. It was realized that multi stakeholder cooperation was needed in disaster management, especially in developing a disaster risk reduction culture. #IDDR2016 “

This post was accompanied with photographs of disaster risk reduction activities, such as mangrove planting, school disaster preparedness socialization, and others. It received 1,000 likes and was shared 93 times. Furthermore, it also received a number of comments, like the following:

Argo Watsann

Watch out for the leeches! I wish you success and health in your work. Regards to the Indonesian Red Cross.

Darmadji Prawirasetia

A disaster risk management plan must be built, so that the measures and phases of disaster risk reduction are clear and can be measured.

Zulfa Ramadianata

Keep up the spirit for the Youth Red Cross

Ramdhan Breker Den

Keep up the spirit, PMI

On average, most posts on the PMI Facebook page received many comments from the public. Initially, the “palangmerah” (redcross) account, which was verified by Facebook, started out as an ordinary Facebook profile in 2006. Later on, they changed it to an official fan page, so that it would be more professional. As of November 2016, PMI had recorded 257,145 Facebook fans, with a total of 49,000 people having interacted with the page in the form of likes, comments, shares, clicks to the post (typically known as total engagement).

In addition to using Facebook, PMI also uses Twitter. They believed that they could use this social media to provide short pieces of information to their followers, which must be accompanied with a link to see more information. PMI’s Twitter handle was set up in 2009, named “palangmerah” and has since garnered 796,280 followers. Furthermore, as of the second week of November 2016, it has garnered 696,800 total impressions.

In addition to the two social media outlets above, PMI has also been active in using YouTube and Instagram. The Indonesia Red Cross started to use YouTube in 2011 under the account name “Palang Merah Indonesia” and has

amassed 747 subscribers with a total number of viewers of 198,351 recorded in November 2016. Further, PMI began to use Instagram since 2016 with an account name of “palangmerah_indonesia” and currently has 13,600 followers.

With its active involvement in social media, PMI expects that its campaigns could reach even more audiences compared to traditional print media.

It is true that not all messages could be communicated through social media, such as Facebook, Twitter, or Instagram. While these outlets are inexpensive and are able to spread information quickly, social media’s weakness lay in the limited volume of information it is able to convey. In order to overcome this weakness, PMI also built a website that serves as a source of more comprehensive information.

To reach the right audience, PMI has a structured strategy in deciding the contents of their communications through social media. The main function of social media is to convey information, as well as a means of periodical publication, campaigning, dissemination, promotion and advocacy. Further, if there is a sudden emergency, such as a disaster, that requires immediate response, social media could be a valid and quick source of information, both internally within in PMI and for the general public.

Another information function of social media is to make periodical

announcements of updates on PMI's activities, such as health socializations, disaster preparedness activities, blood donation events, etc. In terms of the publication functions, examples include publicizing infographics, posters, videos, and others. For campaigning, social media can be used during PMI anniversaries and other international days, such as Red Cross Day (May 8), PMI's anniversary (September 17), PMI Volunteer Day, Disaster Risk Reduction Day, AIDS Day, etc.

The specialized function of PMI's social media is to disseminate the seven fundamental principles of the Red Cross to the general public. For example, it can be used to educate the public on how to use the symbols correctly, behaviors consistent with the seven principles of the Red Cross, etc. PMI's social media is also used as a reminder function, such as to remind all PMI staff on duty about a certain task, or to publicize a guidance letter or circular. For example, during a disaster in Garut, PMI uploaded a message to remind all field officers to be careful, keep healthy, and not to forget to wear their Red Cross attire. Another example is during the campaigning season, PMI's internal group uploaded a guidance on the sets of ethics that need to be followed in accordance with the Red Cross principles.

The final function of PMI's social media is advocacy. One of the biggest issues that PMI has continually advocates is the Red Cross law, which they advocate to the general public and relevant



stakeholders, such as the parliament, the Parliament Leader, the President and Vice President.

Social media has enabled PMI to be able to directly mention, or address stakeholder to get an immediate response or attention. Additionally, through social media, any issue that is being advocated can be turned into a trending topic and disseminated to the general public in order to gain support. Mentioning and tagging public figures, such as heads of local government, the Regional Disaster Management Agency and celebrities, on PMI advocacy



issues is an effort to fulfill PMI's social advocacy functions.

In the beginning, when it was under the division of dissemination, PMI's social media was used to maintain internal relationships in PMI amongst the volunteers and staff members across the country. Then, in 2013, to meet the needs of disseminating information, social media was moved under the public relationship division. As a result, PMI's social media became more regimented and emphasis was put on information and external relation to the wider public. Interaction



with followers was also increased to improve interactive communications. As such, the main focus was to be able to respond to comments and answer messages through the chat boards as well as providing updates on the Red Cross.

An example of real interaction is the request for blood. Anyone who is in need of blood can mention or message PMI's account, and then the admin will respond immediately. The first step is to inform the local Blood Transfusion Unit (BTU) and check if the blood stock is sufficient. Second, the admin will



respond to the inquirer, who will then follow up directly to the BTU.

As a whole, PMI's social media acts as a bridge with its audience. As stated by Aulia Arriani, Head of Public Relations at PMI Headquarters, "So far our social media has three function: first, to disseminate information; secondly, to promote out publications; and third, to engage with the public. There is also a dissemination and fundraising function, although it is still new in the transparency level. In the future, PMI will try to maximize all of these functions and its utilization in the

communications strategy to reach out to the wider public."

Therefore, PMI needs to address the issue of managing social media within its own organization, both at the branches and regional levels. The PMI offices in the branches and regional levels are also quite keen on using social media in their communications strategies, and they have also started their own accounts. This, in turn, has created new challenges in managing their content and accounts. With so many accounts held by PMI regional and branch offices, it can often be confusing for the public. To address this, Aulia Arriani states, "We created an online media technical guidebook, which outlines how to use social media at PMI. One of the guidelines encourages them to have a uniform account name, so that it would appear to be more corporate. This guideline helps the regional offices to standardize their account names."

During a disaster emergency, it is crucial that PMI's social media conveys valid, accurate and timely information from the field. Field officers can quickly relay material to the PMI social media administrator, who will then check the content before uploading the information.

Furthermore, the kind of information that is typically conveyed is the most recent information at the disaster site. Information on what the victims of a disaster need can be important for many different stakeholders and the general public, who want to know the

situation at the disaster site. This will help ensure that humanitarian aid and disaster response from the community is better targeted.

Although the Public Relations unit of PMI stated that the fastest way of monitoring information during a disaster is through group chats, such as group inbox messaging in Facebook or through Whatsapp, social media continues to be the main gateway of disseminating information to the public. During the post-disaster phase, information dissemination is more directed at informing the activities that PMI is carrying out, the humanitarian aid from the community and updates from the impacted location.

Tri Silvanto, a follower of PMI's Facebook fanpage and a humanitarian worker at an international NGO, stated that the information on disasters posted on this account provides sufficient information during a disaster. "I usually get information on a disaster from the Agency for Meteorological, Climatological and Geophysics (BMKG), especially for an earthquake. But if the disaster is larger, then I find more detailed information on PMI's and BNPB's (National Agency for Disaster Management) page, such as information on what type of humanitarian assistance is needed and where to channel it," he said. He added that PMI need to emphasize on conveying information in real time during a disaster.

Nonetheless, in order to improve disaster preparedness in the community,

campaigning through social media is the key. As reflected in the snapshot of a Facebook post above, PMI's social media plays the main role in disseminating disaster preparedness information. PMI continues to post information through infographics, photographs and activities. Recently, PMI launched a disaster preparedness application that can be accessed for free.

If the positive response of PMI's followers on social media aptly reflects the public's enthusiasm, then with proper content and messaging that is regular and sustainable, PMI's social media outlets can become a mobilizer to realize a disaster prepared society.



The Junior Red Cross volunteer is conducting peer campaign on disaster risk reduction
Photo: PMI.



STORY 2

Developing School Based Disaster Preparedness

- ✓ Knowledge, skill, attitude
- ✓ School policy
- ✓ Disaster response plan
- ✓ Early warning system
- ✓ The Junior Red Cross (PMR) as model, supporter, and peer educator of Risk Reduction Effort

In Indonesia, earthquakes and tsunamis can occur any time, given its geography that is located in the collision zone of three continental plates. These two types of geological disasters are considered among the deadliest, in addition to volcanic eruptions. Despite this, however, earthquakes, tsunamis, and volcanic eruptions can be mitigated. With preparation and preparedness, the number of casualties can be reduced and avoided. Thus, although earthquakes, tsunamis, and volcanic eruptions are natural occurrences, the response to these disasters have everything to do with knowledge and culture.

Disaster preparedness is the key to mitigating disasters. People should not only be taught about it, but also trained from an early age. This is what Kindergarten (TK) Karangturi in Semarang was trying to achieve during an earthquake simulation, as reported by [suaramerdeka.com](http://www.suaramerdeka.com) on March 20, 2010.

“Okay, everyone turn into a mouse now!” instructed a teacher to the Karangturi kindergarten students when they felt a vibration and heard the siren, signaling an earthquake. The children immediately ducked and crawled underneath their desks. Once the vibrations subsided, the teacher guided the children out of the classroom to the safe zone in the school yard. The teacher’s simple instruction was quickly understood by the students, which signaled them to take the appropriate action. The teacher’s knowledge and skills was an important factor in increasing the students’ understanding about emergency preparedness at school.

Hari Santoso, the Executive Director of Karangturi Semarang Kindergarten and Primary School, said that the disaster simulation was conducted to prepare the school for emergencies or disasters that could happen at any time. With increased preparedness, it was expected that they could reduce

potentially larger losses or impacts.

“Although the school is only a two-storey building, we think that it is important to conduct these kinds of disaster simulations, whether it is for an earthquake or a fire. Evacuation simulations and disaster response is particularly important, given that we live in Semarang—a coastal city that is a disaster prone area. In that way, if a disasters happens, at least we know what procedures need to be done,” he explained.¹

In addition to being vulnerable to geological disasters, Indonesia is also quite vulnerable to hydro-meteorological disasters and human-made disasters such as industrial disasters or fires. Not only do these disasters cause loss of life and psychological impacts for the survivors, disasters can also hamper national development due to loss of property and halting of economic activities.

¹ <http://www.suaramerdeka.com/v1/index.php/read/news/2010/03/10/48991/Ribuan-Siswa-TK-dan-SD-Selamatkan-Diridari-Gempa>

To prevent loss of life and reduce the impact on the economy, the Ministry of National Education (Mendiknas) of the Republic of Indonesia has asked local leaders to pay attention to disaster prevention by mainstreaming disaster risk reduction in schools as outlined in Circular Letter Mendiknas No. 70a / MPN / SE / 2010.

At the implementation level, the program was carried out in a variety of forms, including training of trainers, creating guidance material, and setting up schools-based disaster preparedness pilot projects in the region. Although the policy exists at the national level, program implementation relies heavily on local government policies, which interacts directly with schools, particularly those located in disaster-prone areas.

Recognizing that program implementation has been very limited, the Indonesian Red Cross (PMI) sought to promote national mainstreaming of disaster preparedness in schools by developing the School-based Disaster Preparedness (SSB) program. The SSB program uses five parameters, namely the improvement of knowledge, skills and attitudes; the improvement of policies; the creation of emergency response plans; creating early warning systems; and utilizing PMR (Youth Red Cross) as role models, advocates and peer educators.

Facilitators convey knowledge about disasters, their impacts and risks using various types of media. Meanwhile, students' skills are improved by doing simple exercises, such as using sand to demonstrate landslides and floods. Students are also strongly encouraged to put trash in trash cans that as simple but fundamental behaviors to help them understand the surrounding environment. They are then encouraged to share their training experiences with friends and family.

Meanwhile, to encourage the creation of school policies to support risk mitigation and preparedness, the schools issued regulations on trash and planting trees, as well as set up the evacuation route instructions. The emergency response plan that was authorized by school officials was created by involving all elements of the school, including teachers, employees, students and the surrounding community. This plan, which was formalized in the form of an SOP (standard operating procedures), was agreed upon and understood collectively by all parties.

An early warning system was created by using available equipment, such as loudspeakers, a bell, a slit bamboo drum and other traditional instruments. A special officer was assigned to sound the early warning in case of an emergency. Students who were PMR members were expected to be role models, advocates and peer educators to their fellow

students. Furthermore, students were given simple tasks to do at school and at home. For example, they were asked to convey information about waste segregation to their friends and family. PMR, which had become an extra-curricular activity at school under the guidance of PMI, possess the concepts and guidelines for the development of the adolescent character in the humanitarian field.

To support these types of national activities, the PMI in Central Java sought to develop SSB based on the above parameters. Moreover, a mapping exercise conducted by the National Disaster Management Agency (BNPB) in 2011 indicates that out of 31,438 schools (from kindergarten to high school) in Central Java, 8,225 schools are considered vulnerable to natural disasters. Specifically, this figure included 1,291 kindergartens, 150 special education schools, 1,972 primary schools, 2,923 junior high schools, 888 senior high schools, and 1,000 vocational schools.²

As a result, the Central Java PMI chose to develop SSB by collaborating with PMRs in 853 primary schools/Islamic primary schools, 1,492 middle schools/Islamic middle schools, and 1,175 high schools/vocational schools/Islamic high schools. The activities included doing preparedness and risk mitigation exercises that were carried out regularly every week. The development of SSB in

² http://geospasial.bnpb.go.id/wp-content/uploads/2011/04/2011-02-10_Peta_Jumlah_Sekolah2.pdf



PMI's facilitator are coaching the students in East Nusa Tenggara how to play Snakes and Ladders game.

Photo: PMI

Central Java was done in cooperation with the German Red Cross, Danish Red Cross, the American Red Cross, and Zurich Insurance Indonesia. In addition, other organizations that were involved in the activities included PLAN Indonesia, the Save the Children, and LIPI.

In order to improve disaster knowledge of volunteers and teachers, PMI carried out facilitator trainings, socialization and routine exercises, distribution of media (posters, stickers, pins and books), and routine simulations at the schools.

In general, the SSB program aimed to improve the resilience of schools in facing disaster impacts and risks. In particular, this included the creation of a healthy school environment and disaster preparedness knowledge, improving disaster preparedness behavior among the school community (students, teachers, principals,



The students are learning to create maps of the school environment in order to know where the evacuation path is.
Photo: PMI

and school boards), and the school community having the capacity and independence to carry out efforts in disaster risk mitigation and climate change adaptation.

Gradually, the knowledge of students who regularly participated in PMR routine exercises began to increase in terms of disaster prevention. For example, students in Kudus and Grobogan—two areas that are often affected by flooding, began to understand the importance of disposing trash in the right place. In Kebumen and Cilacap, which are prone to earthquakes

and tsunamis, the students learned to recognize that receding water is the sign of an impending tsunami. They were also trained on following the evacuation route that was set up in the school or surrounding neighborhood. In Magelang, Klaten, Boyolali, and Tegal Districts, which are located in the hazard zone of volcanic eruption, the students and the community learned to recognize the early warning signs of an impending volcanic eruption, such as the emergence of gas and small landslides.

The surrounding communities and family members were given socializations about disaster preparedness. Nuriyah, a housewife in Binangun Village, Widarapayung, Cilacap who had previously experienced an earthquake and tsunami, said that the sound of sirens and shouts reminded her about when all the residents panicked when the tsunami hit the beach in the village. “But with this training, we will always remember and be alert about the threat of a tsunami,” she said, while attending a simulation in 2010.

Since the program was launched in 2009, a number of PMI branch offices in Central Java started to work closely with the local government through the Regional Disaster Management Agency (BPBD) and education departments to implement disaster risk mitigation trainings and SSB facilitator trainings. Training sessions for school teachers were carried out in Tegal, Banjarnegara, Klaten, Jepara, Purbalingga, and Semarang.

SSB parameters were developed according to the needs of each school. For example, the Youth Red Cross (PMR) at Public High School (SMAN) 1 Gubug, Grobogan District updated their Hazard, Vulnerability, Risk and Capacity (HVRC) Map, evacuation routes and safe place on February 8, 2015. The school was located in flooding prone area.

Karsan, a trainer for the PMR at SMAN 1 Grobogan, explained that members of PMR wanted to make their schools safe and prepared for disasters. "The PMR members' focus now is to make SMAN 1 Gubug a pilot school for School-based Disaster Preparedness," he explained.

Farida, a member of the PMR echoed her trainer's comments. "We want our school to become a disaster prepared school independently and always coordinate with the PMI in Grobogan. For me, disasters are not only caused by natural factors, but also by humans. Little things could become hazards, such as garbage, disease, fires and others," she said.

As a first step, the facilitators, who were alumni of the school, updated the training materials and trained the school on the steps towards school-based disaster preparedness and the HVRC map for SMAN 1 Gubug. PMR members were invited to tour the school, observe, record and hold discussions about the school environment. "From these results, we can map the hazards, vulnerability, risk and capacity at the school," said Ari Arwani, an alumni and member of the Volunteer Corps (KSR) of the Grobogan PMI.

Ari added that this HVRC map would be disseminated to the public school and printed in large size replace the previous map. The map would be displayed at strategic places. "As an alumnus of the school, I'm very happy and ready to support this program. SMAN 1 Gubug is a school that has implemented the SSB program since 2010," he explained.

PMI's involvement in the SSB program was prompted by the mandate given to them by the government to carry out disaster management activities, starting from before, during and after a disaster. It was amplified through an MOU between PMI and the Minister of Education and Culture (No. 1 / II / KB / 2012 - Number: 031 / MOU PMI-Kemendikbud / II / 2012) and the circular letter of Mediknas No. 70.a / MPN / SE2010 on Mainstreaming Disaster Risk Reduction in Schools.

It was clear that education coupled with preparedness training since an early age at school will have an

impact in the future. In addition to implementing the SSB in Central Java, PMI offices in other provinces have also started to develop SSB, such as in Aceh, Lampung, North Sumatra, Bengkulu, Kalimantan, Sulawesi, NTB, NTT, Ambon, Jakarta, West Java, East Java, Yogyakarta, Bali, and Papua. It typically implemented through cooperation with non-governmental organizations, the government, or coaching local PMRs independently.

STORY 3

The Cash Transfer Program that Inspired Hope in Sinabung

- ✓ Beneficiaries: 300 HH
- ✓ The effectiveness of aid delivery mechanism
- ✓ Local economy empowerment
- ✓ The beneficiaries can choose the type of aids based on their needs



One of Mount Sinabung's survivor receives a voucher from PMI. She can exchange it for woodworking equipment.
Photo: PMI

Saturday, May 22, 2016. Mount Sinabung in Karo District, North Sumatra erupted yet once again. The volcano, which has an elevation of 2,451 meters above sea level, spewed hot clouds and ash, demolishing already evacuated nearby villages. Unfortunately, there had been

nine villagers who were working in the field and were unable to escape the hot ash in time. Six of them were killed instantly, while one person died in the hospital and two people sustained serious wounds.

These casualties added to the hardship that local communities endured due to the eruptions of Mt. Sinabung, which had recently become active in the past six months. After having been dormant for over a thousand years, this volcano abruptly and violently erupted in August

2010. Since then, it has been erupting several times. There would be periods of time where nothing was happening, but then it would suddenly erupt repeatedly. Each of these episodes forced thousands of local residents to evacuate, and eventually relocate permanently.

Since the first eruption in 2010, the Indonesian Red Cross, or Palang Merah Indonesia (PMI), has mobilized its teams to provide humanitarian relief. In addition to providing response support, PMI also carried out a number of programs to help alleviate the plight of the affected communities from 33 villages in Karo District. One of the villages that sustained the most damage was Sigarang Garang, which is situated just five kilometers from the volcano.

During the big eruption in November 2013, Sigarang Garang Village was once again the most severely impacted village. Hot ash demolished hundreds of homes and agricultural fields, which were the most valuable assets for many of these communities. Economic activity essentially came to a grinding halt and was crippled due to the lack of assets and production equipment. As the community's worldly possessions were swept away by the hot clouds and gas, so were their hopes.

Fortunately, their spirits remained. In collaboration with Red Cross Australia, PMI launched a cash transfer program to help these communities. Through this program, PMI distributed vouchers with a value of 300,000 Rupiahs to the

affected villagers, which they could then redeemed with carpentry tools to rebuild their houses.

This is the first time that a cash transfer scheme was employed in a humanitarian mission. And the selected site to pilot this program was none other than Sigarang Garang Village, located in Karo District, North Sumatra. All 397 households in this village would benefit from this program.

After conducting surveys in January and March 2014, the team moved forward with implementation during their visit to the village in April. At the time, Junedi Silalahi, the Coordinator of the Karo District Command Post, along with his team, visited the village office to coordinate with village officials.

The first step in the program was data collection, including data on village population, number of households, and the names of residents impacted by the eruption. The team collected detailed data on each household in the village. "We collected data on each individual resident," said Junedi. The process of collecting the community's personal information was similar to that of obtaining a resident's identification card, including submitting biographic data and photos.

Based on data collected from the community, the team found that 367 households were registered to participate in the program. The next step was program socialization. During this phase, PMI explained to

the community what the cash transfer program entailed, including the benefits, goals and mechanisms of the program. Once they confirmed that the community understood the program, PMI distributed vouchers to each family that was registered.

"We then created a schedule for voucher redemption," said Junedi. Tia Kurniawan, a staff member of the disaster response division at PMI Headquarters who at the time worked with the program, explained that the vouchers could only be redeemed at selected shops that sold carpentry materials. The Junior Red Cross, or Palang Merah Remaja (PMR), which is engaged with students in primary, middle and high school, was the one who suggested that the vouchers be redeemed for construction equipment. The believed that this was an important need for the community.

It was not a hard argument to make. The houses and fields that were the main assets for residents of Sigarang Garang Village had been destroyed. Before they could rebuild the local economy, they would first need to rebuild their homes. Moreover, at that time, Mt. Sinabang was showing periods inactivity. Therefore, with carpentry tools, the community could start rebuilding their homes and would no longer have to worry about the capital required to start rebuilding their lives.

"The residents are given some flexibility in choosing what types of tools they need," said Tia. "It's not like they

receive a package of tools that cannot be changed,” she added. The package consists of a set of carpentry tools that PMI selected, including a hoe, a shovel, a hammer, a machete, a saw, and a crowbar. It also included roofing nails and standard size nails, each wrapped in a one-kilogram pouch.

When monetized, this set of tools are valued at 282,000 Rupiahs, while the voucher’s value is 300,000 Rupiahs. Although, PMI cannot provide cash in lieu of the package, they also do not pay for any extra expense of each family. Recipients may redeem the voucher for tools that are over 300,000 Rupiahs in value, but they must pay for the extra cost. Therefore, they are encouraged to redeem the voucher based on what they really need, which would maximize the benefit.

PMI also designed a convenient voucher redemption process. Beneficiaries are asked to come to the selected shops at the designated time. Once there, they give their vouchers to a PMI staff member, who then scans the voucher. They are free to pick out whatever tools they need, only within the limits of the voucher’s value of 300,000 Rupiahs. Any extra cost must come out of their own pockets, as every family receives the same voucher value.

Although the cash transfer program was implemented in a disaster-stricken area, PMI was careful to choose the right store for it. They guaranteed that each tool provided in the store was of the

best quality and comparable to brand name tools. This guarantee was echoed by the store owner who collaborated with PMI, whose motto is “a drop of your blood, a life for others”.

Telge Bora Sembiring recognized how beneficial this cash transfer program has been for him and other residents of Sigarang Garang Village. It is easy to see why. The program is quite flexible for many community members. “We can choose whatever tools we need, whether it is a hoe or a machete. It makes things much easier,” he explained after receiving a voucher from PMI. Additionally, he said, there is a wider variety of choices that they can choose from, depending on their needs.

“If a machete is my priority, that’s what I will choose. For someone else, it might be a hoe, while others might need a crowbar,” said Telge. He Upon receiving his package, Telge expressed his gratitude to PMI, while also representing the appreciation of the rest of the villagers of Sigarang Garang who benefited from this program. As they entered the store to trade in their vouchers, it was clear that they were excited and happy. They left with a new sense of hope.

Albeit quite simple and the cash amount fairly small at only 300,000 Rupiahs per household, this cash transfer program was incredibly beneficial and helpful to the recipients. Through this program, PMI has helped the villagers of Sigarang Garang to get back on their feet. They

were able to rebuild their homes, by fixing their roofs, windows and walls that had been damaged and destroyed by the carnage of Sinabung. After the homes were rebuilt, they turned to the fields with their new farming tools to revive a devastated land.

Moreover, the cash transfer program has also gradually revitalized the village’s economy that had been temporarily paralyzed. With only a little over 100 million Rupiahs in their budget, PMI was able to successfully implement this program according to plan and fulfill the targets. The success is evident in the appreciation of the villagers who really felt how beneficial the program has been for them.

“We thank PMI for the hoe, shovel, nails, and machetes. All of these have been very helpful for us,” said Bahteria Sembiring, who was the village secretary two years ago. He also explained how the hoe and shovel could be used for other purposes. “When the ash from Sinabung that covers the house gets too thick, we can use the hoe and shovel to scrape it off,” he added.

Subur Tambun, who at the time was the Head of the Regional Disaster Management Agency (BPBD) of Karo District, is also grateful to PMI. He thanks them not only for the success of the cash transfer program, but for their overall support in the area since the volcano began to erupt. He stated that PMI had been a reliable partner of the agency. PMI always deployed capable



PMI's volunteer is verifying the beneficiaries' data.

Photo: PMI

teams to the field who are not only experienced in humanitarian missions, but also sincere in their work.

This is evident when PMI was on hand to assist residents from nine villages and one hamlet who had been given permission by the government to return to their homes in March 2014. PMI's support came in the form of the cash transfer program, which they started in April. "During the initial phase, PMI provided aid to the villagers of Sigarang

Garang," he added. "Then they were given the vouchers to trade in with tools," he said. All of these have greatly helped the community members to bounce back from the string of disasters that affected their area.



CBAT's Experience in Waste Management to Reap Benefits

- ✓ Four Waste Management Units (WMU)
- ✓ Campaign of sorting organic and inorganic waste
- ✓ River cleaning

Waste disposal has long been a problem for many countries in Indonesia, including Ampenan Selatan Village, in Mataram City, West Nusa Tenggara and Cibinong in Bogor District, West Java. Low awareness leads to littering and piling up of waste in the rivers. As a result, the rivers become narrower and shallower, leading to risk of flooding. Following the formation of the Community-Based Action Team, or CBAT, what was previously a big problem in Ampenan Selatan and Cibinong villages, is now beneficial.

“In Ampenan Selatan, our problem was that people would just throw their trash in the river. To raise the community’s awareness, we employed a rather different approach, that is by encouraging them to think about themselves first, starting from their own homes and yards,” said Ramdan Nursaman, a member of the CBAT of PMI (Indonesian Red Cross) in Ampenan Selatan.

In early 2016, Ramdan and 30 other community members of Ampenan Selatan were trained to become CBAT members. Most of the members are

youth, religious youth activists, female community health cadres, heads of community units, and community leaders. This team was part of the Integrated Community-based Disaster Risk Reduction Program or ICBRR, that was initiated by the Indonesian Red Cross and American Red Cross. The aim of this program is to reduce disaster risks caused by climate change by strengthening the capacities of the local community.

In Mataram, a pilot project that was initiated by the ICBRR program is municipal waste management to reduce flooding risks. The Indonesian and American Red Cross, in collaboration with the city government and community of Mataram then constructed a Waste Management Unit (WMU). PMI constructed a compost house facility, procured production machines, and trained the community on the production and post-production processes. The government of Mataram city contributed to this effort by allocating 500 m² in land and infrastructure, including fences and a studying hut. It is estimated that this facility could process organic waste into

compost, in amounts of up to 1,000 tons of organic waste from 1,000 households.

Although the WMU has been constructed, the PMI CBAT still has a long way to go to raise the awareness of the community to reduce littering through the 3R program: reduce, reuse and recycle. The PMI CBAT realized that the community has not quite synergized with the local government. The WMU is a facility, but whether it is beneficial is entirely up to the community. Its success also depends on the extent to which the community understands the urgency of this problem that could lead to positive actions. Because they considered that this awareness was still lacking, the PMI CBAT chose to focus the program on raising awareness through a simple action, that is by raising the awareness of the individual and smallest unit of community, the family.

One of the main obstacles encountered in this program was the difficulty in gathering the community members at the same time due to their daily activities. Therefore, the team conducted the socialization by going door to door bringing flipcharts of the



Mataram City Sanitation Department officials and PMI's volunteers are sorting the waste to be recycled into organic fertilizer.
Photo: Nasrullah for PMI

necessary information. The aim was to raise awareness to dispose of waste in the right way, either by sorting it into the different receptacles, or reusing it. The CBAT members tried to visit the homes at an appropriate time so that they can convey the information in a relaxed setting. They talked about the dangers of not disposing of waste

properly and what they can do to be more effective. They also explained that preventing disasters that are caused by waste can begin with a few simple steps, such as sorting household trash and using it to produce something new, such as creating compost from organic waste.

It was during these informal meetings did they identify the existing environmental problems and try to find the solutions. Some of the identified problems, such as clogged drainage system, were then followed up by collaborative efforts to clean up the drainage. “We showed the community that solving the issue of waste disposal can begin by picking up a

hoe together,” said Ramdan Nursaman. Gradually, the CBAT of Ampenan Selatan was able to raise the understanding and awareness of the community on the importance of sorting and managing household waste to create something useful out of it. Currently, the team has started a community garden that is planted with chilies, tomatoes and other vegetables and taking advantage of the compost that was produced from the organic waste. The next step for them is to encourage residents to start their own vegetable gardens in their yards as well as on communal land.

Success in Cibinong

Just like in Ampenan Selatan, a Disaster Risk Reduction and Climate Change Adaptation program is currently being implemented in Cibinong, Bogor District. This program was carried out in five villages, namely Sukahati, Pondok Rajeg, Karadenan, Kedung Waringin, and Waringin Jaya. However, it differs from Ampenan Selatan in that implementation was carried out quite quickly. Each month, there were routine activities, namely creating biopores, vertical gardens, sorting trash, preparedness campaigns and community service campaigns.

The PMI CBAT of Cibinong Sub-district set a target of digging 700 biopore pits in each village. It was spurred by the issue of water shortage that the Cibinong communities experienced last year. This sub-district, which is considered an urban area, lacks absorption due to heavy concrete around the area. Because of this, the community decided to create biopore pits. PMI distributed



Officers of Solid Waste Treatment Unit Mataram Municipal and PMI's volunteers are using the machine to produce the organic fertilizer.

Photo: Nasrullah for PMI

5 biopore machines and 10 hand-held tools for making the biopore pits to each village.

A biopore is a vertical, cylindrical hole drilled into the ground as a method of absorbing water to order to prevent

the pooling of water and increasing the absorption capacity of the soil. The water absorption capacity is increased by digging a hole in the ground and filling it up with organic waste to create compost. The organic waste will feed the soil fauna and create pores within

the soil. This simple technology is why it is called biopore.

Merry Anggraini, a staff member of the Disaster Risk Reduction-Climate Change Adaptation (DRR-CCA) program, stated, "The strategy of the CBAT in Cibinong is to create 100 biopore pits in one month. If each household has at least two biopore pits in their yard, then there must 50 houses that have biopore pits." Technically, the CBAT and the RT (neighborhood unit) and RW (community unit) organized this activity. Most of the funds were raised from within the community, such as funds to purchase the biopore pipes and the cost to cut the pipes. Moreover, the digging of the pits were conducted collectively.

Just like the biopore pits were built in a short time, the vertical garden was also carried out swiftly. The team's target was to be able to create 15 vertical gardens in public and social facilities, such as in primary schools, kindergartens, village offices, and community health centers. At each vertical garden, there were between 20 and 30 plants grown inside used plastic bottles that were filled with soil and organic fertilizer, both of which were produced from the community's waste management system. The types of plants were adjusted according to the needs of that specific locality. For instance, in residential areas, they planted chilies, tomatoes and other vegetables that the local community could consume. Meanwhile, at public facilities, such as schools and offices, they planted more decorative types of plants. The seeds of

plants that are successfully cultivated in one garden are spread to other gardens to accelerate the proliferation of plants across the area.

Another activity that the team implemented was the garbage sorting campaign, which they socialized widely in the community. This issue was closely related to the flooding in Jakarta, which is usually caused by issues in the Ciliwung River in Bogor. Coincidentally, the Ciliwung River passes through all five of these villages. Therefore, PMI's flooding prevention program focused on waste management in these five villages that are located along the river.

Nuraini, a member of the CBAT of Pondok Rajeg village, enthusiastically explained her team's efforts in this campaign. "First, we must sort out between wet and dry trash. The wet trash is compiled, put into a processer machine and then strained. The strained results are mixed with cow or goat dung. After the mixture is fermented for one week, it will turn into fertilizer. Meanwhile, we can use the dry trash to create various crafts, such as hand bags, tablecloths, key chains, and other things," she said.

The waste is sorted and managed at the Kedung Waringin WMU. Organic waste is processed into compost, which is then distributed to the various vertical gardens. Meanwhile, the inorganic waste, such as plastic bottles, are cut in half and poked holes in them to make a planting pot.

The waste sorting campaign was not only introduced amongst the CBAT members, but also to the wider community. The team also targeted students and local companies. It was expected that these groups would gain a better understanding and be able to properly sort between the different types of trash in their environments and participate in these programs.

A number of villages also took part in the program. A WMU in Sukahati Bogor Village, which was managed by the PMI CBAT was designed to process organic waste. This unit was used as a place to produce compost, manure and other planting media, so that it can be sold to agricultural shops as well as fertilizer vendors. Meanwhile, the inorganic waste is processed by the PMI CBAT in Pondok Rajeg.

In addition to managing their own waste, another activity that the PMI CBAT does that is just as important is community service to clean that river banks of Ciliwung. This was done on Sunday, April 23, 2016. This was part of other activities convened to celebrate Earth Day on April 22, 2016. The PMI CBAT of Bogor also held a "Walking Along Ciliwung", whereby local residents cleaned the area, spread 10,000 fish seedlings in the river, and plant trees along the banks.

Although the CBAT has carried out real and regular activities, getting all elements of the community to be involved remains to be a great challenge. The main obstacle is the lack of awareness, as has been experienced

by CBAT in other regions. Learning how to properly manage waste in order to prevent disasters has yet to become a widespread culture.

Nonetheless, these obstacles did not deter the PMI CBAT. They continue to promote waste management and its utilization to the community with all their efforts and attention. The main emphasis is to deter the community from littering, continue sorting trash, and develop the ability to utilize it. Each village continues to implement the program's activities.

The dangers of litter will exist everywhere. However, as long as the community has awareness of these dangers and develop positive habits to manage waste, not only will they avoid the dangers of litter, but they can also reap the benefits. As the CBAT of Ampenan Selatan has demonstrated, starting small at the family level in the community can lead to big things.



The Pioneer of Verticulture in the Dense Communities of Bengawan Solo

- ✓ Verticulture Organic vegetable garden
- ✓ Gardening on limited land

The 48-year-old woman with glasses from Sewu Village in Jebres Sub-district of Surakarta City is named Ester Murtiningsih. The surrounding community knows her better as the pioneer of verticulture, a cultivating agriculture system that is placed vertically in a small space. This technique takes advantage of limited space for planting, both indoors and outdoors.

Ester began using this technique three years ago, after participating in a program on relocation of settlements on the Bengawan Solo River banks in 2013. This is a program that the government of Surakarta City initiated in 2008 following a severe flooding in 2007. It was only five years after the beginning of the program did Ester and her family became interested in it.

“Gardening had always been my hobby since we lived near the river bank. Because there was a lot of land available, I was able to grow my plants directly in the ground,” reminisced this mother of one. “The only thing was that the river bank got flooded frequently, so I’ve had to replenish my garden many

times,” she said. Ester stated that her fondness of gardening stemmed from her mother’s influence. She remembers that when she a child, she and her mother would go to their garden to pick the bok choy for that day’s serving of vegetables.

“It was exciting to pick the vegetables from the garden. We planted our own and ate our own vegetables,” she reminisced happily. She also added that back then, it was difficult to get water cress in the market. So, when her mother was able to get it from the market, Ester would take a few stems and plant them in small puddles near the river bank.

However, ever since the relocation program started, Ester and thousands of other residents had to move to a very densely populated area with almost no yard space. She and her family now live in a narrow alleyway where the houses are located in close proximity to each other. Space is so limited that there is only a one-meter distance between her front door and front gate. Nonetheless, this small space is where Ester developed

her verticulture garden. “It was hot and dry, so I had to think of a way where I could continue to plant my garden. Finally, I connected with a Facebook community that was concerned with gardening in limited spaces,” she said. From this social media community, Ester learned about ways she could continue to channel her gardening hobby. Together with her 25-year-old son, David, she created a PVC pipe installation for her garden. “David created all this,” Ester said proudly pointing to the terracing of pipes that held all sorts of vegetable plants. In addition to her pipe garden, Ester also took advantage of her gate to place dozens of polybags for other types of vegetables, such as chilies and bok choy.

Ester acknowledges that her version of verticulture is not a hydroponic one, since she still uses soil as the main medium. Nonetheless, it is her conviction that this type of vertical gardening is very much appropriate for places with limited land space. “For instance, in a traditional garden, a space with one meter might only be able to accommodate five plants,



CBAT members of Sewu Village are installing the hydroponic garden of plastic and iron pipe materials.
Photo: PMI



Ester is posing in front of her vertical hydroponic vegetable gardens. The garden is located in her yard and in her garage.

Photo: Nasrullah for PMI.

whereas with a vertical system, I could plant 20 plants in the same amount of space,” she added.

A peek into Ester’s kitchen reveals various vegetables that have a short shelf life, such as water cress, spinach, bok choy, chilies, eggplants, green beans and tomatoes. “Although I’m a big fan of vegetables, I’m not a vegetarian. I still enjoy a good plate of satay,” she chuckled.

Furthermore, Ester did not keep the knowledge she learned about verticulture to herself. She happily shares her skills and knowledge to others. “I help others in Joyotakan, in

RT (neighborhood community) 05 RW (citizen community) 07. That is a slum area. It is well known in the Solo area,” said Ester, who also volunteers at the Setia Hati Terate art center.

Joyotakan District directly borders with Kali Wingko, which flows into the Bengawan Solo River. This village has the same characteristics as Sewu Village, in that it is located at a river bank and is adjacent to Bengawan Solo. In Joyotakan, Ester provides training on how to garden using the verticulture technique, including on how to harvest the plants and make liquid organic fertilizer.

“Initially, the village submitted a proposal to the local military command, asking for aid, but they did not hear back from them. Later on, the village officials met with a friend of mine, who then asked me to help them,” she said. She held a training on October 2, 2016. “By November 6th, they were able to harvest the vegetables,” she said proudly. “We planted water cress, tomatoes, bok choy, spinach and eggplants,” she added with a smile.

Ester also provided training to community members in Danukusuman Village. She also recognizes that even in her own community, not too many people have started to use this

verticulture technique. “In Sewu Village, I’m the only one who has tried verticulture,” said the women who also works as a tailor.

Involvement in CBAT

Her work in verticulture has led Ester to engage with flooding mitigation programs in her community. Sewu Village is no stranger to regular flooding, as it is located alongside Bengawan Solo River. With a population 8,000 people and a population density of 17.6 thousand people/km², this village is well known for the frequency with which it experiences regular flooding. Not only is it located directly adjacent to the longest river in Java, this 46.35 hectare village is also traversed by two tributaries of Bengawan Solo; Bronto River to the north and Pepe River to the south.

In 2015, with the support of the International Federation of Red Cross and Red Crescent Societies (IFRC) and Zurich Insurance, the Indonesian Red Cross (PMI) initiated a project called Community Flood Resilience (CFR). It was implemented in three villages that are frequently affected by flooding, namely Semanggi Village and Sangkrah Village, located in Pasar Kliwon Sub-district, and Sewu Village in Jebres Sub-district. This project introduced Ester to CBAT (Community-based Action Team). “I followed the CBAT Sewu Facebook group. Initially, I wasn’t that active, because I didn’t know what I could contribute to the group. Then when I saw they were going to plant vetiver plants, I started to actively

participate and contribute,” said Ester, who celebrates her birthday on October 31st.

Ester began to share her experiences and knowledge with other members of the group. The CBAT then appointed her as the coordinator for vegetable gardens in the Community Flood Resistance program in Surakarta City. PMI provided funds to initiate a verticulture garden with the CBAT. “With this funding, we were able to purchase 5,000 polybags and create an installation with the PVC pipes,” she said, pointing to the installation of five PVC pipes that were arranged like steps. Each of the pipes were drilled with 20 holes, 10 centimeters apart. The diameter of the holes is as wide as a water bottle. The CBAT carried out the verticulture activities as part of the efforts to support the community’s food security and healthy lifestyle by independently cultivating their own vegetables.

Jumadi, a volunteer at KSR Headquarters of PMI in Surakarta City, explained that PMI never provides funding without conducting proper socialization with the community. “We (together with Ester) conducted a socialization with community members, particularly introducing verticulture, in order to get their buy-in,” he said. “We trained any interested residents on how to create the planting medium and plant the seeds,” he added. He recognized that the community typically does not try anything new until they see with their own eyes how well it works. “At the time, there were only 50 villagers

in Sewu who expressed interest,” said Jumadi, who had been a volunteer with PMI for 12 years.

Ester, who also grows orchids in her vertical garden, never found it challenging to get others to get excited about viticulture. “It’s becoming a trend these days. There is such a positive response in the community,” she said “But we shouldn’t focus too much on the theory. Instead, we should just dive right in with the practice, like with the CBAT. That way, they can see the results,” she added.

However, Ester admits that there had been a number of neighbors that had some negative comments on her efforts. “They would say, ‘Why bother planting your own vegetables, when you can just buy it the market for 2,000 Rupiahs?’” she stated. However, she takes the criticism in stride. “The only thing is that sometimes it is awkward when the vegetable vendors come along,” she chuckled.

Ester draws some of her energy and inspiration for gardening from David’s games. “I used to like to play the internet game Hay Day, then Plants vs Zombies. And then there was Harvest Moon,” she reminisced, as she looked over to David. It brings her joy to be able to grow her own vegetables and sell them from her front porch. “It makes me happy to do this and also play games every day,” she added.

Nowadays, Ester and the CBAT get together once a week to discuss issues

in verticulture and planting seeds. “We gather every Friday, and talk about different topics each time. Sometimes it’s about challenges we find in our gardening, other times we discuss new ideas,” Jumadi added. Jumadi believes that the CFR project not only helps the community better prepare for flooding, but it also builds the community in a positive way, by strengthening the economy and livelihoods. The benefit of having a personal vegetable garden is that there is less expenses required for groceries.

Ester dreams of one day walking through the alleys in her neighborhood and seeing rows of green verticulture gardens. With her continuous enthusiasm to spread her verticulture ideas, this dream may just be within reach.



Piloting a Cash-based Aid Model for Water via Mobile Wallet

- ✓ Beneficiaries for clean water: 300 HH
- ✓ Two sub-villages and one village
- ✓ The effectiveness of aid delivery mechanism
- ✓ Local economy empowerment
- ✓ The beneficiaries can choose the type of aids based on their needs

A child was pictured sitting in front of a 20-liter bucket. He poured water into the bucket using a plastic water bottle that was cut at the top and turned into a scooping tool. Water was procured from small 30-cm holes from the bottom of Cihoe River, in Ridogalih Village, Cibarusah Sub-District in the district of Bekasi. This water would be used for daily household needs, such as bathing, cooking and drinking.

Stories on the challenges of obtaining clean water in Ridogalih Village were published on the merdeka.com website.³ Similar stories like the one above are also found in other areas in Bekasi, near the Cipamijis River, in Ridomanah Village, also in Cibarusah Sub-district. Community members in this area must walk at least two kilometers to collect water from a river that was drying out. They would have to make at least three trips, every time carrying two jerry cans of 20 liters of water each.

Cibarusah Sub-district is no stranger to prolonged drought, which is an annual reoccurrence in this region. Ridomanah and Ridogalih villages are amongst the worst affected by drought. For example, community members of Ridomanah Village, which has a population of 3,289 people, are forced to dig small holes along the river in order to obtain clean water, which they would use for bathing or drinking.

“Community members that can afford it will purchase water at the kiosks. Others who can’t must collect water from the Cipamijis River,” said Acep Sabarudin, 32, a village official in Ridomanah. The kiosk that sells clean drinking water is a gallon water distributor, which according to Acep, does not come regularly. “A gallon of water costs Rp 5,000,” he added. Acep also stated that during the rainy season, the community puts out buckets to collect the rainwater. “The wells also get filled up,” he added in his thick Sundanese accent.

Acep stated that the Bekasi District government had built a community cistern in the village in 2011. However, in 2013, the water pump and water pipes in the cistern were damaged. “No one has fixed them since then,” he said. Four other large cisterns have been built, each with a capacity of 5,000 liters and would be able to provide water to approximately six neighborhoods. However, Acep believes that the community are unable to purchase the required pipes that would be connected to each home. “The village cannot afford to buy water to fill up the cisterns,” said Acep, who was born and raised in Ridomanah village. As a result, the cisterns remain empty.

Acep explained that most residents do not have permanent employment. “Some of them are seasonal labor farmers, while others work in the brick factory. Most of them make between Rp 170,000 and Rp 220,000 per week,” he stated.

³ Read the articles at: <https://www.merdeka.com/peristiwa/parahnya-kemarau-di-bekasi-warga-gali-lubang-di-sungai-cari-air.html>. Retrieved on Friday, 4 November 2016.



PMI's volunteers are teaching the procedure of cash-based aid transfers via mobile phones.

Photo: PMI

With such a small income, they were forced to collect water in the dried up rivers. The situation is a lot worse during the dry seasons, such as the one in 2015 when the El Nino caused a shortened rainy season.

In response to the 2015 drought, the Indonesian Red Cross (PMI) provided assistance to villages that required it. During the height of the drought in July and August, PMI supplied clean water for 10 villages in the Bekasi District area for a total of 50 days, including Cibusah Sub-district. Twice daily, the Bekasi PMI came in with a water supply truck with 5,000 liters of clean water

to the villages. At least 10,000 liters of water were distributed to villages that previously had no access to clean water. Although the water distribution in 2015 was a considered a success, there were many challenges that PMI faced in the field, particularly in regards to the operational cost. Ivan Yuniar, 40, an HR staff at PMI Bekasi stated that their office actually did not own the water supply trucks. "We had to rent them from PMI HQ or the PMI at the province level," explained Ivan, who had been with PMI in Bekasi for 16 years. "The operational cost for the distribution was also quite high," he added.

Based on this past experience, PMI, in collaboration with a U.S.-based Red Cross, piloted an IT-based disaster response distribution system between July and August 2016. This new distribution system was called Cash Transfer Program via Mobile Wallet, which also involved working with Indosat, an Indonesian telecommunication provider, and Mastercard. The project aimed to increase PMI's capacity in implementing a cash-based distribution system and testing the Mastercard payment platform and mobile wallets.

In short, community members receive a cash transfer directly from PMI to

their mobile phones. Then, they could go to a designated minimarket to cash in their aid package. PMI collaborated with supermarket chains Alfamarket, Indomaret and Alfamidi, as well as the official pawn agency, Pegadaian. After they receive their money, they could then spend it on purchasing drinking and clean water.

Meyliany, 41, a volunteer from PMI Bekasi was tasked with coordinating the pilot project in Ridogalih Village. She informed the community that they would receive a SIM card, which they would need to activate in their mobile phones. “They can check on their cell phones to see if the transfer has been made,” stated Meyliany, who started volunteering for PMI since 1999.

In addition to purchasing water, the cash amount of Rp 880,000 per household can also be used to pay for other expenses, such as medicine, school uniforms, stationary, and food items, such as rice. Community members are also given the freedom to spend their money in places other than the designated stores, such as the village kiosk or nearest water refilling depot.

Meyliany also stated that this project is the first time that PMI has implemented a cash transfer distribution model. “We were trained on the whole process, from data collection to purchase monitoring,” said the woman who also goes by Iyang.

This cash transfer model for clean water distribution was not the first



The supermarket staff and PMI are explaining Mobile Wallet feature to the beneficiaries in cash transfer program.
Photo: PMI

time that PMI Bekasi used an IT-based aid distribution system. They had also experimented in beneficiary data management using an Open Data Kit. This model uses an open source software that conducts surveying and data collection, which would have previously have to be done manually. With ODK, collected data can be directly uploaded to the server, where triangulation and data analysis can be done immediately to quickly determine the beneficiaries. Iyang stated that PMI’s capacities in operating the Cash-based Transfer Distribution model has improved as a result of the project.

During the pilot project, PMI was able to reach 700 beneficiary households, specifically 339 families in Ridogalih Village, 151 in Ridomanah and 201 in Tegal Pucung Sub-district in Bekasi City. In a relatively short period of time,

just under two months, the PMI of Bekasi District and Bekasi City trained 15 volunteers and staff members on how to implement the project, starting from socialization, orientation, and distribution of the mobile wallet cards. This was the first time they had done this training.

M. Sulaeman, 35, an HR staff member at PMI in Bekasi City, recognizes the ease of the CBT model. “It has made things a lot easier for the community, since they no longer have to stand in line (during the water distribution),” he said. “Additionally, they are able to purchase other things, such as school uniforms and rice,” he added.

Moreover, Iyang believes that the model can help increase local incomes. “I saw that many of the community members were purchasing items at their

neighbors' stores, who were delighted that their products were being sold," she explained. Ivan personally prefers a water distribution system using cash transfer, which affords a degree of freedom to the community to buy what they need. "When we arrive with the water supply truck, we must park it in the field. It was difficult for the women to carry heavy buckets or jerry cans to the truck," he stated.

A villager from Ridogalih and participant in a discussion following the water distribution event expressed satisfaction with the benefits of this model. "Without this aid, we would have needed to reduce our expenses for rice, 2 liters daily, in order to buy water," he said. At least 98% of the 140 villagers that were surveyed expressed the same sentiment. This is not surprising, given that almost the entire village does not have access to piped water and are vulnerable to droughts.

Nonetheless, the system is not without its shortcomings. As a model that is dependent on technology, CBT is dependent on the availability of cellular phone signals and partners that are available for cashing in the money. Ivan and Iyang, who were the coordinators of the project at the time, pointed out these weaknesses. "Most of the beneficiaries were elderly, so they did not have cell phones," said Ivan. "So they would use their grandchildren's phones," he added. Additionally, this relatively poor region was far from any minimarket that was designated as places to cash in their money. "It would

cost them at least Rp 20,000 to pay for a motorcycle taxi to get there," said Ivan.

The main challenge of a cash-based transfer system is monitoring how the funds were used. The aid was considered an unconditional aid, in that beneficiaries were not obligated to use the money just to buy water. As such, they were able to purchase other things, such as school uniforms and stationary, food items, such as rice, and medicine. PMI recognizes the need to make improvements in the model in the future, such as preparing field staff and project evaluation.

Project evaluation results found that the pilot project could be potentially expanded, including by improving coordination and the level of preparedness of all relevant actors, such as PMI Headquarters, partner organizations and field teams. Although this cash-based transfer system using Mobile Wallet cannot replace PMI's traditional mechanisms of distribution clean water and drinking water, it can serve as an alternative in slow onset disasters, such as drought, given the rapid technological advances. PMI and its partners should continue to broaden its horizon on the most current technological innovations in order to expand the number of options on service provision.

"The community's response was quite positive. This aid has been very helpful and useful for us," said Acep.



Making Money from Waste

- ✓ The female member of CBAT converts used plastics into bags, purses, baskets
- ✓ Campaign of handicraft from plastic

With creativity and hard work, the women of Trucuk Village in Trucuk District, Bojonegoro, East Java, have been able to transform plastic waste into money. They recycled and converted the plastic wrap of coffee bags, instant noodles packaging, and detergent packaging into bags, purses, and baskets. The Indonesian Red Cross (PMI) saw the persistence of a group of women who had been accustomed to flooding in developing their creativity. And as a result, they provided the women additional training so that their business could grow even bigger.

The women's efforts started in 2014. During that year, they were invited by the Government of Bojonegoro to attend an exhibition of featured products of the PNPM program at the Bojonegoro Stadium. Later that year, they were invited by PERHUTANI to attend a products exhibition from all over Bojonegoro District. The group of women in the PKK group was quite proud to show off the bags, purses, and baskets they made of plastic waste, in addition to the other products from their village.

These activities in utilizing and recycling plastic waste did not go unnoticed by PMI, who at the time was implementing a program to develop a flood resilient community in the village.

In 2015, a five-day intensive training was held for about 60 members of the women's group, or known as PKK. Guided by a facilitator, the women created a variety of crafts from plastic wrap, corn husks and leftover fabric materials. They transformed the materials into all kinds of plastic bags, purses, flowers (from corn husks or leaves), and brooch (from the fabric).

Sumirah, 46, a participant and mother of two daughters, stated that she was quite pleased with this activity. "I can make an assortment of crafts while taking care of the children or cleaning the house." She then pointed to a bag measuring approximately 26 x13 cm made of the plastic wrap of instant coffee bags. "Look at this bag! It only took a day for me to make it," she said. Sumirah, who also works as a baker and takes catering orders, admitted that she had previously learned how to make

crafts from plastic wrap from one of her daughters who attends school at SMK 2 in Bojonegoro. However, she confessed that she was not really interested at first. Only after join the training from PMI did this smiley and friendly woman become more interested.

"Well, I could make money from it," she said with a laugh. She claimed that the some of the homemade crafts she made could sell for 20,000 to 50,000 Rupiahs, depending on the type of product. "A small wallet is about 20,000 Rupiahs. It requires about 40 packs of used instant coffee bags," she said. "That tote bag is 50,000 Rupiahs," she added. She explained that in order to make one tote bag she would need at least 120 used instant coffee bags.

The materials are procured from grocery stalls and coffee shops around the village. One of the shops was located in front of the village hall. "We don't buy it. It's free," said Sumirah. The stalls sell brewed instant coffee. Usually, the wrappers are thrown away into the trash along with other garbage and then they are burned. After learning this



The members of CBAT are sorting the waste to be used as the materials to make bags or home decorations.
Photo: PMI

skill in recycling products for crafts, Sumirah then contacted the shop owner and ask for the used coffee bags or instant noodles plastic wrap. “I go to the shops and get the materials once a week. Sometimes I could get a sackful of the used bags,” she said. The plastic

wrap is typically cleaned first before being processed into various types of handicrafts, especially tote bags.

The bags that Sumirah and her group make are fairly neat. Although they are woven from plastic wrap, the women

also add some additional details, such as lining, which they glue and stitch neatly on the inside. She said that the fabric, yarn, and adhesives were bought from the local fabric and sewing store. Finally, the PKK group also participated in an exhibition of featured products



The women of Family Welfare Group in Trucuk Village, Trucuk Sub-district, Bojonegoro District, are making plastic wraps of instant coffee into bags.
Photo: Nasrullah for PMI.



that took place at the Hall of the Trucuk Sub-district on December 18, 2016. At that time, they made about 14 bags made of recycled plastic wrap. “We sold four bags,” she said, smiling. “We sold the ones that were priced at 30,000 Rupiahs and 50,000 Ruliah,” she added with a proud expression.

This waste utilization activity was part of the Community Flood Resilience (CFR) program that the PMI in Bojonegoro was implementing, with the support of the International Federation of Red Cross and Red Crescent Societies (IFRC) and the Zurich Insurance Group. This program not only targeted disaster risk mitigation, but also carried out activities that contribute to the economy of the community, especially in relation to the use of waste. So far, the women had been able to demonstrate their role in overcoming the problem of plastic waste on a household scale.

The government of Bojonegoro District actually has in place a good system in overcoming the waste problem in the district with 1.3 million inhabitants. For example, at the landfills, plastic waste is processed into diesel. Twenty-two kilograms of plastic waste can produce ten liters of diesel.

At the national level, the Ministry of Environment and Forestry noted that Indonesia ranks second after China in countries that dump plastic waste into the

sea. Furthermore, plastic waste produced by one hundred stores or members of APRINDO outlets could produce 10.95 million pieces of plastic garbage bags in one year. This was equivalent to 65.7 hectares of plastic bags or 60 times the size of a football field. Moreover, the Ministry of Environment and Forestry estimated that the total amount of plastic waste in Indonesia in would reach 9.52 million tons by 2019.

This group of women, who are also involved in the CBAT, have been able to contribute towards the management of plastic waste in their region. They claimed that they no longer view plastic waste as useless, but rather a potential source of money.

During the regular monthly meetings that the women in her village attend, Sumirah and members of her group always try to promote their recycled waste handicrafts. They also encourage children and young people in the village to participate in these activities so that they do not spend all their time just playing with electronic devices. Not only is this a campaign to protect the environment, but recycling waste can also help earn more income for the women.



STORY 8

Evacuation Boats for Flooding Affected Communities

- ✓ Six engine boats for three villages
- ✓ One temporary evacuation site in Tulungrejo Village, Trucuk Sub-district



CBAT members are using boats to distribute food during the floods in Trucuk Sub-district, Bojonegoro District.
Photo: PMI

Flooding has long been a frequent occurrence for the people in Bojonegoro, East Java, particularly those living along the river banks of Bengawan Solo. During almost every rainy season, flooding will strike this community, such as the one towards the

end of November 2016. It is not an easy task to address, especially as it requires a comprehensive strategy starting from upstream of the river. Nonetheless, communities in three villages in Trucuk Sub-district of Bojonegoro can now rest a little bit easier when it comes to

reducing the number of casualties from a flooding event.

These three villages, namely Trucuk, Tulungrejo, and Sumbangtimun, now each have two motor boats that they can use to evacuate the village during

a flood. Each of the motorboats are powered using a 6.5 HP engine and measures 11 m in length and 1.9 m in width. They were donated by the Indonesian Red Cross (PMI) of Bojonegoro District. The idea to procure these boats came from a vulnerability analysis that was conducted in the villages, as they are frequently affected by flooding due to the overflow of Bengawan Solo River. The analyses were then translated into a village disaster risk reduction action plan.

Suyono, 49, a resident of Trucuk Village describes the benefits of the motorboats. “We used one yesterday to transport some community members to the big boat,” said the man who is part of the village government. The big boat he was referring to is the boat used to cross the river, which many villagers are accustomed of using to cross to Bojonegoro City.

He also explained how the motorboats were useful during the flooding on November 27, 2016. Overflowing water from the Bengawan Solo River inundated most of the village for almost five days. The white and orange motorboat went around the village to help evacuate residents to a higher elevation or to get them to the crossing port to Bojonegoro City.

Abdul Halim, 28, a member of the CBAT in Sumbangtimun Village conveyed a similar story. He and another CBAT member were canvassing the village to check if there was anyone else that needed evacuation. “In addition to

evacuating to a higher elevation (village borders), we also delivered boxed meals to those who needed it. The CBAT had set up a public kitchen to prepare these meals,” he said. “Additionally, we also distributed aid packages from external sources, such as from the local university,” he added.

According to him, the motorboats were used for four straight days. Meanwhile in Tulungrejo Village, the motorboats were also used to shuttle school children to their schools. “It was finals season at the time,” said Dwi Pujo Wuriyanto, 43, head of the CBAT in his village.

These three villages are considered ‘regulars’ of overflowing from Bengawan Solo. Flood waters rushed in through the tributaries that pass through the villages and drain into Bengawan Solo. In Trucuk Village, for example, it is surrounded by three tributaries. “It flows through neighborhood unit (RT) 08, 03, and 04,” said Imam Mukharom, Head of CBAT in his village.

With most houses located only 150 meters from the river banks, flood waters could reach up to three meters. “The biggest one we experienced was the one in 2007,” recalled Suyono.

According to him, before PMI donated the motorboats, the community would evacuate using a makeshift raft made out of banana tree branches. “For those unable to evacuate, they would just stay on their anjab,” he added. An anjab is a woven bamboo mat that people put on their attics to store their valuable

belongings, which can also be used as a temporary shelter for the inhabitants. An anjab can also be made from lining up two-by-fours to store heavier things. “Some people even put their goats on this thing before anything else,” he explained.

That morning, the trip to the village from the district capital took about 35-45 minutes. The sky was clear and the weather sunny. The road connecting the districts that had been paved with asphalt is winded, but flat, and is the only one used to reach these three villages. This same road is the one used to distribute aid to the villages. However, the road conditions change drastically as soon as one enters Trucuk Sub-district. For example, the road to Tulungrejo Village is made of block paving with shallow gutters on each side. A similar situation is found in Sumbangtimun village. There is evidence of the flood that struck the village on November 27, 2016, which demolished the crops in the field, such as cassavas and rice. One could see the mud line left by the flood on the outer walls of the residents’ houses.

For villagers living near the river banks, boats are an essential part of their daily lives, most of whom earn a living as farmers and construction laborers. They use boats to cross the Bengawan Solo River, which spans 157 m in width. This saves them much time if they need to go to the district capital. The boat trip takes five minutes and costs 500 Rupiahs per passenger and 500 more for a moped or bicycle. In addition to being

a mode of transportation, these boats also function as a means of finding sand in the river.

Rahman, a boat maker from Sumbangtimun Village, explains that it took him a month to build two boats for evacuation purposes. “I used 3mm galvanized steel plates,” he said. “They weighed about 800 kg, including the engines,” he added. The boat was designed to be able to carry 25 passengers at any given time. It is claimed that this boat, which measured 11 x 1.9 m, could maneuver in between the narrow alleys.

Dwi Pujo further explained that these motorboats can only be operated by the CBAT. “Although the boats are relatively safe, we want to be careful, just in case,” said the man who works as a farmer.

All three villages store their motorboats in their own ways. In Sumbangtimun, for instance, the boats are stored separately, according to their usage. “There is one at RT 16, because it is at the lowest elevation and is the first community to be inundated,” explained Abdul Halim. “The other one is kept in RT 1,” he added. There is a canal in RT 16 that is connected with Bengawan Solo, enabling the overflow to enter the canal. In Tulungrejo, both motorboats are stored at the Village Meeting Hall, which also functions as the CBAT Commando Post. It was designed this way to facilitate better monitoring and maintenance.



Evacuation boat is ready to use in case of flooding.
Photo: Nasrullah for PMI

Nur Hamid, a staff member of the Bojonegoro District PMI stated that PMI only provided the motorboats, while the each of the village governments were expected to take responsibility for their maintenance, upkeep and utilization.

Temporary Shelter

In addition to the motorboats, the PMI at Bojonegoro also supported structural mitigation to flood management by constructing a temporary shelter for affected populations. This structure is a platform 150 cm above the ground, with a width of 19 meters and a length of 24 meters. The front part of the platform is equipped with a ladder.

The idea to construct this platform came out of a meeting between the

villagers and the PMI team during a vulnerability assessment, which was later put into an action plan. “The benchmark for how high the platform should be was gathered from previous flooding experiences,” said Dwi Pujo, 43, head of the CBAT of Tulungrejo Village.

This temporary shelter is located approximately 150 meters from the river banks of Bengawan Solo. It is not located too far away. Dwi Pujo, who works as a farmer, says there is a reason behind this. “It is also closer to the Bojonegoro major roads,” explained the calm and collected man.

Nur Hamid, a staff member of Bojonegoro PMI added that this temporary shelter



The boats are located in the locations that are high risk of flooding.
Photo: Nasrullah for PMI

is used while they wait for the Search and Rescue teams to arrive through the main roads and cross Bengawan Solo. “It takes between five and eight minutes,” he added. “Additionally, the land where we have the platform belongs to the village, not privately held,” he said. “Therefore, it is not a long-term shelter, just temporary,” he said.

The temporary shelter is equipped with two bathrooms and one bathroom for people with disabilities. The water is sourced from the local well and water pump. There is also a faucet in an open space. According to Nur Khamid, the temporary shelter can take up to 300 people. “The design and construction was done by the Public Works team, so as to conform with government

standards,” said the man who works as an HR staff at the Bojonegoro PMI.

Although he is grateful for the construction, Dwi Pujo actually wishes that they would add tents or permanent roofs. “Our priority is the elderly and children, so since the shelter is open without a proper cover, it is not adequate if it is rainy or windy, there are no walls,” he said.

Furthermore, he said that before there was the shelter, community members would surely be reluctant to evacuate during a flood. “As long as they think they can still inhabit their homes, they won’t leave it,” he explained. Protecting their valuables, especially their cattle, is the main priority. “When the water levels get higher, they instead

cross the river,” he added.

Using a GPS, it can be estimated that the width of Bengawan Solo is between 157 and 187 meters. It takes between five to eight minutes to cross on a motorboat. These motorboats can carry up to 10 mopeds and 20 passengers at one time. During a flood, residents choose to take this fast, but risky path than take the 45-60 minute trip to the evacuation site, which the government constructed on a hectare of land. It is located approximately seven kilometers from Tulungrejo village.

“But even that is sometimes risky. I experienced that myself,” said Dwi Pujo. He recounted the time during a big flood in 2007-2008, he and a few other residents took the motorboat to the Ebaga (happy evacuation place), which was constructed by the local government. On the way, their motorboat was blown to a different place. “We got stranded in Banjarsari. It was so far. And the trip was a difficult one,” he recalled. Due to the far distance and rough waves, many residents are more comfortable with just crossing the river. Suyono explained that once they are across the river, there were several government buildings that had been converted into temporary shelters, such as the Water Company and the village office.

During non-emergency times, the temporary shelter is used by the community to dry their corn or as a playing space for children. “They may

also use it for wedding receptions as well,” added Dwi Pujo as he laughed.

The construction of the temporary shelter and procurement of the motorboats are part of the structural mitigation efforts of the Community Flood Resilience project, which is a collaborative effort between PMI, IFRC, and Zurich Insurance. The program, which started in 2015 will conclude at the end of 2017, is expected to have increased the endurance and resilience of the community, improve the effectiveness of disaster risk reduction solutions, and garnered support from policy makers.

STORY 9

First Aid Training by the Indonesian Red Cross

- ✓ First Aid Training for PMI members, corporations, humanitarian agencies, schools, and public
- ✓ Increasing the capacity of PMI trainers
- ✓ Development of First Aid PMI application



The participants of first aid training are practicing the theory they got during the training.

Photo: PMI

“This is the story of Budi, the responsive boy. When the person standing next to him started to gasp for air, Budi quickly responded to perform first aid. Budi is so great!”

The above phrase is a part of the lyrics

of “Si Budi Tanggap (Responsive Budi)”, a song about an animation character named Budi who quickly gave CPR to a bus passenger who suddenly collapsed while holding his left chest. At the end of the three-minute video, he was saved from dying.

In everyday life, it is very important to have the basic capabilities to save a life in an emergency such as shown in the video campaign. Fatkhur Rahman, 36, a first aid trainer from the Indonesian Red Cross (PMI) in Semarang District, had once experienced this situation himself.



Galogat Nainggolan, an employee of a private sector company in Jakarta, is showing his first respondent card as a graduation token from the first aid training he attended.

Photo: Nasrullah from PMI

“It was drizzling, and I was on the road after picking up my mother from work. There had been an accident between a motorcycle and a car,” he said. “I saw that there were three people lying on the ground and convulsing. I checked them and found no broken bones, only moderate bleeding on the forehead, elbow and legs,” he recounted calmly. Then he asked the crowd of people who were watching to evacuate to the side of the road.

Fathkur, so he often called, then focused his attention to an old lady who was bleeding through her mouth and nose. He used a plastic bag as a

protective measure. Then he checked her ankles that were on top of each other and saw that there was a lot of blood flowing. “As it turns out, there was an open fracture on the left ankle, which was nearly completely broken. It had been covered by the right leg,” he said. He then bound that ankle with a raffia string that he found at the scene to stop the bleeding and used his hat as a splint. He administered all of this first aid by himself and waited until the police came and evacuated the victims to the nearest hospital.

Fathkur, who works as a volunteer and staff of The Youth Red Cross, stated that learning first aid is an essential life skill. “There are many disasters and accidents around us that cause casualties, and without a quick and proper basic medical treatment, it can cause death,” said the man who has been a First Aid trainer for six years. “I used to see a lot of accident victims that were moved immediately to the side of the road or being loaded into a car without being checked first. There are even victims that were just being ignored because people didn’t know how to help,” said the man who has trained a variety of people like villagers, the youth program, mosques youth, hospital staff, companies, schools, universities and district/city PMI staff members. “To have the capabilities to perform first aid means that we have a chance to save a life, prevent disabilities, give comfort to the victims and aid in the healing process,” he said.

Delivering the First Aid Training

First aid is a trademark service of Red Cross organizations all over the world. In Indonesia, the first record of first aid activities was during the one-month commemoration of the country’s independence at the Ikada Field, in Jakarta on September 19, 1945. At that time, the Indonesian Red Cross set up a First Aid Station behind the youth ranks. Junior doctors from the Medical Academy were recruited as medical workers, who then trained the volunteers to help the victims in battlefield.

Also at these times of battle, PMI formed the First Relief Troops (mobiele colonne) that consisted of students from high and junior high school. PMI doctors continued to train the youth from nobility as well as the youth from the villages to help at the front line as well as at the hospital. In 1946, PMI gathered 60 women in the Chr. H.B.S building, in Salemba to be trained as an auxiliary nurses, who were then dispatched to different battlegrounds around Jakarta, Purwakarta and Bandung. After the war times, first aid training for PMI volunteers continued to be held so the volunteers will be ready when they are sent to locations of disaster or responding to accidents.

In providing the first aid training, PMI emphasizes on basic materials such as introduction to first aid, basic anatomy and physiology, situation assessment, basic life support, shock and bleeding, injury, burns, and moving/lifting techniques. Training is given in order to

equip the participants with knowledge and individual skills in first aid techniques.

The materials that are presented are based on the guidance from International Federation of Red Cross and Red Crescent Societies. In implementation, materials and practices will adjust to the needs of each participant. "Before we begin the training, our team will assess the profile of the candidates," said Adelia, a staff member of the Education & Training Unit of PMI Headquarters, a unit that supervises the trainings. "For example, when talking about the character of a working accident in company A or the training requirements in company B, the materials maybe the same but the methods could be different," she added.

Generally speaking, the materials provided covers laws and regulations related to First Aid, basic employment health, basic First Aid, anatomy and physiology of the human body, guidelines on providing First Aid facilities, First Aid kit and equipment, and general countermeasures and emergency handling. Additionally, the materials also discuss basic life support and medical emergency, the dangers of heat stroke and how to handle it, poisoning, chemical exposure, seizures, local injuries (wounds, bleeding, burns, broken bones) and the treatment, unconsciousness and its treatment, respiratory problem and the treatments, and circulatory disorders and its treatment. Moreover, trainees are also taught

about heart lung resuscitation, victim evacuation (procedures & victims transportation), First Aid in special situations (first aid in enclosed/limited space and first aid for electrical shock). The training methods include lecturing, discussions, Q & A, and First Aid practice and simulation. At the end of the training, participants will complete a test and a competency evaluation. When PMI holds a First Aid training at companies, they always work with the local Department of Manpower.

As the unit that responsible for all different kinds of trainings, both inside and outside of the Indonesian Red Cross, the Education & Training Unit always ensures the quality of the trainers/instructors. The trainers are sourced from PMI and is competent in First Aid. The team is also skilled at performing first aid and provides health service as an ambulance team.

It is a long process to become a first aid instructor or trainer. To start off, a volunteer must enrol in the volunteer corps basic training. "From there, we will do a screening to proceed to specialization," said Norman, a staff at the Education & Training Unit at the PMI Headquarters. Following the specialization, the prospective trainers will be selected again to proceed to training for trainers. "When they pass the training for trainers, they are still just an assistant of the trainer, and are not yet allowed to train directly," he added. While being an assistant, a prospective trainer will gain experience and knowledge in training, until they

finally get a certification from PMI. Additionally, PMI also sends their trainers to enrol in trainings abroad to enhance their knowledge, skills and insights, like to Australia, the Philippines and Switzerland. In order to improve the trainers' competencies, they can also be recommended to get certified by the Professional Certification National Agency (BNSP).

Aside from training the volunteers, the First Aid Trainers of PMI also train employees from the private sector, such as VFS Global. VFS Global specializes in outsourcing and is a supplier of technology services for government and diplomatic mission all over the world. With headquarters in India, the company asked PMI to carry out a first aid training for its employees.

Galogat FH Nainggolan, Corporate Manager Security at VFS Global, said that his company preferred to use the services of PMI based on his consultation with other VFS offices in Australia, Malaysia and Thailand. These offices had recommended that PMI be the provider of the training service. "After reading and reviewing, comparing with other first aid training providers, we felt comfortable with the Indonesian Red Cross," said the man who had been working for the company since 2009.

The training, which was carried out on August 20 - 21, 2016, took place not only at the office on Jl. Dr. Satrio, South Jakarta, but also simultaneously at their offices in Bali and Surabaya. "A total of 36 persons were trained in Jakarta,



The participants of first aid training are practicing the procedure to lift an injured person.

Photo: PMI

Bali and Surabaya,” said Galogat, who also attended the training program. “In Jakarta there were 24 people trained, consisting of staff members and managers,” he added while proudly showing his first aid certification.

He then expressed his appreciation to PMI for the quality of the trainers that were deployed. “My boss is a Filipino who doesn’t speak Indonesian, I told the Indonesian Red Cross. Apparently the instructor spoke English and was able to explain everything clearly,” he said enthusiastically. “My Country Manager

said that he would enrol in the second batch of trainings if it were ever to be held,” he added with a smile.

Based on data from the Workers Social Security Agency, until the end of 2015, there were 105,182 work-related accident cases from incidents like fires,

explosions or collapsed cranes. A likely cause is the low level of awareness about the importance of implementing Occupational Health & Safety in the industry and society. The low level of awareness is possibly caused by the assumption that such implementation is a financial burden, instead of as an act of prevention/ investment.

In 2016 alone, PMI has trained at least 10 companies or organisations in first aid. As this number is based on trainings coordinated by PMI Headquarters, it does not include the ones conducted at the province or district levels. For example, the PMI of Lampung Province held a first aid training for 19 employees of PT Traba Engineering on November 14, 2016. The materials covered included CPR, soft tissue injury, injuries on the motoric system, skeleton injury, shock and poisoning.

The high number of companies asking for PMI to train them is closely related with a regulation from the Indonesian Minister of Manpower and Transmigration No. PER15/MEN/VIII/2008 about First Aid in the workplace that requires there to be a licensed First Aid Officer with first aid knowledge and skills.

In addition to providing training domestically, PMI also deploys their instructors abroad, such as to the Democratic Republic of Timor Leste, where they trained the staff of Cruz Vermelha de Timor Leste (CVTL) or Timor Leste Red Cross during its initial formation.

As a trainer of a skill set plays an important role in saving people lives, Fatkhur realised the importance of constantly updating his first aid knowledge, by reading books or finding information from the internet. “[The most important thing] is to learn from your seniors or people with more experiences,” said Fatkhur, who was born in Semarang.

Non-stop Innovation

In keeping with the trend of using apps, PMI developed a first aid app called PMI First Aid. This application, which can be downloaded for free in Android or iOS-based smartphones, contains first aid information for conditions such as allergies, asthma, bleeding, broken bones, burns, diabetes emergencies, choking, hysteria panic attacks, heart attacks, heat stroke, head injuries, hypothermia, poisoning, epileptic seizures, shock, meningitis, insect stings, pain from muscle sprain, stroke, dengue fever, influenza, acute diarrhoea, and unconsciousness and stopped breathing.

The app, which was launched on November 21, 2014, also contains information on theories, practices and evaluations, like for burn treatment. After reading the theory and Q & A, we can test our knowledge of burns. Hannadini Nur Wahyu, 36, a Human Resources (HR) practitioner at an oil and gas company in Senayan area, Sudirman, Central Jakarta, shared a story about this app. “While I was cooking, my hand got burnt on the hot frying pan. Immediately, I put my



First Aid application that can be downloaded on mobile phones with Android or iOS operating systems.
Photo: Hannadini Nur Wahyu for PMI

hand under running water to cool it,” she said. Previously, before she had read about burn treatment on the app, she would have put toothpaste on the burn, which is what many other people would do. This is actually not the right treatment.

“The app is good, it’s user friendly, the information is really helpful, especially for people with no medical background,” she said. “The application’s language is easy to understand and since I truly felt that it’s very useful, I shared it with my co-workers during a safety moment sharing session at my office,” added the woman who has been working in HR for 9 years. However, even though it was really helpful, she hopes this app could be equipped with emergency phone



Couple of staff from a private company are showing the First Aid application on one of their phones.

Photo: Hannadini Nur Wahyu for PMI

numbers. Therefore after receiving or performing first aid, one could immediately get further help. Since its launch on November 2014, this application has been downloaded at least 10,000 times in the Play Store and got the average ratings of 4.7.

An app cannot eliminate the role of trainers. Adelia stated that training participants still feel the differences. “Of course they feel more comfortable learning directly from the trainer than through an app,” she said. In January 2017, PMI will be updating its First Aid Guidance Book. Fatkhur hopes this book can help other PMI members to increase their knowledge and skills in keeping with current developments.



WASH Changing the Fate of Thousands of Residents

- ✓ Constructing wells
- ✓ Building a 14 km long water pipe

For those accustomed to having access to an abundance of clean water, two showers a day is no big deal. Whenever they need it, they can easily scoop up water from the tub or open the faucet. This is not the case for residents in villages who experience water shortage. Residents of Kadungan Jaya Village and Pengadan Baru Village in Kaibun Sub-district, Sambaliung District, East Kalimantan Province; community members in Sukan Tengah Village, Sambaliun Sub-district; and residents of Tumbit Melayu Village, Teluk Bayur Sub-district are examples of those who face this water difficulty. These communities struggle to save every drop of water that they can for drinking and cooking—never mind for showers.

Communities in these areas experienced water shortages until 2015, when the Indonesian Red Cross (PMI) introduced a Water, Sanitation and Hygiene (WASH) program. They collaborated with the PT. Samsung Electronics Indonesia (SEIN) company and the Republic of Korea National Red Cross and the International Federation of Red Cross and Red Crescent Societies.

At the beginning of 2015, the program known as WASH, was implemented in three regions experiencing water shortages in East Kalimantan. Data compiled by PMI indicated that prior to the program being implemented, only 32.5% of communities in the province had access to clean water.

Rusliansyah Abdul Ghani, the WASH Field Coordinator for PMI in East Kalimantan, stated that communities in these four villages had always struggled to get access to clean water. The distance between a water spring and the village was quite far. Additionally, they also had to travel some distance to reach their district capitals, which can be as far as 38 kilometers. For many of them, this could mean a three-hour trip on public transportation.

Nonetheless, distance was rarely an obstacle when it came to being able to get clean water. Considering that most residents of Sukan Tengah Village are transmigrants, it is the obligation of the government to provide them with their basic needs, including clean water.

PMI recognized that these communities needed immediate access to clean water, since the need for clean water is something that cannot and should not be delayed. Furthermore, Rusliansyah Abdul Gani stated that the shortage of clean water had caused many health issues in the communities.

That is why then the WASH campaign was introduced and disseminated throughout the country, Abdul and his colleagues began to prepare themselves for the program. They visited the target locations, conducted field assessments and verified that the communities were in real need of aid.

In the target locations, almost all residents bought their water from clean water vendors. Although the price was relatively affordable, in a place where many of the residents are farmers, every cent required to buy water becomes extremely precious. With the provision of aid for clean water, they would be able to use their hard-earned money for other needs. “These communities need clean water to cook and drink with,” said Abdul. Meanwhile, for other household needs that require water,

such as washing, the communities rely on rainwater that they collect through cisterns. However, this becomes a problem during the dry season where rainwater becomes scarce. They are forced to be extra careful with their water usage.

PMI believes that a long-term solution is required to solve this issue of access to clean water. Thus, WASH is an appropriate program for this problem, particularly as it is implemented sustainably. It is expected that the government will also play a role in this program. Even if the government does not continue PMI's program in these particular areas, they can always replicate the program to be implemented elsewhere.

"From the few conversations we've had with the district government, we are confident that the WASH program will become a pilot program," explained Abdul. This comes as a relief to him, albeit with cautious optimism. There have been many government projects in the past that have become mere 'monuments', in that after implementation, there was no one to look after the structures. In fact, many of these structures did not turn out as expected and began to deteriorate due to neglect. PMI hopes that the WASH program does not end up like these past projects. This is why the program has been strictly monitored and facilitated throughout the second year and Abdul hesitates to claim that WASH has a 100% success rate. "I would say it is currently 70%," he said. To him, a 100% success rate would mean that the WASH

program continues to run for the next two to three years and it reaches the point where the community no longer needs PMI's guidance, but is able to sustain the program on their own.

At its core, the WASH program is a community-based program, in that it is implemented for the community and involves their participation. The communities were involved in many of the program's activities, such as construction of the piping system connecting the water source to the community and drilling the all-year boreholes. As a result, many potential obstacles were addressed, such as the far distance to the water sources and shortage of volunteers.

Starting in the second year of the program, the communities began to enjoy access to clean water, which was piped in to the village using the piping system they built with PMI. As a result, the residents now have increased access to clean water and the money that they would have used to buy water can now be allocated for other needs. Most importantly, the availability of clean water has improved their quality of life. A similar case can also be seen in a number of communities in East Java that were also experiencing a shortage of clean water. PMI data indicates that at the onset of the WASH campaign, 42.5% of the population in East Java had little or no access to clean water. These include communities in Sidodadi Village, Panggungrejo Sub-district, Blitar District and Gusti Alit Village, Lumajang District. These are only

two amongst many other villages in the province that are in dire need of access to clean water. Therefore, PMI decided to implement a WASH program in these areas with the hope that the 40,000 residents there can be relieved from the struggles that they face from the water shortage. Additionally, it is expected that this program will enable the communities to enjoy access to clean water as much as the rest of East Java communities.

In implementing the WASH program in Blitar and Lumajang districts, PMI used two treatments, which were adjusted to the local conditions. Adris, the WASH Field Coordinator for the East Java PMI, explained that in these areas, PMI provided access to clean water by digging a borehole. The goal was to obtain the best quality of clean water available. The results were quite satisfactory. Upon sinking the drilling rig, clean water began to immediately gush out from the borehole.

PMI data shows that there was only a three-meter distance between the water source and the ground surface. "The water level came up as high as 97 meters," said Adris. As a result, the water pump attached to the water tank did not need to work as hard. "With just standard power from the pump, we were able to get a good amount of clean water in the water tanks. We would then pipe the water to the residents' homes," explained Adris.

Although it looked simple, PMI's work in channeling clean water to the

community's homes was actually a long process. After the initial assessments, they visited and re-visited several locations before they found the right location to drill the borehole. Sidodadi Village is located on the highlands and mountainous areas, so the team had to be extra careful of where they drilled the borehole, especially if it reached depths of 100 meters. Clearly, a lot of work was put into making it possible to get clean water that is accessible to communities in these villages.

For Adris and his colleagues at the PMI in East Java, the WASH program is an accomplishment that they can all be proud of. Through this program, communities have come to know PMI much better. "At the beginning, however, the communities expressed some doubt in our program due to a delay in funding," he added. However, the communities' doubts vanished after the initial drilling began and clean water was piped to their homes. At that point, Adris and his team had a question of their own: 'Would the community be able to manage the facilities that PMI provided them?' Time will tell, as the program is still being closely monitored and guided by the PMI team.

Adris will also be implementing a similar program in Gusti Alit Village. Located in Lumajang District, this village is also in dire need of clean water. Not only do the community members have been using their valuable money to purchase clean water, they also have to endure

skin problems as a result of only being able to take showers once every three days. Other health issues have also become a problem for them as a result of the lack of clean water.

Given this situation, Adris worked hard to ensure that the WASH program was well-implemented. The program's main challenge, finding the water source, was overcome. "We had actually found one that was only four kilometers away, but we ended up not using it," he recalled. There was no way that PMI could use it, since there was a big chance that it would be affected by drought. In order to ensure that water flow was constant, they had to find a water source that was resistant to droughts. They were finally able to zero in on a water source that was 14 kilometers away from the village. With a strong commitment to their cause, PMI built a 14-km pipe system from the borehole to the village. Residents of the village helped out enthusiastically. Working together with PMI, the community members realized their dream of having adequate clean water for their village.

Adris recognizes that there were a number of challenges during the piping construction process. One of these included the fact that the pipe path passed through a tea plantation owned by the National Plantation XII company, the Bromo Tengger Semeru National Park, and a forest under the supervision of Perum Perhutani - the state-owned forest enterprise. "We ran into issues

with licenses," said Adris. Fortunately, the problem was settled quickly. The offices of the tea company, the national park and the forest enterprise all allowed the piping system to pass through their territory. As of December 2016, the pipe construction has been completed, a full two years since the WASH program started in Lumajang District. Residents of Gusti Alit Village can now enjoy access to clean water.

Communities that previously did not have adequate access to bathing, washing and toilet facilities with clean water have now been sufficiently supported. Indeed, they are now even encouraged to improve the quality of their well-being by adopting a clean and healthy lifestyle. All this thanks to PMI's contribution through a consistent and determined implementation of the WASH program.



20 Water Tanks for Batu Nampar Selatan Village

- ✓ 20 water towers, total capacity 24 thousand liters of water
- ✓ Distribution of 225 thousand liters of water in year 2016

A Google search for the words “Batu Nampar” will result in texts and photographs that depict the beautiful coastal scenery of East Lombok, West Nusa Tenggara. However, behind this beauty are the difficulties of life of the local villagers to fulfill the daily requirements for clean water, especially during the dry season.

“It’s easier for us to ask for food (to the neighbors) than for water,” said Bukhari, Chairman of the Community-based Disaster Preparedness of the Indonesian Red Cross in Batu Nampar Selatan Village. Although he said it in a joking manner, Bukhari was not exaggerating. Every year, these villagers that live on the coast of East Lombok have to face the issue about the difficulty of meeting their daily requirements for clean water.

The dug wells they use as a source of clean water needs is unreliable when there is less rainfall due to a prolonged dry season. Other clean water reserves in the form of small ponds usually dry up in the dry season. “Every year we have to buy water,” said Mahani, a resident of

Batu Nampar Selatan Village, Jerowaru District.

After years of experiencing this water shortage, the villagers’ thirst was finally fulfilled in 2014 to 2016. During these two years, the Indonesian Red Cross along with the Hong Kong Red Cross implemented the Community Based Integrated Disaster Risk Reduction program in this village that is located about thirty-five kilometers from Selong, the capital of East Lombok.

In order to meet the water needs of the residents, the Indonesian Red Cross built twenty large capacity water tanks. These water tanks were built on the cement foundations with the height of 0.5 meters and equipped with two taps. The villagers, who largely work as fishermen, did not just stand by waiting for the construction of these water reservoir. They also participated in the construction by providing manpower and constructing the foundation. “We provide the materials and paint the tanks white,” said Ahyanto, an Indonesian Red Cross staff of East Lombok District.

The water tank construction activities were conducted between November and December 2015. A total of 20 water tanks were built in three hamlets in Batu Nampar Selatan, namely in Batu Nampar Lauk, Batu Nampa Daye, and Temayang. One water tank can contain 1,200 liters of water, so when all the tanks are filled, there will be 24,000 liters of water available to meet the needs of the village’s 2,280 inhabitants. In addition to building the tanks, the Indonesia Red Cross also helped supply clean water to fill the tanks throughout 2016. “We sent a total of about 45 water tanks,” said Ahyanto, who has been Indonesian Red Cross staff since 1991. The amount was equivalent to 225,000 liters of water.

Not all of the distributed water was from the PMI. A number of companies through their corporate social responsibility (CSR) initiatives as well as the Regional Disaster Management Agency (BPBD) contributed to this effort. Water donations also came from the Mataram University Alumni Association (IKA UNRAM) in September 2016, which sent four water tankers.



CBAT members are draining the water from the water truck to the shelter in Batu Nampar Selatan Village.
Photo: PMI



The people of the village are queueing to fetch water from the water tank provided by PMI.
Photo: PMI



With the availability of these water tanks, community members can also buy water from trucks that have a 5,000-liter capacity. “Usually the price is about 150,000 to 200,000 Rupiahs per truck,” said Ahyanto. The village head typically coordinates the water purchasing process.

The existence of these water tanks has not yet fully solved the need for clean water in the village. This is because the villagers still rely on external groups for their water, either from other parties’ assistance or buy the water themselves. Nonetheless, these water tanks are the best solutions at the moment, for which the residents of Batu Nampar Selatan are grateful.

According to Ahyanto, the East Lombok BPBD and the Bandung Institute of Technology (ITB) conducted a geoelectric survey in 2016 to find water points that could potentially be drilled for a bore well. Geoelectric is a method used to determine the existence of ground water by finding out where the aquifers are located. By combining data from geoelectric and hydrological data, land use and population, the potential of ground water or ground water reserves can be detected. The BPBD and ITB team surveyed 19 points. “We hope to find an area that can be used to drill bore wells,” he added.

While waiting for the results of this survey—at least for now—the 20 water reservoirs constructed by PMI will continue to be the main support for villagers, whose village borders Awang Bay, which connects Lombok Island and Sumbawa Island.

STORY 12

Green Belt of Bengawan Solo



Three regions: Wonogiri District, Surakarta City, and Bojonegoro District



Type and number of plants: 6,400 aren, 4,000 fragrant roots, 100 bamboo, 500 guava, 300 crystal shackles



525 perennials in Trucuk Village, Trucuk Sub-district, Bojonegoro District: 250 tamarind seedlings, 150 mahogany seedlings, 100 gamelia seedlings, and 25 gayam seedlings along the road and borders of Trucuk Village.

In late November 2016, the upstream areas of Bengawan Solo overflowed and flooded many areas traversed by its streams, including Wonogiri, Surakarta, and Bojonegoro. The water flooded village roads and washed away thousands of plants on the riverbanks. However, some plants managed to survive the flood—giving hope for environment improvement along the river.

“Although the sugar palm trees had just been planted, they survived the floods,” said Warjo, as he pointed at rows of palm trees that had been planted in Ngadipiro Village, Nguntoronadi Sub-district, Wonogiri in March of that year. Rows of 50-centimeter saplings were planted about 10 meters from Kaduang riverbanks, which is brown in color. Kaduang River is one of the rivers that flow into the Gajah Mungkur Reservoir, which is considered the upstream of Bengawan Solo River.

Along the downstream of Bengawan Solo, about 55 kilometers northwest

of Ngadipiro, Jumadi, 32, a member of PMI Surakarta Volunteer Corps (TSR) pointed to areas near the Bengawan Solo river bank in Sangkrah Village, Pasar Kliwon Sub-district, Surakarta, which were full of vetivers plants as tall as 50 centimeters. The leaves were bent because of the floods, but the trunks were still intact.

In Bojonegoro, Evi Roshianawati, a member of CBAT in Trucuk Village, Trucuk Sub-district, showed dozens of 1-meter tall crystal guava and red guava seedlings on the riverbank, which were also still standing after the flooding.

Sugar Palms, vetivers, and crystal guavas are among the plants that PMI and local communities planted as part of the Community-based Flood Resilience Program. This program was initiated by PMI with support from the International Federation of Red Cross and Red Crescent Societies and Zurich Insurance. Other plants that also survived the flood were rough bamboos (*bambu petung*), which were planted in



the green belt area of Bengawan Solo in three villages in Bojonegoro.

For people who live in the river basin areas at the intersection of the river between Wonogiri, Central Java and Gresik, East Java meet, flooding due to the overflowing river is an annual occurrence. The damage in the absorption areas in the upstream as well as heavy rains are the main causes of this flooding. The shrinking of forest zone in this absorption area

causes rain to fall directly into the river without any barriers. Endang Savitri, a researcher from the Institute for Research and Development of Watershed Management Technology (Balitek DAS) Bengawan Solo, said that reforesting the absorption area is a more permanent solution than any other technical civil activity. The main benefits of reforesting the absorption areas are that there will be more green open spaces and the rivers will function naturally as they should.

For this reason, in 2008, the government of Surakarta City initiated a relocation program for thousands of people living in areas along the river that were designated for green open space that meant to be reforested. This decision was taken after in the previous year, as many as 1,571 Surakarta residents were affected by big floods from Bengawan Solo River.

Even though this initiative started several years ago, efforts in replanting the riverbanks progressed rather slowly. Then in 2015, PMI finally incorporated activities of planting in the green open space areas (RTH) into the Community-based Flood Resilience Program in Wonogiri, Surakarta, and Bojonegoro.

Green Belt of Bengawan Solo

The Community-based Flood Resilience Program was carried out in three villages located along the river all the way from upstream to downstream. In Wonogiri, the planting was executed in Ngadipiro Village in Nguntoronadi Sub-district, Gedong Village in Ngadirojo Sub-district and Gumiwang Lor Village in Wuryantoro Sub-district. Each village planted at least two thousand seedlings of sugar palm trees along the Kaduang riverbank that passed through these villages. The plant, which also known as enau in the local language, was chosen for its conservation, production, and economic functions.

The fibrous roots of the sugar palm are useful in preventing soil erosion due to its strength and they could reach up to six meters deep. The leaves are dense



Members of CBAT in Wonogiri District are planting the palm trees on the banks of the Kaduang River to reduce the risk of soil erosion. This river is one of the rivers that flow into Gajah Mungkur reservoir, it is also considered as the Bengawan Solo River upstream.

Photo: PMI



CIBAT members and the communities are planting palm trees in riverbank of Kuduang River, Bojonegoro District. Kuduang River is the upstream of the Bengawan Solo River.
Photo: PMI

and the stems were covered by fibers, effective in preventing torrential rain water to fall directly into the ground. Moreover, other parts of the plant could also be advantageous. For example, its seeds can be consumed as sweets, the inside part of the trunk (sago) is a source of carbohydrate, the flowers are used as the ingredients of palm sugar and leaves' spines can be utilized as broomsticks.

The height of the sugar palm seedlings is typically about 50 centimeters, and they are planted with a spacing of 7x7 meters. The planting was carried out from February to July 2016. This plant could reach 25 meters high with diameter of up to 65 centimeters.

Warjo, the coordinator for the Community-based Flood Resilience Program in Wonogiri said that PMI encouraged the communities to view this mitigation effort as a long-term

investment. "This planting effort is for the future of the next generation," said the man who is also the head of the PMI in Wonogiri.

It was a different situation in Surakarta. According to Jumadi, a volunteer at the PMI in Surakarta, they prioritized to plant vetivers in land line areas of the right and left sides of Bengawan Solo, based on the recommendation from the Major River Basin Organization (BBWS) of Bengawan Solo and the Institute for Research and Community Services of Sebelas Maret University (LPPM UNS). The man who had served as a PMI volunteer for 14 years pointed to the leaves of the plant that has Latin name of *Vetivera zizanioides* that had been twisted and bent by the force of the overflowing waters during the flood at end of November 2016. The plants remained firmly intact despite the large amount of debris that got caught in the branches.



The direction of board to the fragrant root garden in Sewu Village, Surakarta City.
Photo: Nasrullah for PMI

Similar to sugar palms, vetivers also have conservation and economic functions. Its fibrous roots, that can reach up to 15 meters deep are strong enough to hold off soil erosion. Vetivers, which are considered a grass, are able to grow in soil contaminated with heavy metals such as in abandoned mining sites or oil fields. The Soil Research Institute of the Ministry of Agriculture stated that the arsenic (As) levels in the soil could be reduced from 500 mg/kg to 214 mg/kg after six months of having these vetivers grow in the ground.

In addition, vetivers have a high economic value, because its roots could be processed into essential oil that is widely used as ingredients for perfume, cosmetics, and soap fragrances. The dried roots can be woven to make various handicrafts such as bags, tablecloths, coasters, belts, wallets, shoes or sandals, mats, and dolls. Jumadi said that between May 2016 and

January 2017, at least 4,000 vetiver seedlings had been planted in 2.2 hectares of land along the river. “About 0.9 hectares in Semanggi Sub-district, 0.5 hectares in Sangkrah Village and 0.8 hectares in Sewu Village,” said Jumadi, who has been a Volunteer Corps commander since college. In addition to the planting activities, PMI also provided trainings for the three communities on how to process vetivers by inviting facilitators from Wonogiri.

Moving along the Bengawan Solo River towards the east of Surakarta, into the area of East Java, planting efforts in the green belt was encouraged in Bojonegoro. The program was implemented in three villages in Trucuk Sub-district, namely Trucuk, Tulungrejo, and Sumbangtimun. In these areas the communities planted three types of plants: rough bamboos (bambu petung), sugar palms and guava trees. The three types of plants were chosen due to their conservation and economic functions.

With its strong fibrous roots, rough bamboos may prevent soil erosion caused by shallowing of the river. Seedlings of the bamboo, whose Latin name is *Dendrocalamus Asper*, were planted across 3.5 kilometers along the river bank that passes through Trucuk Village. As many as 100 bamboo seedlings were planted across two kilometers along the riverbank in Tulungrejo, each just three meters from the riverbank.

In addition, 400 sugar palms were also planted on the banks of the river that passes through Community Unit (RT)

No.10 through No.12 of Tulungrejo Village. The communities also planted another 525 trees seedlings, namely 250 tamarind tree seedlings, 150 seedlings of mahogany trees, 100 white teak seedlings and 25 tahitian chestnut trees seedlings along the roads and borders of Trucuk village.

Evi Roshianawati said that the villagers also planted guava trees that have high economic value and flood resistant. “Trucuk Village used to be famous for its guava, but it was depleted. Now, we can make them famous again,” said the woman who is a CBAT activist in her village. Evi said that about 800 guava seedlings consisting of 500 crystal guava seedlings and 300 red guava seedlings had been planted on a one-hectare area. “Even though they were flooded, the guava saplings are still standing,” she said in reference to the Bengawan Solo floods in late November 2016, while cleaning some leaves of a guava tree that had just been planted at the end of July earlier that year.

At present, the planting activities in green belt area has yet to show any significant changes in preventing this annual flood. However, these efforts need to be appreciated and became a long-term investment in the environment. Moreover, the important point of this activity is to develop the communities’ mindsets in managing the riverbank areas as green open spaces.

PMI will continue to encourage the local communities to ensure that the lands along the riverbanks of nearly

600 kilometers in length can continue to function as agriculture forest to conserve the absorption areas.



STORY 13

Flood Prediction at Your Fingertips



Weather monitoring application for early warning system in Bengawan Solo River
(<http://feweas.jasatirta1.co.id/en/index.php#popup>)

✓ 1,000 downloads on Android operating system

When a big flood paralyzed Surakarta, Central Java in 2007, Ian Bima Ramadhan was still in high school. His house, in community unit No. 03/ Ward No. 04, Sewu Urban Village, Jebres Sub-district, was inundated to the rooftops. He had to stack some chairs on the ceilings to a bed while he was guarding the house. “I was told to guard the house by my parents,” he recalled. He had to break some parts of his house’s plasterboards and roofs so he could move more freely. Meanwhile, the rest of his family evacuated and stayed in a shelter.

Sewu Hamlet, which is now Sewu Urban Village, suffers from flood quite regularly. This situation is inevitable, because the area is divided by the Bengawan Solo River that passes through it. “Usually, the water will not reach my house, it only floods the alley in front of my house,” told Ian.

However, the flood that occurred on December 27, 2007 was different. Water inundated almost all villages with an average height of 1.5 meters, forcing more than 25,000 people to be displaced. Ian said he did not see any specific signs or warnings before the

flood came. “It was usual rain, but it went on a little longer than normal, from 2:00 PM until midnight,” said the man who works in the printing industry.

The memory of the big flood that struck without warning left quite a powerful mark in Ian’s mind. So, when ten years later he became involved in disaster management issues through the Indonesian Red Cross (PMI) Surakarta, he was so excited. The contact happened when PMI came to his village by facilitating the establishment of disaster preparedness groups called CBAT, which was a way to develop the ICBRR concept (Integrated Community Based Risk Reduction). Ian then became a member of the CBAT in his community, which is involved in the Flood Disaster Resilient Communities project. The project was initiated by PMI with support from the International Federation of Red Cross and Red Crescent Societies and Zurich Insurance.

Activities of the project included conducting a series of flood disaster prevention activities in three districts/ cities traversed by Bengawan Solo River, namely Wonogiri, Surakarta,

and Bojonegoro. The project, which began in 2015, was planned to last until 2017. One of the activities utilized information technology innovation through an application called FEWEAS or Flood Early Warning Early Action System.

Early Warning System

In order to develop this flooding early warning system, PMI cooperated with Bandung Institute of Technology (ITB) and Perum Jasa Tirta 1. FEWEAS is actually a website-based early warning and early action information system application. This application could be downloaded in android/iOS based phones. The goal was to inform about impending disasters, especially floods, in certain areas with a high resolution (3 km) and high accuracy.

The FEWEAS Guidebook for Bengawan Solo explains some features in this application, such as the short-term and medium-term prediction information and observation. Short-term information consists of information about flood alert status, pooling, water levels and weather predictions in intervals of one or two hours for the next three days.



The FEWEAS application on the mobile phone.
Photo: Nasrullah for PMI

Medium-term information includes flood vulnerability prediction in the interval of 10 days for the next five years.

Meanwhile, observation information includes real time conditions from several weather observation

stations. It also contains water levels information from observation stations spread across the coverage area. The monitoring tools at each station are designed to automatically provide reports on the current situation. In addition, recommended actions for

disaster mitigation and climate change adaptation proposals could also be found in the application. The sources of the displayed information utilizes instruments from Perum Jasa Tirta 1.

For the rainfall feature, FEWEAS uses

rainfall data from 26 rain observation stations in the Bengawan Solo river basin. Information on the condition of the river water level is taken from 35 monitoring points spreading not only in the main stream of Bengawan Solo, but also its tributaries, such as Kaduang River in Wonogiri.

Ian and his team admitted that they mostly uses the rainfall feature. “If we want to hold an event, we check the FEWEAS first to see whether it will rain or not,” he said.

Jum, a member of the Volunteer Corps (KSR) of PMI Surakarta, differs in his usage of FEWEAS from Ian. He utilizes FEWEAS not only for dealing with flood disaster management, but also in his daily life. “If I want to go anywhere, I check it [FEWEAS] first,” he said, smiling while showing the app’s display on the screen of his iOS smart phone. The app’s weather prediction feature, according to Ian, is also useful for farmers. “Since the predictions are for five years, maybe it is suitable for predicting the planting season,” said the man who is now known as “Mbah FEWEAS” by his peers due to his enthusiasm with this application. This weather prediction app was adopted from the Smart Climate Model that was developed by ITB. Besides providing weather prediction, the “Info Anda” (Information for You) feature could function like citizen journalism, where users share information about the weather or reported floods in the Bengawan Solo river basin.

In an interview with rappler.com, the Head of the Surakarta Regional Disaster Management Agency (BPBD), Gatot Sutanto, said that FEWEAS serves as a guide to the handling of the floods in the Bengawan Solo river basin. “Before using FEWEAS, our officers must check the condition of the water level at each monitoring station via radio, HT, or telephone. The process takes time, and sometimes the connection is bad, but it is now much easier,” said Gatot.

Partnership with Technical Institutions
The Indonesian Red Cross worked together with technical institutions in developing this application, considering that inter-sectoral cooperation is needed in disaster management. The developer of the app that had been downloaded 1,000 times since its launching on March 30, 2016 in Surakarta City Hall is a team led by Armi Susandi from the Bandung Institute of Technology. Armi also served as the Chairman of the Department of Meteorology and Geophysics at ITB.

Meanwhile, Jasa Tirta 1 is a state-owned company that is a public utility company, which provides water services for drinking, industry, agriculture, flushing, ports, power plants and electricity providers, and several other business sectors related to water management. The Company is based in Malang, East Java. They also engage in activities related to flooding early warning system in Brantas River—a 320-km long river in East Java, and Bengawan Solo.

Perum Jasa Tirta 1 installed 35 flooding early warning instruments along Bengawan Solo that is equipped with rotary lights and sirens. The instrument consists of metal pipes and cables that extends to the edge of the river. On the outside of the iron pipes, which also serves as a pole for the instrument, are marked with red, yellow, and green colors to correspond with the water level. Sirens would roar when the river flow reached dangerous levels or reaches the red mark on the siren pole. Meanwhile, if the water level reached the green mark (standby) and yellow mark (alert), only the rotary lamp would be flashed. Ian and the CBAT admitted that when a big flood in Surakarta occurred at the end of November 2016, the red light flashing and sirens rang loudly.

As a member of CBAT and Bengawan Solo River Basin Community, Ian and his friends welcomed the presence of an application that could be downloaded for free. When Ian saw this application demo for the first time, he felt pessimistic because the phone he used did not support the FEWEAS application. “At that time, I was thinking I could not use this app,” he said laughing. He then changed his phone to an Android smart phone so he could download and use the FEWEAS.

Then in October 2016, Ian and representatives from several institutions, such as BMKG, BPBD, Jasa Tirta 1, ITB, and PMI met in Semarang for one day to get an introduction, learn, and get training on how to operate

this application. From that event, Ian became more interested to master this application that had obtained good reviews on Google Playstore from its all users.

Having been successfully developed in the pilot villages in three cities/districts, PMI thought it was necessary to disseminate information about this app for the entire population of the river basin that is nearly 600 km long. It is expected that the communities living in flood-prone areas of Bengawan Solo could utilize this application so that the disaster risk could be reduced. Given the high appreciation from the community, in the future, there is a possibility that FEWEAS would be an important reference for stakeholders in developing disaster plans in other areas that are also at risk.

STORY 14

Providing Health Services for Migrant Workers in Nunukan

- ✓ Training of 21 staff and PMI volunteers in North Kalimantan
- ✓ Provision of ambulances and health services, HIV/AIDS counseling, and PSP
- ✓ Assisting deported migrant workers (returning home or returning to Malaysia)
- ✓ Assisting migrant workers who had lost contact with her/his family

“They lived as though they were refugees, although most of these foreign migrant workers have spent thousands of Ringgits to pay the Indonesian Migrant Worker Recruitment Agency (PJTKI) to process their immigration documents in Nunukan. The workers had to wait at least a month to obtain their passports to return to Malaysia. Furthermore, they were forced to live in squalor conditions and overcrowded housing provided by PJTKI. Some of them were even sleeping on the sidewalks in front of houses or stores in Nunukan.” - Kompas, Friday, 30 August, 2002

This dire picture of the repatriation of migrant workers from Malaysia 14 years ago was the biggest headline at the time. At least 160,000 Indonesian migrant workers who sought to work in Malaysia - most of them illegally - were deported and forced to temporarily live in Nunukan, a district with a population of nearly 39,000 people. With a total area of under 15,000 km² and very minimal public facilities, the government faced a catastrophic situation in this repatriation process.

One of the major problems was health issues.

Between August and September 2002, the Indonesian Red Cross (PMI) became involved for the very first time to provide health services for the deported migrant workers in Nunukan District. This involvement was part of the emergency response team formed by the Government of Indonesia. The team focused on responding to various problems, including inadequate sanitation at the camp, food and medicine supplies, and the lack of health professionals to serve the thousands of migrant workers.

At the time, the Nunukan District PMI had not yet been established. Nonetheless, PMI still had to deploy its team, most of which were from the Tarakan branch. “The PMI at Nunukan District was established later in 2005,” reminisced Ashar Azis, Head of PMI Headquarters of Nunukan District. At that time, the PMI team comprised of one physician and eight nurses. The team was deployed during the early



One of migrant workers is filling the Red Cross message form so the PMI can send the message to her family.

Photo: PMI

stages of response in August 2002, along with two specialists and one general practitioner from the Department of Health of East Kalimantan Province and a medical team from the Disaster Response Brigade (BSB) of Makassar City.

In a joint operation, PMI opened their health post to provide services for the deported migrant workers in 2002. Source: Saving the Migrant Workers in Nunukan (Menyelamatkan TKI di Nunukan), Department of Health, 2003. During this humanitarian operation, PMI and other health organizations were positioned at Line 1, where a group of general practitioners provided general health services in ten health posts spread at several points in the area. Other agencies working together with PMI included staff members of the Department of Health of Nunukan District and Tarakan District, Department of Health of East Kalimantan Province and the local military health post, Kesdam VI/Tanjungpura. Patients that needed to see specialists were referred to the field hospital that were included in Line 2. Patient evacuation and transportation were carried out by the PMI team and other health organizations, such as BSB from Makassar.

Seeing how much PMI was needed during this operation, it was recommended that a PMI branch office be established in this district—which itself was also considered relatively new as it just became an independent administrative region in 1999. “Preparations for the new office was carried out between 2002 and 2004,” said Ashar. This turned out to be a good decision considering that three years after this mass deportation humanitarian disaster in 2002, Nunukan District again experienced another migrant worker humanitarian situation in 2005.



One of PMI volunteers is assisting the migrant workers in the shelter.
Photo: PMI

Under the new structure, the PMI of Nunukan District, in collaboration with PMI Headquarters, carried out a response operation focusing on health issues, logistics distribution and disinfectant fogging.

At that time, Ashar served as the Health Coordinator. The PMI team provided

health services using a mobile clinic and visit 20 homes that were hosting the migrant workers. “It was PJTKI that assigned the workers to these homes,” explained Ashar, who was born in Makassar. “Many of them had acute upper respiratory infections (URI), while many others had dermatitis,” he added. Ashar also mentioned that PMI provided

services to at least 68 thousand migrant workers in a period of three months. “I don’t exactly remember which months they were,” he said, as he tried to recall his first operation as the Head of Nunukan District PMI.

In addition to providing health services, PMI also supported the distribution of logistics items, such as mats, tarps, and hygiene kits. “I recall that some of these were items allocated for Aceh,” said the 36-year-old man, who is referring to the earthquake and tsunami that hit Aceh at the end of 2004. “Some of those items were diverted here [Nunukan],” he added. During the three-month response, the PMI team visited the compound once a week to monitor the health of the migrant workers.

These days, 14 years after the large-scale deportation, Ashar still sees many migrant workers come to Nunukan. The Kingdom of Malaysia still regularly departs illegal migrant workers on a weekly basis. He added that when they are deported, migrant workers are detained in three possible Temporary Detention Centers in Sabah, Malaysia, namely Kimanis, Papar, and Manggatal. The Tunon Taka harbor serves as the gateway to Indonesia.

From May to June of 2016, the PMI team of Nunukan District, which comprised of both staff and volunteers, returned to the field to provide health services of deported migrant workers. This service included provision of an ambulance to evacuate ill migrant workers and those who required a referral to the nearest

health center or hospital. Additionally, PMI also conducted disinfectant spraying in the compounds and distributed around 60 mats to the migrant workers. However, this service experienced some interruptions during this period. Ashar stated that it was caused by BP3TKI not being able to accommodate all of the deported migrant workers. Once they arrived in the harbour, they were interviewed by BP3TKI officials and offered them with the options either of staying in Nunukan, going back to their home towns or returning to Malaysia for work.

Reuniting the Migrant Workers with their Families

Ashar added that the district of Nunukan now has an official migrant worker recruitment agency, PJTKI, as well as a migrant worker compound. PMI contacted the agency and discovered that roughly between one and three percent of the compound residents have lost contact with their families.

As a result, PMI conducted an assessment and gathered secondary data from the Nunukan BP3TKI office and the Office of the Ministry of Health at the Harbor as well as coordinated with the PMI of North Kalimantan Province. “Based on information obtained from the Office of the Ministry of Health at the Harbor and the Nunukan BP3TKI office, there were more than 6,000 migrant workers deported in 2015,” he stated. Moreover, between January and September 2016, Malaysia deported 3,622 illegal migrant workers through the harbor, which services over 500 passengers between

Indonesia and Malaysia on a daily basis.

Following the coordination between the two PMIs in Nunukan and North Kalimantan, a training on Restoring Family Links (RFL) was conducted for the staff and volunteers of the North Kalimantan PMI. This training was held in May 2016 and attended by 21 participants. They learned how to prevent families from being separated and missing, how to reunite and maintain relationships among family members, and clarify locations of family members reported to be missing. This RFL activity is a signature activity of the Red Cross and Red Crescent Movement worldwide.

Andreanne Tampubolon, the Head of the RFL Sub-Division at PMI HQ stated that PMI has helped reunite refugees with their families since the 1970s. Recently, the International Committee of the Red Cross was able to pass along a message from an Indonesian citizen detained in Kuala Lumpur to their mother in Banten Province. This message is called an RCM, or a Red Cross Message. PMI also has another program called Saya Selamat (I am Safe), which enables people who have been affected by a disaster to notify their family members of their safety. “We usually use this during the disaster response phase,” she added. Ashar and his team at the Nunukan PMI will develop a similar program for the displaced migrant workers living in the compounds. In addition to the Saya Selamat program, Nunukan PMI will also develop an HIV/AIDS campaign and psycho-social program (PSP) for the migrant workers.

The name Nunukan comes from the word Nunuk, which in the Tidung language, means banyan tree. According to the local folklore, this area was once full of banyan trees, as well as many springs that became the water source for fishermen going out to sea. It was also a land of rest for the tired fishermen. Nowadays, Nunukan is the place of rest for the migrant workers before returning abroad.



CBAT Quick Response during the Sangihe Flash Flood

That morning on Tuesday, June 21, 2016, some residents in Sangihe, North Sulawesi, were just getting ready to start their day. Others were still asleep. The rain that had fallen since the night before had not abated. In fact, toward 07:00 a.m., it was as if water was just pouring out from the sky. Rain was even getting heavier.

The heavy rain that lasted for 15 hours caused rivers to overflow and landslides occurred in several locations. Flash floods hit this small island, sweeping houses mostly located in foothills and bounded by the coast. The National Disaster Management Agency (BNPB) reported that floods and landslides struck 9 districts, including 7 sub-districts and 5 villages. Stones, sand, mud and logs buried dozens of houses and schools, cut off roads and bridges. Five people were reported dead, four missing and three were seriously injured in the incident. Meanwhile, it was also reported that 133 houses were heavily damaged, 23 moderately damaged and 69 slightly damaged. Not to mention dozens of public facilities and offices. Losses were estimated at Rp 57 billion.

“About 200 residents were isolated because of landslides in West Tahuna,” said Tommy Sampelan, the Head of Disaster Management Division of North Sulawesi PMI. According to PMI’s data, eight sub-districts in Sangihe were hit by flash floods, including West Tahuna, Tahuna, Manganito, Tatowareng, South Manganito, Kendahe, Tabukan North, and Tamako. Kolongan Beha and Kolongan Akembawi sub-districts were badly shattered because of the landslides and flash floods. In Kolongan Beha, dozens of houses were wiped by flash floods. Meanwhile, in the Akembawi region, flash floods swept dozens of houses and buried them in mud.

The suffering of the impacted communities were exacerbated, because the flash flood cut off land access, especially to Akembawi areas that suffered the most damage. Three roads leading into this area were buried, evacuation and aids were hard to be delivered, especially when the seas were also not very friendly. The port in Tahuna was also closed temporarily, because of high waves that reached six meters in height. “The local government through The Regent issued

a Decision Letter on Determination of Emergency Status of Flood, Landslide and Tidal Wave in Sangihe Islands for 14 days from 21 June to 4 July 2016,” said Tommy.

In this situation, the presence of Community-Based Disaster Preparedness (CBRR) volunteers became very important. While waiting for the joint search and rescue team that moved to the location, CBAT volunteers, whose members were local people, became a hope for the victims in the disaster areas. Despite their limitations, the CBAT moved quickly to help evacuate the victims, goods, and provides guidance so that people would avoid disaster-prone areas.

The threat of hypothermia and being swept away became the main challenges for these volunteers while evacuating the flood victims. In fact, in order to save the flood victims, the CBAT volunteers had to brave risks that could threaten their lives. “Preparedness and emergency response is effective when its empowerment efforts reach the communities. So they (CBAT) were able to come first to evacuate,” said Morgan

Glend, a staff member of the Manado PMI.

The CBAT consisted of community members who were ready to be Red Cross volunteers and were willing to devote their time, energy, and thoughts. They motivated and mobilized people in their neighborhood so they were able to conduct preparedness and emergency response in their villages/wards. The CBAT volunteers also served as liaisons between the team to Sangihe Islands PMI and North Sulawesi PMI in coordinating further action.

Based on reports from the CBAT volunteers, the team from the North Sulawesi PMI and the Sangihe Islands PMI were able to take action more effectively in evacuating victims of floods and landslides. The next step was to set up a preparedness post and design strategies to help heal the grief of the Sangihe people. PMI teams also supplied logistics to the islands bordered by the Philippines. "Of course as the prioritized actions to respond to this disaster, PMI and the joint rescue team will evacuate the victims of landslides," said Glend.

CBAT volunteers who had been trained on rescue and evacuation then joined in the rescue and evacuation of victims efforts together with the SAR team. Tirelessly, the CBAT volunteers traversed a sea of mud to search for and rescue the victims. From morning until sunset, they were worked with the joint SAR team to do the search in a sea of mud filled with debris. Although they were already have the basic skills of search

and rescue, they also carried out other duties, such as monitoring the source of disaster in hazardous locations.

Meanwhile, the CBAT volunteers helped in the social and humanitarian areas. They assisted the local community in the evacuation post and delivered basic needs required in the soup kitchens. Although they only had a basic knowledge of disaster response, they turned out to be able to function optimally. Their roles were also very important, they took care of refugees, which is also included in PMI's fundamental duties. "With the knowledge and skills of disaster preparedness and emergency response given by PMI through CBAT, the communities can play direct role as "the first responders" who are able to help or rescue themselves, their families, and other community members," Glend explained.

Considering its hilly topography, Sangihe was quite prone to be affected by flash floods and landslides. Moreover, it was also threatened by other disasters such as earthquakes, tsunamis, abrasion, and extreme weather that causes high waves. Districts bordering South Mindanao, in the Philippines, is also an archipelago with ocean that often had high waves that made the islands isolated. Overall, there are 112 islands in Sangihe, 82 of which are inhabited islands and 30 uninhabited islands. The total area of Sangihe is up to 20,258.60 km², consisting of 1,012.94 km² of land and 1,9245.67 km² of sea.

The people of Sangihe Islands mostly working as fishermen, especially those living in smaller islands. Meanwhile, others who live in larger islands, usually cultivate coconuts, nutmegs, and cloves. Mostly the crops were sold to Manado, some were even sold to the Philippines. From Tahuna, Sangihe district capital to Manado, capital city of North Sulawesi, we could choose two modes of transportation, airplanes for 50 minutes or boats for 7-8 hours. On the big wave season, travel by the sea were very hard.

"Because of the topography and geographic condition, then PMI opted local community empowerment strategy, especially the most vulnerable community groups which lived in disaster prone areas. This empowerment actions was initiated with recruitment and establishment of CBAT," mentioned Glend.

According to Glend, the CBAT program was started in Sangihe at the end of 2010. At first, PMI cooperated with the Danish Red Cross in holding trainings for volunteers from across North Sulawesi and West Sulawesi. The training was conducted to prepare trained volunteers in Community Based Health and First Aid (CBHFA). The training was held in Minahasa Prima Resort, Mokupa, Minahasa, for six days from December 13 to 18, 2010 and was attended by 37 volunteers with varied educational backgrounds.

"The volunteers were given an understanding of health promotion

activities and community-based first aid, which had become one of the PMI service programs in the community,” said Glend

After this training, the North Sulawesi PMI developed the CBAT program in Sangihe Islands. Next, a CBAT was established at the sub-district level in Sangihe, in collaboration with the Danish Red Cross through the Integrated Community Based Risk Reduction (ICBBR). The main objective of this program was to increase community capacity in disaster prone sub-districts to reduce the risks. Hopefully, with this capacity strengthening, the community would be able to help themselves and other people around them without having to wait for help from outside their areas.

CBAT members were selected from and by local communities. They who were chosen had the responsibility to carry out the CBHFA program, including holding trainings, raising awareness and empowerment of community capacity in the field of disaster preparedness, and disaster emergency response actions.

The CBAT usually consisted of representations from every community unit (RW) with around 30 people in each team. This team received special trainings from PMI on various disasters specialities, including disaster area mapping, first aid for victims, disaster handling coordination, evacuation and transportation during a disaster, and how to manage soup kitchens.

Currently, there are five sub-districts that were appointed as disaster resilient sub-districts. Sub-districts with a high level of vulnerability to flooding, fires, and storm hazards were chosen to be disaster resilient sub-districts, since trainings for their communities could be held at any time, and did not have to wait for a specific time. “So, if disasters or calamities occur, the people know what to do,” Glend added.

According to Glend, since CBAT was established, Sangihe community’s sensitivity to disaster has improved. This was proven when several disasters struck. For example, when a fire occurred, many people were responsive to delivering aid instead of just watching. “That behaviour, we think, is much better than before,” Glend said.

Glend added that in the future, the CBAT in Sangihe would be developed so they could have more human resources. If possible, there would be representatives recruited to be team members in every community group.



Mangrove plant in Cemare Sub-village, Lembar Village, Lombok Barat District.

Photo: Nasrullah for PMI

STORY 16

Recovering Mangroves, Returning Lives

- ✓ Three provinces (Aceh, Central Java, West Nusa Tenggara) are prone to natural disasters in coastal areas
- ✓ Planting more than 500 thousand mangrove seeds and 30 thousand coastal plants (sea pine, ketapang, and coconut)

"In the past, there was one big cemare tree, which could be seen from a distance of 10 km," said Solikin, describing the origins of the hamlet he led: Cemare Hamlet. This hamlet is located in Lembar Selatan Village, Lembar Sub-district, West Lombok District. The word Cemare was what the Sasak people called beach pine trees.

"In the 50s, this place was full of bako (mangroves). Just in Gili Sulat," he added. Gili Sulat is a 5 kilometer-long island in East Lombok that is famous for its mangrove tourism. The location is about 85 kilometers from Mataram City to Labuan Pandan Village by road. However, in contrast to Gili Sulat, the mangrove forests in Cemare Hamlet were disappearing, because the people were clearing the forests for settlements and shrimp or milkfish farming.

"In 1993, the forest was desolated," recalled Solikin who was still in high school at the time. "People used the wood for firewood and cleared the land for fishponds," he added. In the same year, he recalled, the government began a reforestation program in the village. Sahlan, 51, a resident of neighborhood

unit (RT) No. 03 of Cemare Hamlet, added that he had participated in the mangrove training organized by the government of West Lombok District. "A lot of trucks containing mangrove seeds were delivered. We grew them in RT No. 01 through RT No. 04," he reminisced. "Many of them grew well. The fruits fell to the ground and then grew on their own," said the man who was born in Jembatan Kembar Village, Lembar Sub-district, West Lombok District.

Lembar Selatan Village borders the Lombok Strait. As of 2013, the village that consists of 11 hamlets were registered as having 13,794 inhabitants, with a total area of 789,875 hectares. Water was obtained from taps and bore wells. Cemare Hamlet is located in a coastal area that is vulnerable to high tides.

Based on a vulnerability and capacity assessment using participatory village appraisal methods, it was revealed that disasters had occurred several times in the village that is located about 21 kilometers from the headquarters of the PMI in West Lombok District. In 1997, tidal waves struck because of

heavy rains that lasted from morning until the evening, causing overflow of the estuary of Dodokan River that passes through the village and damaging five houses.

According to Solikin, after the tsunami in Aceh in 2004, sea water overflowed and submerged resident settlements in his village for seven days. "All the people of Cemare Hamlet fled to the Bulog building, which is now a village hall," recalled the man whose house was inundated up to 40 cm in flood water. "We still use boats, there was no bridge yet at the time," he added. He was referring to the bridge that connects the mainland with the hamlet. This bridge passes Dodokan kokok (river in Sasak language). "The bridge was named Tsunami Bridge since it was constructed after the disaster," he said. Joko, the head of West Lombok PMI added that PMI also conducted an emergency response operation by sending rescue teams as well as establishing a soup kitchen. "We opened a soup kitchen for seven days," said the man who has been with PMI since 1981.

Solikin added that people had begun to know PMI since 1999. “They carried out a reforestation effort in collaboration with the Department of Plantations. That result was the rows of coconut trees along the beach,” he said. He explained that in this 210-hectare village, people still make fishponds, but the shape is different. “They plant mangroves in the middle of the pond. But people rarely making ponds nowadays. It is not very profitable,” he said. “If the tide comes in, the pond will overflow, the fish flow out of ponds, and the owner will lose,” he said, smiling.

Mangrove Ecosystems in Indonesia

With 3 million hectares of mangrove forests growing along 95,000 kilometers along the coastal area, Indonesia currently has 23% of the total area of mangrove ecosystems in the world. At first glance, this seems like a large number, but actually in 1999, the total area of mangrove in Indonesia was much larger, reaching 8.6 million hectares. Land clearing or deforestation in coastal areas that occur massively until 2005, resulting in 5.58 million hectares of land and sea connector ecosystems quickly disappearing. This deforestation was a consequence of the “blue revolution” of shrimp farming, logging and land conversion for agriculture or salt fields and the degradation of oil spills and pollution.

In the West Lombok area, the damage to the mangrove ecosystem began with cutting down of trees for firewood, followed by clearing of forests for shrimp and milkfish farming. What started



One of Cemare Sub-village residents is showing his pine seed in his yard.

Photo: Nasrullah for PMI

as traditional pattern of agriculture developed into massive business. The website of IFAD (International Fund for Agricultural Development) stated that mangrove ecosystems in West Lombok District shrank from 606.81 hectares to 484.98 hectares. While the restoration and rehabilitation efforts just reached 195.1 hectares.

Mangroves destruction has been proven to cause large spillovers. Mangrove ecosystem serves as a support for the ecosystem to supply and regenerate nutrients, recycle pollutants, control the water cycle, and maintain water quality. Mangrove roots bind the soil, thereby reducing coastal erosion and prevent sediment loss from the shoreline. Mangrove forests help reduce the impact of storm, huge waves and strong winds. Lush trees reduce

the energy of tidal waves that pass mangrove forests. Dense mangrove ecosystems also act as a natural fortress and habitat for shrimps, eels, clams, crabs, sea snails, and a variety of fish species.

Therefore, mangroves destruction becomes a huge loss that has affected the villagers in West Lombok.

ICBRR Program in Coastal Area

Damage to the mangroves environment that affected the community became a concern to PMI, which actually had been working in disaster-prone locations since 1995 by promoting disaster preparedness. This concept later evolved into the Integrated Community Based Risk Reduction (ICBRR) project that started in 2006 and lasted until now. In 2012, with the support of



These are sea pine trees which were planted by PMI and the communities in 2013.

Photo: Nasrullah for PMI

the American Red Cross and USAID (United States Agency for International Development), PMI started the ICBRR project on coastal areas in three provinces, namely Aceh, Central Java, and West Nusa Tenggara. The project was implemented between October 2012 and September 2014.

In Aceh, the project was implemented in Aceh Jaya District, located in the west coast of Aceh, which is directly adjacent to the Indian Ocean. PMI worked in five villages namely Crak Mong, Lhok Kruet, Jeumpeuk, Lhok Timun, and Gampong Baro. Meanwhile, in Central Java, it was carried out in Cilacap District, which is

located in the southern coast of Java Island and directly adjacent to Indian Ocean. The program was conducted in two villages, the Tegal Kamulyan Sub-district and Karang Benda Village.

In West Nusa Tenggara, the ICBRR project was implemented in the coastal

areas of West Lombok District; in the village of Labuan Tereng, Lembar Selatan, and Kuranji Dalang to be exact. In the Mataram City area that is directly adjacent to Lombok Strait, the project was implemented in Tanjung Karang, Jempong Baru, and Bintaro Sub-districts.

To establish the ICBRR concept in these Coastal Zones, PMI emphasized the strategy of forming the CBAT (Community Based Action Team), vulnerability and capacity assessments, increasing the capacity in emergency response, public awareness campaigns on the environment and disaster issues, public health, coastal environment management in the form of mangroves and coastal plant green belts, school disaster preparedness campaigns, and building networking/collaboration. For the management of coastal environment, PMI and communities conducted seeding and planting of hundreds thousands of mangroves and coastal plants.

For example in Aceh Jaya District during the first phase of the ICBRR project, PMI planted at least 109,670 types of mangrove plants such as rhizophora, carioptagal, bruguera, and avicenia and 7,562 coastal vegetations such as she-oaks, sea-almonds, seashore pandans and 6,119 coconuts as productive plants. All plant seeds were from the nursery in the assisted villages. While in the West Lombok District, West Lombok PMI and the communities planted at least 63,500 mangroves and 8,300 coastal vegetation.

Continuing the success of phase 1, PMI and the American Red Cross resumed the ICBRR project and added planting on the coastal green belt at stage 2 that was implemented between July 2015 and December 2017. In Aceh Jaya, at least 225,000 mangrove seedlings and 6,000 she-oaks were ready for planting in villages prone to this tidal wave. In West Lombok District, PMI and communities set up 225,000 mangrove seedlings and 4,000 she-oak trees seedlings ready for planting in January and February 2017.

Gradually, the damaged mangroves recovered. The quality of the environment was improved and the shrimps, eels, clams, crabs, sea snails, and the various species of fish also came back.

Tourism and Livelihoods

Solikin could see the changes that occurred because of mangrove planting activities. “It was obvious that the areas for mangroves areas have expanded,” he said. “there was once a villager who made 80,000 to 100,000 Rupiahs from selling shrimps that he found using a flashlight around the mangrove forests at night when the water receded,” he added.

Sahlan has also felt a real change. “The plants that we planted in 2013 still exist, that big she-oak trees, that sea almonds also grew bigger,” he said loudly.

For PMI, the coastal green belt program not only have an impact to the community, but also for the human



resources in PMI. Abdul Madjid, the Field Coordinator of Coastal ICBRR Program said that the capacity of the volunteers have increased, in both technical and project management skills. “PMI’s



One of the Lombok Barat District PMI's volunteers perform is cleaning the mangrove nursery in Cemare Sub-village.

Photo: Nasrullah for PMI

Lembar Selatan” (Lembar Selatan Village) or “Dusun Cemare Lembar Selatan” (Cemare Hamlet, Lembar Selatan) in Google, there would appear various images of lush and dense mangrove forest ecosystems. Some media coverages or blogs of some people from outside the village described their experience in enjoying tours of the beach or boating along rivers and estuaries, which are now full of mangroves. In fact, the Cemare Beach, which is located in the Cemare Hamlet, has already become famous as a tourist attraction in West Lombok District. In this beach, visitors can enjoy views of the Lombok Strait or rent a boat to cross to Gili Nanggu. Behind the lush she-oak trees or sea almond trees that are used as shade by visitors are the efforts of PMI and the communities to revive the coastal areas and restore their function as part of a natural ecosystem.

exposure is also no longer just a blood donor organization,” said the man who had been with the West Lombok PMI for more than a decade. As for Muslimatul Jannah, or commonly called Atun, she

learned more about the management of coastal areas, especially mangrove nursery and other coastal vegetations.

Nowadays, if you type the word “Desa

STORY 17

Processing Local Food to Face an Emergency

- ✓ Diversification of processed products based on local food of East Lombok (cassava, corn, banana)
- ✓ New economic opportunities

Stemming from their experience of boredom from having been given instant noodles and canned fish every day when they became refugees as a result of several flash floods, the villagers of Kunci Village, in Sambelia Sub-district of East Lombok, West Nusa Tenggara now equip themselves with skills to process various of local food. This is done not only to anticipate emergency situations, but also to provide new economic opportunities for some villagers.

It takes about one hour and forty five minutes to reach Dara Kunci Village from Selong, the capital of East Lombok. During the trip across the smooth asphalt road, we are spoiled with the typical scenery of a coastal area, the rows of palm trees along the beach. East Lombok District is indeed directly adjacent to the Java Sea. There is also a crossing port to Sumbawa Island, where the Tambora Volcano is located.

As we entered the Dara Kunci area, we could see rows of lush teak trees growing on either side of the road, alternating with cashew trees. Despite the sunny weather and the sun brightly

shining, the blowing breeze cooled the air. The atmosphere was calm and quiet, misleading anyone from believing that the village had been repeatedly struck by flash floods.

Eleven years ago—on Saturday, January 21, 2006, to be exact—this village that is located approximately 120 kilometers from Mataram, the capital of West Nusa Tenggara, was hit by a flash flood for the first time. Flood water mixed with mud and wooden logs from the forest passed through the Patek River, which flows through the area of Sambelia Sub-district. At that time, Dara Kunci Village was still a part of Belanting Village. The flash flood killed two people, destroyed hundreds of houses and forced two thousand residents to evacuate.

Six years later, Sambelia Sub-district was hit again by a flash flood. Three villages were affected, namely Belanting, Dara Kunci and Sugian. At least 700 people had to evacuate. “It was around March 2012,” recalled Abdul Rakhman, a Dara Kunci village official. “Batu Sela Village was the first to be one hit and also the most severely impacted,” he added. “But the worst was the one in 2006. It



Food products from cassava.
Photo: PMI



swept away houses and cattle,” said the man who has been a village officer since August 2015.

Data from the 2013 Disaster Risk Index in Indonesia, which is issued by the National Agency for Disaster Management, showed that East Lombok District is ranked at 113 with category of high risk (out of a score of 180) with hazards such as flash floods, tornados, droughts and volcanic eruptions.

During the flash floods in 2006 and 2012, the Indonesian Red Cross (PMI) was one of the first organisations at the location. It took them at least four hours to reach the disaster site. “Four hours was the best we could do. To get here (from the East Lombok PMI headquarters to Dara Kunci Village), it took at least two hours. Not to mention the time to prepare the team and aid,” explained Ahyanto, the Head of Administration of East Lombok PMI, who has been with them since 1991. “It is most likely that it took more than 4 hours,” he added. At that time, PMI brought food aid in the form of rice, biscuits and instant noodles. “We also mobilised a rapid assessment team and inflatable boats as well,” said this man who often act as a commander in disaster emergency response operations.

Muh Kasimin, 41, the Head of the Public Welfare of Dara Kunci Village explained that from the time of the disaster, most of the people just wait for help from outside the village, which could take hours to reach the village.

In fact, during the first few hours after the flooding, what the refugees really needed was food. “They need to cook to feed themselves,” he said in a thick Sasak region accent. From that experience of waiting for hours for food aid, the Community-based Action Team (CBAT) proposed to create a local food processing activities that can be easily and quickly done at the refugee camps.

Local food for Displacement Camps

Dara Kunci Village expanded from Belanting village in 2010. With a total area of 1,237 hectares, this village is divided into seven small hamlets, namely West Sandongan, Sandongan, Dara Kunci, East Menangan Reak, Koloh Sepang, Menangan Reak, and Batu Sela. The majority of the population earns their income as paddy farmer, field workers and fishermen. The east side of this 2,953-resident village directly borders the Java sea.

This village has been long known as a producer of crops, such as bananas, cassava, yellow pumpkins, corn and taro. “There are stocks available every day,” Abdul Rakhman said. “There are even varieties of bananas, like kepok, susu and cemare,” he added. Usually there are traders who came to the village to buy the villagers’ crops.

He added that the crops are usually just boiled or fried. “Most of the time, they made them into tigapo,” said the man who loves to smile. Tigapo is a unique snack that Sasak people make from grated cassava mixed with

shredded coconut and shaped to look like meatballs. Then, they put brown sugar inside the balls and fry them. They can also be steamed wrapped in banana leaves. “It cooks quickly,” said Muh Kasimin, who also joined in the CBAT of Dara Kunci Village. This snack is well known by the public as local food. Muh Kasimin said that it takes less than two hours to cook 500 pieces of tigapo, from the ingredients preparation until ready to serving. “This could be made while in the refugee camps so people no longer would rely on instant noodle or canned fish,” he said, smiling.

The villagers also agreed that in disaster condition, anyone could take the crops without permission. “In fact, in everyday life, we had always shared each other’s crops to eat, as long as it’s not for sale,” explained Abdul Rachman. Ahyanto and Muh Kasimin mentioned that during a flooding simulation, the Public Kitchen Team tried to prepare this food and proved they could make it quickly.

This villagers’ self-reliance in preparing food for the refugees eventually caught the attention of the PMI in East Lombok District and the Hong Kong Red Cross when they were organizing the Integrated Community-based Disaster Risk Reduction (ICBRR) project in Belanting Village, Sambelia Sub-district and Pemongkong Village, Jerowaru Sub-district between 2014 and 2016. These two villages had been selected for this project because they were considered prone to flash floods and tidal waves.

Various disaster management activities were conducted, such as forming a CBAT, disaster response training, and preparation documents on village level disaster risk reduction.

The first stage of this project had actually been initiated by PMI and the Hong Kong Red Cross between 2009 and 2012. But it was only during the second project, which began in 2014, that this issue of local food for the refugees was finally included in the activities. The two villages that were supported during this second project were Dara Kunci Village in Sambelia Sub-district and South Batu Nampar Village in Jerowaru Sub-district. With regards to the local food processing activities, in particular, after seeing how abundant the local food was, PMI decided to conduct the pilot project in Dara Kunci Village.

To develop this local food potential, the PMI in East Lombok District, in collaboration with the local Department of Industry, delivered a four-day training, on December 22 to 26, 2015. This training was attended by thirty participants, where the majority of them were women, mostly wives of the CBAT members. From that training, the participants gained knowledge on a wide range of processed products based on their local ingredients.

“With trainings from PMI, now the women were able to process different kind of foods,” explained Sesoliwati, chairman of the Family Welfare Empowerment of Dara Kunci Village.

“They can turn corn into corn sticks, or even donuts. They also make yellow pumpkin into cakes,” she added. Before the training, these various type of local food would usually be just boiled.

In implementing this program, PMI also provided seven sets of baking equipment to each of the hamlets. “One set was given to one hamelt, aside from equipment for the public kitchen,” said Ahyanto. Besides aiming to increase knowledge about various processed products with local ingredients, Ahyanto also sees that this knowledge and skills in baking cakes could be used to increase the community’s daily incomes.

Take Muh Kasimin for example. Muh, who is a SIBAT Team member and staff at the village administrative office, said that he and his wife are now selling cakes. His wife learnt these baking skills from the training that PMI held. “We sell tygapo cake, pastel (stuffed with noodles, yellow pumpkin and carrots) and other cakes,” he said proudly. “I personally send the cakes to three elementary schools and one middle schools in this area, including to Belanting and Sugian Villages,” he added.

Abdul Rakhman sees that PMI has helped the village administration in raising public awareness on flash floods through various program activities. Not only have they been trained in disaster management, but they were also provided skills to process local food that

could be used during an emergency or to obtain additional income for families.



STORY 18

Firewood Efficient Cookstoves for NTT People



170 firewood efficient cookstoves for eight villages in East Nusa Tenggara

- ✓ Reduce the use of firewood up to 50 percent

In the past, the Indonesian Red Cross (PMI) was better known for being the basic first aid response organization after a road accident or an emergency. However, PMI gradually transformed by broadening its scope. The organization implemented many programs related to disaster prevention and mitigation, such as the ones in Sikka District and Lembata District, East Nusa Tenggara (NTT).

In these two districts, PMI provided assistance in the form of 170 firewood efficient cookstoves, specifically to four villages in Sikka District and four villages in Lembata District. A total of 120 cookstoves were distributed in Sikka District, covering Loke Village in Tanawawo Sub-district, and Talibura, Bangkoor and Waimulang villages in Talibura Sub-district. Meanwhile, 50 cookstoves were distributed to four villages in Lembata District. These cookstoves were distributed as a campaign to promote the reduction of firewood use in the area.

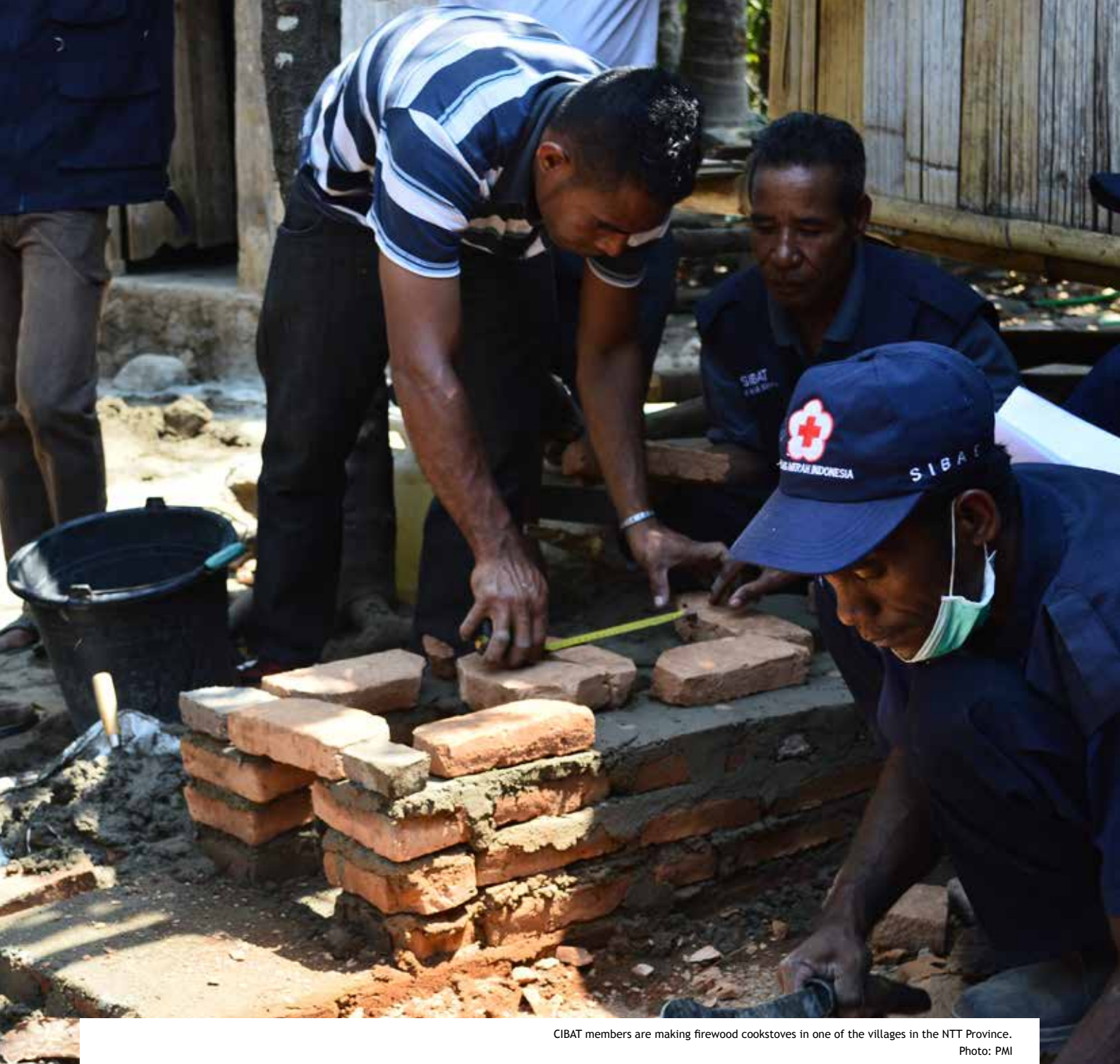
The cookstove is a permanent rectangular installation made of brick,

cement, sand, and water, and measures about 90 cm in length, 40 cm in width and 25 cm tall. There is a hole to insert firewood on the side, a hole on the top of the stove with a diameter about 10 cm, and two small holes about the size of an adult fist that functions as a chimney in the back.

Van Paji Pesa, a PMI volunteer from Sikka District, said that most people in this region still use firewood as cooking fuel. They obtain the firewood by cutting down trees, collecting dried the wood/twigs in the forest, or buying them from loggers. “In a week, the villagers go into the woods at least twice. One bunch of firewood per trip. That’s about 20 pieces of wood of one meter long,” he added. People in the village still practice shifting cultivation, which is an agriculture system where farmers clear the forest land and live in the area for about two years before moving and finding a new location. The large demand for firewood was mainly triggered by inefficient use of existing cookstoves.

According to Van Paji, who is also active in another humanitarian organization in Sikka, the villagers usually use a simple form of cookstove made of stacked bricks or cobblestones. They would then place the pot or frying pan on top of these bricks, while the woodpile is underneath the pan. Using this method, heat energy and smoke generated from the fire is not being used optimally. “There are some villagers who have used this type of stove, but the design is still open so it doesn’t retain heat. And the smoke is still everywhere,” he continued.

Similar to the community in Sikka, residents of Lembata District also still rely on firewood from the forest and apply the same cooking stove technique. Donatus Roni Ruing for example, a resident who lives with his wife in Lerahinga Village of Lebatukan Sub-district, Lembata District explains his dependence on firewood. “For cooking and drinking, needs we always use firewood from the woods,” said Donatus, who is also a CBAT member in his village. He added that he had to go to the forest at least once week



CIBAT members are making firewood cookstoves in one of the villages in the NTT Province.
Photo: PMI



Approximately 170 stoves have been available for 170 poor families in the NTT Province.

Photo: PMI

to collect firewood consisting of 20-30 branches with a length of 2-3 meters. His monthly firewood requirements ranges between 80 and 120 logs.

In addition to cooking their daily meals, community members also use a stove to make make, their traditional drink. In fact, to make make, which requires

the fruit and flowers of palm trees, it takes five hours of cooking and a large quantity of firewood. Van Pesa explained that they also need very good quality hardwood to make this traditional drink.

PMI found out about this issue after they conducted a hazards, vulnerability

and capacity assessment in the area, as well as having consultation with the residents. The study revealed the enormous amount of firewood the community needed, which typically was met by cutting down the trees. The results of those discussions were reflected in the action plan, whereby one of the action points was to have

firewood efficient cookstoves. “The next step was to do a socialization in the community about the specifications and criteria for the cookstove beneficiaries,” said Van Pesa. “PMI procured the cookstoves between July and August 2015,” he added.

This cookstove distribution was actually part of the Partners for Resilience program that was initiated by a consortium of humanitarian agencies in Indonesia in 2011. The Indonesian Red Cross as a partner of Netherlands Red Cross, along with CARE International Indonesia, PIKUL Society, Wetlands International Indonesia Program, Bina Swadaya Consultant, The Indonesian Society for Social Transformation (Insist), Karina KWI, Caitas Maumere, and Rural Technology Development Organization (LPTP) were given a mandate to implement a program in mitigating the impact of natural disasters on vulnerable groups. This project was implemented between 2011 and 2015. The need for cookstoves was conveyed to the PMI networks in the consortium and LPTP provided its support by facilitating the community. The PMI team went on to design an energy-efficient cookstove according to the community’s needs.

The team designed two cookstoves, one for cooking everyday meals and another one specifically for making moke. “For making moke, the stove was designed with one opening for a pot, while for general cooking, the stove was designed with two openings,” said Van Pesa. The required materials were cement, bricks,

sand, and water. It took about 2-3 hours to build the stove. It was designed for permanent use and to last a long time. He added that in monetary terms, the cookstove was worth less than 100,000 Rupiahs.

After discussions with the community, it was agreed that the criteria for the recipients of this cookstove are those who had been fully dependent on firewood for cooking fuel, the poor and vulnerable groups such as the elderly and widows. On other hand, residents who use kerosene stoves were not considered a priority. Van acknowledged that community had some questions about this aid, but these were answered with a satisfactory explanation.

Van Pesa said the beneficiaries really appreciated these cookstoves, since they saved them a lot of firewood. They could now cook double the amount of food with the same amount of wood. The time required was also much faster. They only require two logs of wood to cook the rice and water. “The moke also tastes better with this cookstove,” he said and laughed.

According to Van, this firewood efficient cookstove drew the attention of a number of people, including the Sub-district Head, the Head of the Police Post (Kapospol), and teachers from several schools in the Talibura District. They asked the CBAT of Talibura Village to provide training and build these stoves for other villagers in Talibura Sub-district.

In Lembata, the Village Chief of Lerahinga, Yohanes Ruing, was also satisfied with this cookstove program. “We use this fuel efficient cookstove to cook the water and rice at the same time. The smoke does not go everywhere. The kitchen becomes cleaner. With the old stoves, you have to always be around to maintain the fire,” he said.

Van believes that distributing these firewood efficient cookstoves has helped PMI’s efforts to promote the mindset of disaster risk mitigation to the public. For villagers in East Nusa Tenggara, the use of firewood for cooking is unavoidable. Ideally, there should be an alternative fuel for daily cooking needs, but it is not yet possible for many reasons. These include the lack of electricity infrastructure and inaccessibility to a gas supply. At least for the moment, providing firewood efficient stoves will be able to slow the rate of environmental damage caused by excessive tree cutting.



Sorghum as Food Security for the Community

- ✓ Food security campaign in NTT
- ✓ Pilot gardens

East Nusa Tenggara is known as the driest region in Indonesia. This situation has led to a high vulnerability of famine for the people in this province. However, by choosing the right crop cultivation, such as sorghum, food insecurity could be overcome. Sorghum (*Sorghum sp*) can survive in dry weather conditions making it suitable to be developed in East Nusa Tenggara. However, its popularity is far behind compared to other crops, mainly rice. One of the reasons being is that not many people know how to process them.

Thus, the idea from the Disaster Mitigation and Disaster Management of Adaptation to Climate Change Unit of the Indonesian Red Cross (PMI) at Lembata District to cultivate sorghum as a nutritious local food and disseminate it among teenagers and children is a particularly relevant one. Not surprisingly, their idea won the Small Grant Project 2016 competition as Biodiversity Warriors, which was held by the KEHATI Foundation. They won a Rp 10 million prize money.

The PMI of Lembata District used the prize money for education activities in five elementary schools between September and October 2016. At least 100 students were given about processing of sorghum as an alternative ingredient for food.

PMI Lembata's involvement in activities related to the local food staple, sorghum, began with the implementation of the Partner for Resilience (PFR) project, which was a disaster management program, aimed at reducing the impact of disasters in vulnerable groups. This program was initiated by a consortium of humanitarian agencies in Indonesia, such as the Indonesian Red Cross partnering with the Dutch Red Cross, along with CARE International Indonesia, PIKUL Association, Wetlands International Indonesia Programme, Bina Swadaya Consultant, The Indonesian Society for Social Transformation (Insist), Karina KWI, Caitas Maumeter, and Rural Technology Development Organization. The project was implemented between 2011 and 2015.

In collaboration with a non-governmental organization, Larantuka Economic Social Development Foundation (YASPENSEL), PMI Lembata opened a 5,000 m² sorghum plantation in Waigarang Village, Lubakulen Sub-district, Lembata District. They also started a new plantation in Wuakerong Village, Nagawutung District, with an area of approximately seven hectares (70,000 m²), in cooperation with the KEHATI Foundation and YASPENSEL. Furthermore, the Indonesian Red Cross volunteer groups have joined forces with the Flores Association of Local Food Farmers in Lembata.

Going further than Lembata, the PFR project then developed activities in sorghum planting in Sikka District, East Nusa Tenggara. In Sikka, sorghum was planted in an area of 2 hectares in the village of Loke, Tanawawo District, which is often hit by strong winds. The PMI in Sikka District planted two types of sorghum, white and red sorghum. The color difference in these two types of sorghum is due to the differences in the tannin content of its skin. White



Two months Sorghum.
Photo: Nasrullah for PMI

sorghum is sweeter and suitable to process into flours as an ingredient to make bread, while the red or brownish one is more bitter. PMI planted these two types of seedlings, because YASPENSEL Foundation provided it to them.

In the fields, one hole is filled with 2-3 grains of sorghum seeds with a distance of 40 cm between each hole and a distance of 70 cm between the planting

rows. Additionally, PMI Lembata also collaborated with a vocational high school in Maumere to create a milling machine that could separate the sorghum's skin and grain so that post-harvest processing could be more efficient.

A Solution for Food Security

The Sendai Framework for Disaster Risk Reduction 2015 - 2030 had listed in

Priority Action 3 a call for Investment in Disaster Risk Reduction for Resistance. It was mentioned that the public and private investment in structural and non-structural measures are very important to support the economic resilience, social, health and culture of each individual, society, the state and its assets, as well as the environment. Within this framework, efforts to improve the resilience are also expected



Sorghum seeds are ready to be processed into food.
Photo: Nasrullah for PMI



Sorghum are ground into powder.
Photo: Nasrullah for PMI

to encourage innovation, growth, and job creation. Such actions include encouraging cost and infrastructure efficiency to save lives, preventing and reducing loss and ensuring more effective recovery and rehabilitation.

With this framework, disaster risk reduction efforts are no longer limited to the making of risk maps, evacuation routes, or simulation activities. But furthermore organizing activities relates to economy and livelihood improvement. Finding and developing local food sources that are capable of growing in extreme weather conditions, such as now is one of those efforts. Sorghum is a solution for areas like East Nusa Tenggara.

Sorghum or Sorghum bicolor is truly a seasonal crop that is tolerant to drought, with the plant shaped like a corn stalk. To harvest it, one must take the seed that grows in a cluster at the

end of the plant. The seeds are the size of a pepper.

Sorghum can thrive despite a long drought or in a dry, sandy, even rocky area like most areas in East Nusa Tenggara. Sorghum also has wide adaptability, a high genetic diversity, is easy to cultivate, has a small risk of failure during harvesting, and has the potential as an export commodity. This plant, which at a glance resembles a corn stalk, also does not require fertilizer, so they could save the cost of maintenance and is safe for nutrients in the soil. Sorghum also has higher levels of protein and iron than rice and corn. In fact, this plant, which can reach two meters in height, is low in gluten, so it is good to be consumed by people who are gluten intolerant.

Not only does it hold great potential as a staple food source to replace rice or corn, the whole part of this plant can

be utilized. Grain sorghum could be processed into flour and starch as raw ingredients for processed products such as porridge or cakes. The roots and leaves could be used as herbs, crafts, and biomass (manure/biogas). While the stems and seed stalks could be used as nira raw materials (bioethanol and syrup/sugar) and biomass (manure, animal feed, biogas). Sorghum could be harvested in 110-115 days after planting. Within a year, a sorghum plant could be harvested up to three times.

Even though it has many advantages over other staple crops, the selling price of sorghum in the market is very low. For example, in Larantuka, sorghum prices are very cheap at 5,000 Rupiahs per kilogram. Although there were no official data from the government regarding the selling price of sorghum, Maria Loretha, a sorghum food activist from East Nusa Tenggara, said in an interview with a local media

outlet that the price was set low under the rice so that people were interested in buying. As a result, farmers were not completely interested in switching to this plant, which has a layer of wax on the leaves to prevent water from evaporating too soon. The Research and Development Section of the Ministry of Agriculture noted in 2011 that the sorghum harvest area in Indonesia only reached 3,600 hectares.

The existing gap between the potential and reality of the production and consumption of sorghum has spurred PMI to reintroduce the benefits of sorghum to the public, particularly in the eastern region of Indonesia that has high food insecurity. As one of the largest humanitarian organizations in Indonesia, PMI never ceases to innovate in disaster risk reduction programs, including educating the public related to food security in the region affected by prolonged drought.

STORY 20

Managing Floods with Biopores and Absorption Wells

- ✓ 41 recharge wells and 3,300 biopore pits
- ✓ Three urban villages prone to flood in Surakarta City



CBAT members are making biopori hole using a drilling machine to make it faster.

Photo: PMI

“A biopore pit is an appropriate and environmentally friendly technology to accelerate the absorption of rain water as well as addressing the issue of organic waste. An absorption well can help prevent flooding, landslides and erosion, increase the supply of clean water reserves and form compost and fertilize the soil”

Ir. Kamir R. Brata, MSc -A researcher and staff of the Department of Soil Sciences and Land Resources, Bogor Agricultural University, inventor of the Biopore Absorption Pit

The village of Sangkrah, located in Pasar Kliwon Sub-district, City of Surakarta is surrounded by four rivers. On the east, it borders Bengawan Solo River, while on the north it borders Pepe River and Tegalkonas River on the south. Additionally, the Jenes River passes this village, which has a total area of 0.45 km². The geographic condition of the village with 12,765 residents or 3,963 households (based on November 2016 data) makes it quite prone to flooding. The most vulnerable area is the east side of the village, which is directly adjacent to the Bengawan Solo River.

Meanwhile, the northern and eastern areas are prone to stagnant flooding, due to narrow drainage channels, which is further exacerbated by a lower elevation to the Bengawan Solo River and shallowing of the rivers due to the piling of garbage in the river beds.

“The name Sangkrah comes from the portmanteau of sampah mangkrah,” said Rusjamaluddin, 52, a longtime resident of the village. Rusjamaluddin, who was appointed the Head of RT (neighborhood unit) 03, happily explained the history of his village’s name. Sampah mangkrah in the Javanese language means ‘piled up garbage’. This village, which is traversed by tributaries of the Bengawan Solo River, often receives garbage that flowed in the river from other villages, such as from Pasar Gede. The piles of garbage often blocks the flow of water at the Demangan floodgate of Pepe River.

In addition to solid waste, these rivers also carry with them liquid waste from the textile, printing, paint, and batik making industries as well as other household waste. As such, the water flowing in the rivers around Sangkrah village looks more like a sewage system than river water. The water is smelly and black in color.

“Before the Gajah Mungkur dam was built, the river water would overflow every year. This flood water could go as high as that yellow wall,” recounted Rusjamaluddin, who also goes by Rus. He was pointing to the wall in the alley in front of his home in RT (neighborhood

unit) 03 and RW (community unit) 04 that borders the Solokita train station. The wall itself measure 120 cm tall. “After the dam was built, the intensity of the flooding decreased. Before that, though, every time we get a heavy rainfall, the rivers would surely overflow,” said the father of three. The Gajah Mungkur dam is located in Wonogiri district and is the upstream of Bengawan Solo River.

As far as Rus can remember, there had been two major floodings where the flood water exceeded one meter in height and inundated the village for more than a day. Once in 1966 and another time in 2007. “During the one in 2007, the water was up to our waists,” he said as he demonstrated. “We were inundated for over three days,” he added.

Rus and his neighbors evacuated to the yard at Solokita train station for three days. “People around here usually don’t evacuate their homes unless it is completely uninhabitable,” he said in a thick Javanese accent.

With a fairly high population density of 28,366/km², Sangkrah Village looks like the overpopulated areas of cities near large rivers such as the Ciliwung River that passes through Bogor and Jakarta or the Citarum River that passes through Bandung and Karawang. Furthermore, the alleys are only two meters wide and are at a higher elevation than the houses. All the roads and pathways are either concrete or asphalt, leaving very little opportunity for water absorption.

Biopore and Absorption Wells

Based on the results of the baseline survey, a regional mapping and the Hazard Vulnerability Capacity Assessment (HVCA) that the PMI and CBAT (Community-based Action Team) conducted in Sangkrah, there emerged an idea of reducing the flow of water on the surface of such a densely populated area by creating Biopore absorption fields and Absorption Wells. The CBAT is a group of community members that was formed by the PMI to mobilize the community in disaster management activities.

Quoting from the website www.biopori.com, biopore is a vertical, cylindrical hole drilled into the ground, with a diameter of 10 cm and depth of approximately 100 cm. If the ground water level is shallow, the depth of the hole does not exceed the depth of the ground water level. This pit is then filled with organic waste to trigger the formation of biopore, which are natural pores in the soil that are created by the soil fauna that feeds on it as well as roots of plants. These pores serve as water channels to absorb the water into the ground. It is expected that these biopores can help prevent water inundation during rain. It is this biopore design that the PMI applied in Sangkrah. According to Rus, there have been at least 1,300 biopore pits and 13 absorption wells across the 13 community units (RW) in the village. In the alley in front of his house, which borders with the back wall of the Solokita train station, there are at least 10 biopore pits and one absorption well.



The team members of Sewu Village CBAT, Surakarta, are preparing a concrete ring as a material for making absorption wells.

Photo: PMI

“The others are spread across the other alleys,” said the main who has been the head of the neighborhood unit (RT) since 2009.

As for the absorption wells, PMI dug holes measuring 100 cm in diameter and 150 cm in depth. To reinforce the wall of the well, they placed in concrete

well rings with a diameter of 100 cm, a width of 50 cm and 10 cm thick. Each well is reinforced with three well rings. They filled the first bottom of the well with split pebbles, then with coconut fibers for the middle well ring, and finally more split pebbles for the last third. The concrete cover had five small holes for water flow. Rus states that the

wells were constructed in August 2016. Jumadi, 32, a member of the Volunteers Corps of the PMI headquarters in Surakarta City, stated that the biopore and absorption wells were part of the Community Flood Resilience (CFR) program that was being implemented by the Surakarta City PMI, with support from the International Federation of

Red Cross and Red Crescent Societies (IFRC) and the Zurich Insurance Group. “Through this project, 41 absorption wells and 3,300 biopore pits were dug in 2016,” said Jumadi, who had been a member of the Volunteer Corps at the Suarkarta PMI for 12 years.

The biopore pits and absorption wells were built in three pilot villagers, namely Sewu, Semanggi, dan Sangkrah. These three villages were selected due to their high levels of vulnerability to flooding. Jumadi said that the cost for one biopore pit is approximately 35,000 Rupiahs. “It’s equivalent to a cup of coffee at the mall,” he added.

Rus stated that since the biopore pits and absorption wells were built, the water that typically pools after rainfall has now receded much quicker. “It drains into there,” he said, pointing to one a biopore pit just about two meters from the absorption well. One example that he gave was a heavy rainfall in September 2016, where the water did not pool, because the water was absorbed into the biopores.

Jumadi, who at the time was going around marking the biopors and absorption wells with GPS in Sangkrah, happen to record the event on his cell phone. Proudly, he showed us the footage.

Convincing the Community

Although the merits and advantages of the biopores and absorption wells have been well-demonstrated, it was easily accepted at the outset. Rus, who

was the head of the CBAT, was often the subject of gossip, even by his own neighbors. “What on earth is that pit for? There’s no water in the well,” he said with a chuckle, recounting the remarks he often heard from his fellow villagers. But he realized that the community would need to see the proof with their own eyes before they were convinced.

Despite the negative comments, Rus persisted in his campaign to promote the benefits of activities that build the community’s resilience to flooding, including the benefits of the biopore pits and absorption wells. “At every monthly RT meeting, I always talk about PMI’s programs,” he explained in a serious tone.

In addition, he said that PMI’s service in Surakarta City is better known for its other community services, such as ambulance services, 24-hour free hearse services, and blood donations. “Nowadays, they call me if anyone needs an ambulance,” he said with a laugh. Rus believes that the CFR program has also broadened the community’s knowledge of PMI’s other activities. “Before this program, all I know about PMI was that it was the place to donate blood,” he admitted.

Rus added that nowadays, it is the community who proposes for the construction of biopores and absorption wells by submitting their proposals to the village government. “Hopefully they will get some funding from the village,” he hopes.

The Seven Fundamental Principles of Red Cross and Red Crescent Movement

1. Humanity

The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

2. Impartiality

It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

3. Neutrality

In order to continue to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

4. Independence

The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

5. Voluntary service

It is a voluntary relief movement not prompted in any manner by desire for gain.

6. Unity

There can be only one Red Cross or one Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

7. Universality

The International Red Cross and Red Crescent Movement, in which all Societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.




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