REPORT ON THE MAPPING OF INCLUSIVE DISASTER RISK REDUCTION INNOVATIONS IN INDONESIA

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Glossary (ID)

ASB	Arbeiter Samariter Bund
BPBD	Badan Penanggulangan Bencana Daerah
BPN	Badan Pertanahan Nasional
BNPB	Badan Informasi Geospasial
CBM	Christoffel Blinden Mission
CLIP	Community-led Innovation Partnership
COVID-19	Corona Virus Disease 2019
DIFAGANA	Difabel Siaga Bencana
DIY	Daerah Istimewa Yogyakarta
HHOT	Humanitarian Hands-on Tools
LIA	Local Innovator Advisor
LIDI	Layanan Inklusif Disabilitas
M3K	Mundur Munggah Madep Kali
Musrenbang	Musyawarah Perencanaan Pembangunan
OPDis	Organisasi Penyandang Disabilitas
PBB	Persatuan Bangsa-Bangsa
Pergub	Peraturan Gubernur
PRB	Pengurangan Risiko Bencana
PUPR	Pekerjaan Umum dan Perumahan Rakyat
RW	Rukun Warga
SAPDA	Sentra Advokasi Perempuan, Difabel, dan Anak
SHM	Sendai Framework of Disaster Risk Reduction
SID	Sistem Informasi Desa
SIPAKDEDIFA	Sistem Pembelajaran Kebencanaan dengan E-Learning untuk Difabel
SMAB	Sekolah Madrasah Aman Bencana
SPAB	Satuan Pendidikan Aman Bencana
UC-PRUK	United Cerebral Palsy Roda Untuk Kemanusiaan
WVI	Wahana Visi Indonesia
YEU	YAKKUM Emergency Unit

Glossary (EN)

ASB	Arbeiter Samariter Bund
BPBD	Local Disaster Management Agency
BPN	National Land Agency
BNPB	National Disaster Management Agency
CBM	Christoffel Blinden Mission
CLIP	Community-led Innovation Partnership
COVID-19	Corona Virus Disease 2019
DIFAGANA	People with Disabilities Disaster Response Task Force
DIY	Special Region of Yogyakarta
HHOT	Humanitarian Hands-on Tools
LIA	Local Innovator Advisor
LIDI	Disability-Inclusive Services
M3K	Management of Houses on the River Bank
Musrenbang	Developmental Planning Discussion
OPDis	Organization of People with Disabilities
PBB	United Nations
Pergub	Regulation of the Governor
PRB	Disaster Risk Reduction (DRR)
PUPR	Public Works and Housing
RW	Community Unit
SAPDA	Advocacy Center for Women, People with Disabilities, and Children
SHM	Sendai Framework of Disaster Risk Reduction
SID	Village Information System (VIS)
SIPAKDEDIFA	Disaster E-learning System for People with Disabilities
SMAB	Disaster-Safe Madrasah School
SPAB	Disaster-Safe Education Unit
UC-PRUK	United Cerebral Palsy Wheels for Humanity
WVI	Wahana Visi Indonesia
YEU	YAKKUM Emergency Unit

A. Introduction

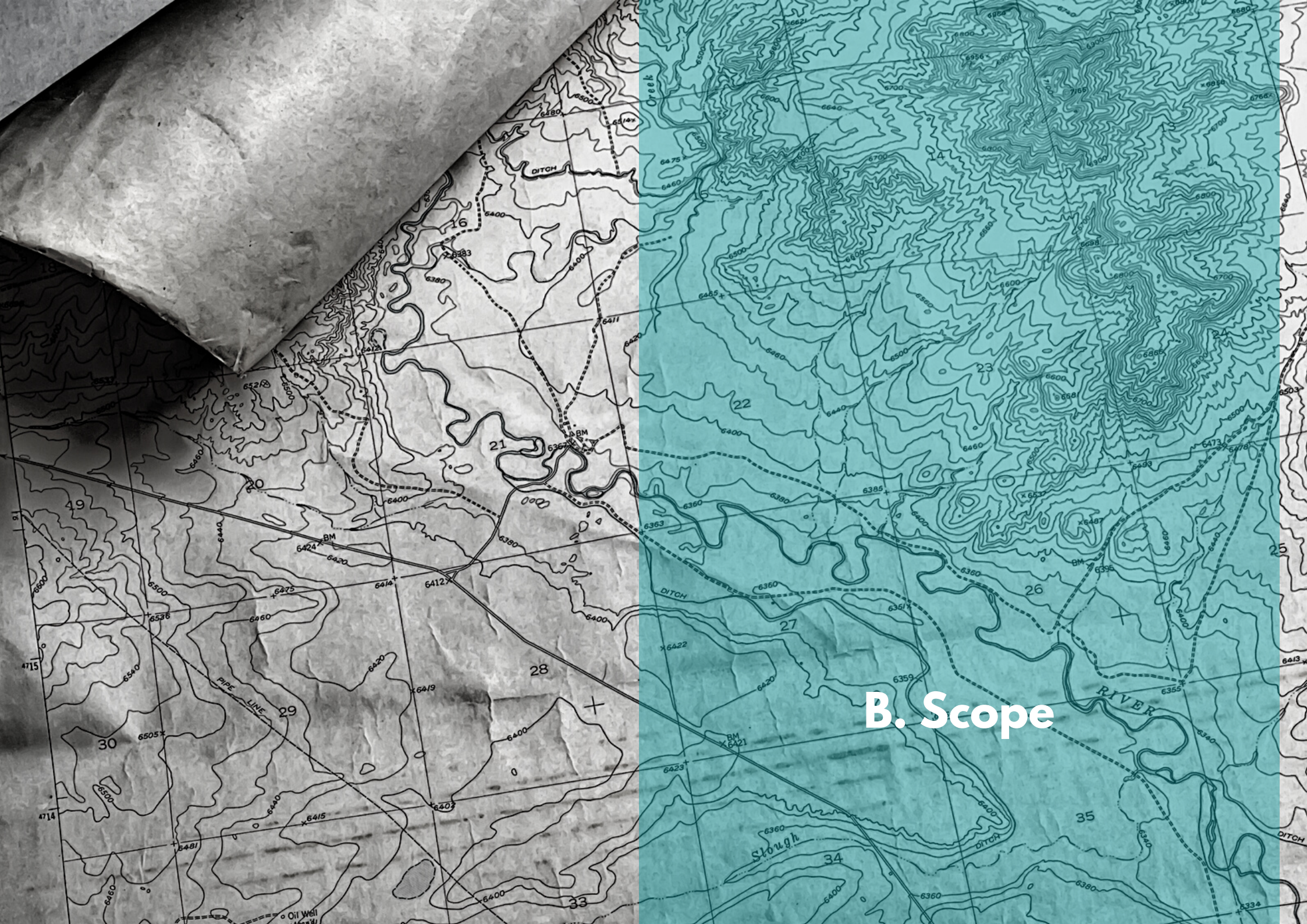
Background

The Province of the Special Region of Yogyakarta is an area that is prone to twelve kinds of disasters, with risks ranging from medium to high scale. This province also has the highest number of senior citizens and the fourth highest number of people with disabilities in Indonesia. Such conditions require active participation from various groups of the community, including at-risk community groups who are of higher risk in the event of a disaster. These communities must prepare themselves to face challenges in the future by not only relying on one relevant government agencies. A survey and limited discussion conducted by YEU show that community participation in disaster management is still below 30%. Therefore, there needs to be a breakthrough in the form of inclusive innovations that will encourage members of the community to be more involved in disaster management in Yogyakarta. Such inclusive innovations are hoped to empower everyone, including highly at-risk groups, so they can actively participate in disaster management and overcome their personal challenges through creative means.

The YAKKUM Emergency Unit (YEU) with the support of Elrha and Start has been carrying out a program known as the "Community-led Innovation Partnership" or CLIP from April 2020 which will continue until March 2023. This program is dedicated to support innovators at the community level to produce, test, and develop solutions for priority issues faced in terms of emergency response and disaster preparedness, both at the local and national levels. As a Local Innovation Advisor (LIA), U-INSPIRE Indonesia supports the provision of advice or encouragement, mapping of existing innovation, and documentation of processes and learning. The following are the work domains to be performed by LIA, along with their output, as stipulated in the MoU between YEU and U-INSPIRE Indonesia: (1) Domain 1: Development of Assessment Tools, (2) Domain 2: Mapping of Existing Innovations, and (3) Domain 3: Innovation Development Process with Local Innovators. This report is specific for activities in Domain 2: Mapping of Existing Innovations.

Purpose

The purpose of this program is to obtain an overview of disaster management innovations that apply the principles of inclusiveness that already exist in Indonesia. Results of this innovation mapping will serve as a reference to evaluate the novelty of innovations proposed by prospective local innovators.


B. Scope

Definition and Focus

The innovations mapped are products and approaches for inclusive disaster risk reduction developed in Indonesia. Such innovations may be in the form of measures that have been adopted and applied sustainably, or even newly developed innovations. As a country that is often hit by disasters, there are many innovations on products and approaches for risk reduction that have begun to develop in Indonesia. Nonetheless, the lingering question is were those measures were developed by keeping each and every person in mind, both in the development process and as the party benefiting from such measures?

Social inclusion is a process that enhances abilities, opens up opportunities, and restores the dignity of individuals/groups who were once unaccounted for due to identity attributes that prevent their involvement and active participation in society (World Bank, 2013). Such identity attributes may come in the form of gender, disability, ethnic minority, religion, social and economic status, or any other attributes. Therefore, innovations for inclusive disaster risk reduction in this mapping are products or approaches with more added values compared to their existing counterparts that help to mitigate disaster by increasing participation and access for certain parties who are usually "left behind" and marginalized. In this context, marginalized parties refer to the at-risk groups, as they are at higher risk of being affected should a disaster take place. The at-risk groups being mapped are not limited to people with disabilities.

The innovations being mapped are primarily focused on innovations that were created in the Special Region of Yogyakarta since the 2006 earthquake until now. However, as such innovations are limited, the mapping team has widened the scope of its study area. In terms of content, innovations may be scientific in nature or based on local wisdom, so long as they contribute to reduce the risk of disaster and climate change.

Innovation mapping involves three main activities, namely data collection, analysis, and reporting of mapping results. Data collection itself is carried out in stages, starting with a desk study, selecting respondents to be interviewed, and interviewing those chosen respondents. Analysis refers to understanding the content gained from data collection for categorization. This chapter explains the methods of data collection applied and the general categorization of the mapping results.

We would also like to note that this mini-study was conducted during the COVID-19 pandemic, and hence, no field visits were conducted.

Data Collection Methods

Desk study. This method was carried out by searching for innovations in disaster management that is inclusive or any activities related to disaster that involves inclusion. The search involved two approaches. The first approach was to search through Google search engines using the key words such as 'inclusion', 'disaster risk reduction', and 'Yogyakarta'. Relevant results outside Yogyakarta were still included into the mapping results. The team managed to collect data in the form of academic and popular articles, as well as news related to such innovations. The second approach was to check out the websites or social media platforms of institutions that deal with inclusion. Earlier, LIA has made a list of institutions that embrace the principles of inclusion in Indonesia, especially inclusion for people with disabilities. The LIA team then perused through their websites and social media platforms to obtain further information on the activities/programs carried out in relation to disaster risk reduction.

Interview. Interviews were conducted virtually with several selected respondents from May – July 2021. These interviews were hoped to provide the team with initial information on the inclusive disaster risk reduction innovation ecosystem in Indonesia and its depth. Based on the results of the desk study, the team managed to identify several organizations that have been quite dominant in carrying out inclusive DRR activities. These organizations were then asked to provide individuals as respondents for these interviews. The following are respondents for the innovation mapping interviews:

No	Respondent	Focus
1	Wiwit Prasetiyono, Try Febri Khoirun, Edo (inclusion activist)	Informal discussion of an overview of the inclusive DRR innovation ecosystem in Indonesia
2	Danang Samsu (BPBD DIY)	In-depth interview on the inclusive DRR Innovation developed by BPBD DIY
3	Rani Sawitri (ASB)	In-depth interview on the inclusive DRR Innovation developed by ASB
4	Ratna Susi (YEU)	In-depth interview on the inclusive DRR Innovation developed by YEU

Categorization of the Innovation Mapping Results

Several innovations in inclusive disaster risk reduction were identified during the desk studies and interviews, either in the form of processes/services. Although there are not many institutions or parties that initiate such innovations, the innovations are quite diverse in terms of the scale of implementation and stages for relevant disasters. For better understanding, the innovations identified were then grouped into seven categories as depicted in the figure. Details of the mapping results for each category are given in the following chapters.

C. Mapping Results

Capacity Improvement for Resilience in the School Community

Capacity Improvement for Resilience in the School Community

Measures to improve capacity for resilience in the school community have been taken by many parties. However, there are groups that have yet to be involved due to accessibility. Several organizations have initiated the development of a more inclusive disaster-safe culture for the school community. Innovations made in Indonesia to improve the capacity of resilience in an inclusive school community include providing practical training for the school community, increasing the institutional capacity of schools, and developing various educational tools that cater for the persons with disabilities. The school community consists of students, teachers, school managers, school committees, and the community around school. Inclusion of people with disabilities for DRR measures in the school community stems from the idea that people with disabilities face greater challenges in times of an emergency.

Arbeiter Samariter Bund (ASB) is one of the institutions that has continued to innovate to increase inclusion in disaster risk reduction since 2008, starting with the implementation of inclusive DRR education for people with disabilities at the school level in the Special Region of Yogyakarta Province. Accessibility is one of the main conditions/criteria for knowledge product development in this institution. The Disaster-Safe Madrasah School (Sekolah Madrasah Aman Bencana/SMAB), currently developing into The Disaster-Safe Education Unit (Satuan Pendidikan Aman Bencana/SPAB), is a national program run by the Ministry of Education and Culture. Arbeiter Samariter Bund (ASB), along with its partners, strive to increase inclusiveness through the implementation of this program in 81 schools and four villages in Magelang Regency. This program is conducted by increasing the capacity of inclusive DRR for the Organization of People with Disabilities (Organisasi Penyandang Disabilitas/OPDis), for disaster volunteers as prospective facilitators SMAB facilitators, and for educators and members of the community. This program also aims to develop the network for inclusive DRR initiatives between schools and the community. The target of this program includes OPDis, students, disaster volunteers, People with Disabilities, School Principals, Teachers, School Managers, School Committees, and communities around school. This measure has now served as a good practice example for inclusive SMAB implementation at the national level.

Figure 1. An illustration of one of the DRR trainings for Special School Teachers by ASB. *Photo: ASB Indonesia & the Philippines 2016*

Apart from ASB, there are several other individuals/groups that are also involved in developing a variety of educational tools that are more inclusive, though they are yet to be determined sustainable. In 2017, Anisa Rohmah, from Universitas Negeri Semarang, put together a DRR Book in Braille to introduce disaster mitigation among blind students at SLB Negeri Semarang. Meanwhile, groups of students from Universitas Gadjah Mada who were carrying out their Community Service Programs (Kuliah Kerja Nyata/KKN) used various games that cater for students with disabilities to help explain information related to DRR. These Community Service Programs took place in Evu Village, Southeast Maluku; Payah Senara Village, Sabang Island, Aceh; Banjarnegara, Central Java; and Kaliadem, Cangkringan, Yogyakarta.

The challenge in developing innovations related to capacity improvement for resilience in the school community is ensuring its sustainability. Innovations in the form of programs/services require commitment from all parties to make them sustainable. The challenge in innovating products, such as creating a DRR Book in braille is to ensure its ease of use and to collaborate with other parties who can help mass produce it and disseminate it to the parties in need. Capacity improvement of all parties in interacting with people with different disabilities is key in developing more inclusive DRR programs and products.

Capacity Improvement for Resilience Based on Region

Capacity Improvement for Resilience Based on Region

Community resilience in dealing with disasters is one of the keys for disaster risk reduction. Many DRR programs have been conducted at the basic level, but the question that remains is: to which community? With the current social system, some parties are not accounted for, do not have access to such programs, or are simply not involved. In response to these problems, several innovations have been developed. These include, the development of an integrated system for compiling data and information of villages, data collection and profiling of disability-inclusive cities, and the development of inclusive resilience in villages. The challenge in developing these innovations is in maintaining their sustainability, which usually requires collaboration and commitment from many parties.

The CRI (Combine Resource Institution) has improved the management of community-based data and information at the village level in DIY, starting with a mission to develop a database system to facilitate the exchange of production tools and knowledge among farmers, that was further developed into a Village Information System (Sistem Informasi Desa/SID) in Terong Village, Bantul in 2009 . BPBD DIY admits that this system is very useful in times of crisis, such as the COVID-19 pandemic. For instance, the Government of Gunung Kidul Regency made use of this system and integrated it with the Regency Information System (Sistem Informasi Kabupaten/SIKAB) in order to support an accurate, integrated, and data-based decision-making in dealing with COVID-19. The Government used these systems to determine which communities would receive social assistance.

In terms of data, Kota Kita, UNESCO, along with other partners created a Disability-Inclusive City Profile in 2017 (of Surakarta) and in 2018 (of Banjarmasin). These city profiles were then linked to many aspects of city services, including disaster risk reduction. Information gathered from this profiling were then documented into a Toolbox of Practices and Program Ideas for a Disability-Inclusive City. Data collection on people with disabilities requires certain methods and techniques, considering that some people are not visibly having disabilities, or some members of the population that do have disabilities are not known to the public, or are even kept from the public eye by their own families. The method of data collection on people with disabilities were varied from one Social Service Agency in one city to another. This data collection was not only crucial for the development of inclusive policies, but also so that the development planning process was more inclusive by involving people with disabilities themselves.

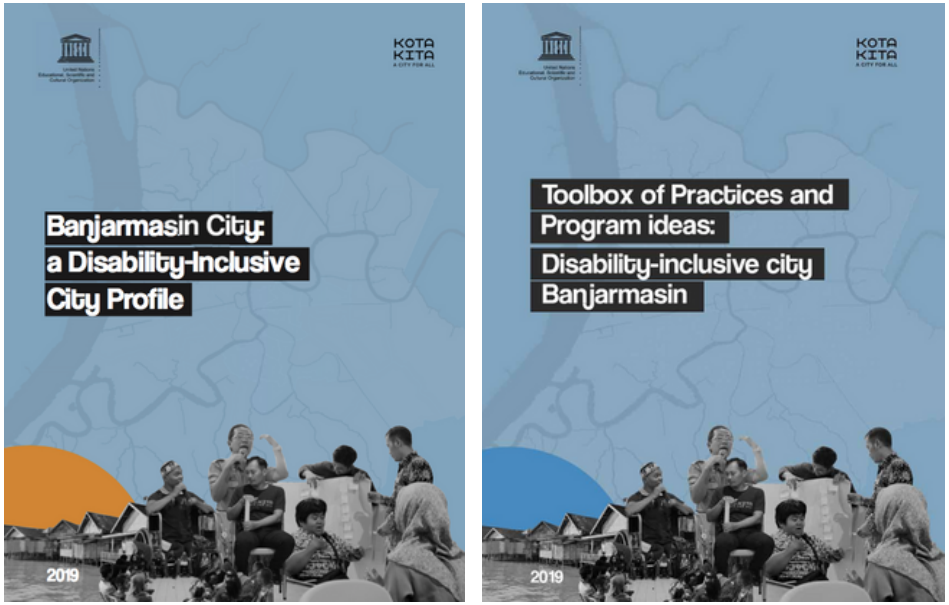


Figure 2. The Disability-Inclusive City Profile of Banjarmasin and Its Toolbox of Practices and Program Ideas. *Photo: UNESCO & Kota Kita*

The BNPB, through the Regulation of the Head of BNPB No.1/2012, launched a program known as the Desa Tangguh (Resilient Village) program. In 2013, in partnership with the government, Arbeiter Samariter Bund (ASB) developed a model of an Inclusive and Resilient Village in Hargomulyo Village, Gunung Kidul Regency. In this model, the RPBDes (Village Disaster Management Plan) and the Community Action Plan were prepared by involving people with disabilities, so that the implementation of disaster risk reduction accommodates the needs and contributions of people with disabilities. Members of the Disaster Mitigation Team and the DRR Forum also include members of the community, both with and without disabilities. Based on ASB's report, challenges in the development of this Resilient and Inclusive Village include (1) warding off the assumption that there will be difficulties when involving people with disabilities and a sense of 'pity' for involving them, (2) increasing awareness of the varied needs of people with disabilities among facilitators, and (3) getting rid of subjective labeling of people with disabilities due to their physical appearances.

In terms of women's group, YAKKUM Emergency Unit (YEU) conducted collective activities to build women resilience during the COVID-19 pandemic in the Villages of Suryatmajan and Terban in the Special Region of Yogyakarta Province. These collective actions include activities to improve (1) health, such as morning exercise, (2) economic resilience, such as making and selling traditional herbal medicine and using online marketing, (3) food security, such as catfish aquaculture and urban farming, some produce of which is given to support the activities of the older people and posyandu (community-based child and maternal health care), while the rest is further processed and sold, (4) the environment, such as making fertilizer and creating a waste bank, and (5) preparedness (such as fire response training at home and preparing first aid kits). These activities were carried out in collaboration with several women groups, such as the Gempita, Tani Migunani, Srikandi 04, and Srikaton, and were supported by the Huairou Commission and the local government.

Figure 3. A Clip from the Video of the Women Resilience Development Program in the Special Region of Yogyakarta. *Photo: YouTube YAKKUM Emergency Unit*

Capacity improvement for the community may also be initiated by members of Community Unit (Rukun Warga/RW) committee, as was carried out in RW 3 of Purwokinanti Village, the City of Yogyakarta, in their RW Siaga (disaster resilient community unit) movement that organizes Posyandu activities for the older people and children (monitoring of the community's healthy lifestyle). In such activities, other than measuring weight, other interesting activities such as games containing new knowledge about health are also included. Despite the fact that such initiative does not directly relate to disaster issues, improvement and monitoring of the community's health, especially the older people and children, are hoped to also improve the community's capacity in dealing with disasters. Making the most of the smallest community systems such as the Neighborhood Administration Unit (Rukun Tetangga/RT) and the Community Unit (Rukun Warga/RW) has great potential to develop a solid preparedness system while practicing the principles of social inclusion.

Accessibility Design for Residential Areas

Accessibility Design for Residential Areas

Some big cities in Indonesia have started to implement the principle of universal accessibility in urban public spaces and public service offices. However, these principles are not commonly applied at a residential scale, let alone in temporary housings, such as evacuation shelters. Accessibility issues in residential areas result in the inability of some people to access available facilities, such as toilets, communal spaces, economic activity centers, and safer places in times of a disaster. These issues have resulted in several things, including (1) increased risk of discrimination as some people cannot access spaces where community members interact, and (2) increased vulnerability to physical illness, mental health problems, and disasters. Some areas in South Kalimantan, the Special Region of Yogyakarta, Central Sulawesi, and West Nusa Tenggara have developed innovations in the design of residential areas that are more inclusive in order to help reduce disaster risk.

Banjarmasin City is known as the city of a thousand rivers, with tidal waters that at times flood the nearby villages. Most buildings here are predominantly made of wood and hence, have a higher risk of fire. The village in RT07/RW01, South Alalak Sub-district, Banjarmasin, is an area located along the river that previously used the river as a 'dump' where people threw garbage and waste. Accessibility between houses and to the main road was poor and there were no suitable paths that could have been used as an evacuation route. In 2018, the local community came up with a collaborative plan to improve the quality of residential areas with the help of the Kota Tanpa Kumuh (Slum-Free City) Program organized by the Ministry of Public Works and Housing (PUPR). As a result, people living on the riverbank agreed for their houses to be relocated further away from the river and made to face the river. This was done to restore the function of the river and to improve quality of the residential space. A small portion of each of the 19 houses were cut off and used to expand the space on the river side. This space was then made into a pathway and a convenient public space that can be used by all generations of the community, including the older people, and a place where children can play. In addition, this pathway increased accessibility in times of a disaster. These houses were then given a Certificate of Ownership (Sertifikat Hak Milik/SHM) from the National Land Agency (Badan Pertanahan Nasional/BPN), and thereby increasing their security of living. A similar innovative planning model was also massively implemented in the City of Yogyakarta, known as the M3K (Mundur, Munggah, Madep Kali) program, which literally means moving the houses backwards, upwards, and facing the river.

Figure 4. The Two-Faced Houses in South Alalak, Banjarmasin. Access behind these houses were opened up to provide space for interaction while improving accessibility in the event of a disaster. Previously, those houses were in the same condition as those seen on the right side of the picture. *Photo: Risye Dwiyani.*

Provision of proper and accessible evacuation shelters must also be considered in conditions of emergency response. After the eruption of Mount Merapi at the end of 2021, the YAKKUM Emergency Unit (YEU), along with its partners, conducted an accessibility audit at the Glagaharjo evacuation shelter in Sleman. Some of the findings are, the public bathroom and toilet facilities (Mandi, Cuci, Kakus/MCK) were not accessible for wheelchair users, and sleeping facilities were not suitable for the older people, pregnant mothers, and people with disabilities. It is important to carry out these accessibility audit mechanisms in temporary spaces such as evacuation shelters, despite the fact that it has yet to become an operational standard for every institution that provides evacuation shelters.

Post-disaster is always a great moment to build back better. YEU also took part in rebuilding houses which are more accessible, healthier, and safer in the aftermath of the disaster in West Nusa Tenggara and Central Sulawesi. YEU realizes that builders are essential in construction work. However, the standards set by the government are often not communicated properly to such workers. Therefore, prior to construction work, local builders are trained on the knowledge and expertise of safe, healthy, and accessible building construction. Up until the end of 2020, YEU and ACT Alliance had trained 242 local construction workers in Central Sulawesi.

Figure 5. Certification Test for Carpenters and Light Steel Applicators.
Photo: YAKKUM Emergency Unit

The challenges in creating accessible designs revolve around the availability of land and adapting design to cater for different needs of various types of disabilities. In West Nusa Tenggara, YEU built 201 disability-friendly toilets, 100 of which are designed to cater for different types of disabilities and land availability. This innovation took place as volunteer architects collaborate with potential users while taking field conditions into account. As a result, disaster survivors with different types of disabilities can comfortably use the toilet that suits them best.

Figure 6.
An example of one of the toilets built for people with disabilities after the earthquake in West Nusa Tenggara.
Photo: YAKKUM mergency Unit

Despite there being several national regulations concerning accessibility and their guidelines, field conditions (such as limited space) pose certain challenges to their implementation. Therefore, in order to develop such innovations, there needs to be a documentation on the practical know-how and guidelines for establishment of living quarters that implement safe and accessible design for all. Such guidelines will help stakeholders, such as the local governments, contractors, and members of the community to implement the principles of inclusion as well as universal accessibility in building residential areas.

Legal framework on accessibility:

1. Regulation of the Minister of Public Works and Housing No. 14 of 2017 on Requirements for Ease of Building Construction;
2. Government Regulation No. 42 of 2020 on Accessibility to Residential Areas, Public Services and Protection from Disasters for People with Disabilities.

Institutional Development

Institutional Development

In this context, institutional development functions to increase the performance and quality of institutions in order to improve resilience against disasters and ensure fulfillment of the needs of at-risk groups, such as children, women, the older people, and people with disabilities. One of the strategies for institutional development implemented by several organizations is by directly involving people with disabilities in each of their programs. For example, in 2017, the government of Central Java Province created a Disability-Inclusive Service Unit (Unit Layanan Inklusif Disabilitas/LIDI) of the Central Java BPBD. This unit aims to provide services to fulfill the rights and roles of people with disabilities in DRR, as well as to support the implementation of disability inclusive DRR programs, in accordance with the Regulation of the Head of BNPB No. 14 of 2014.

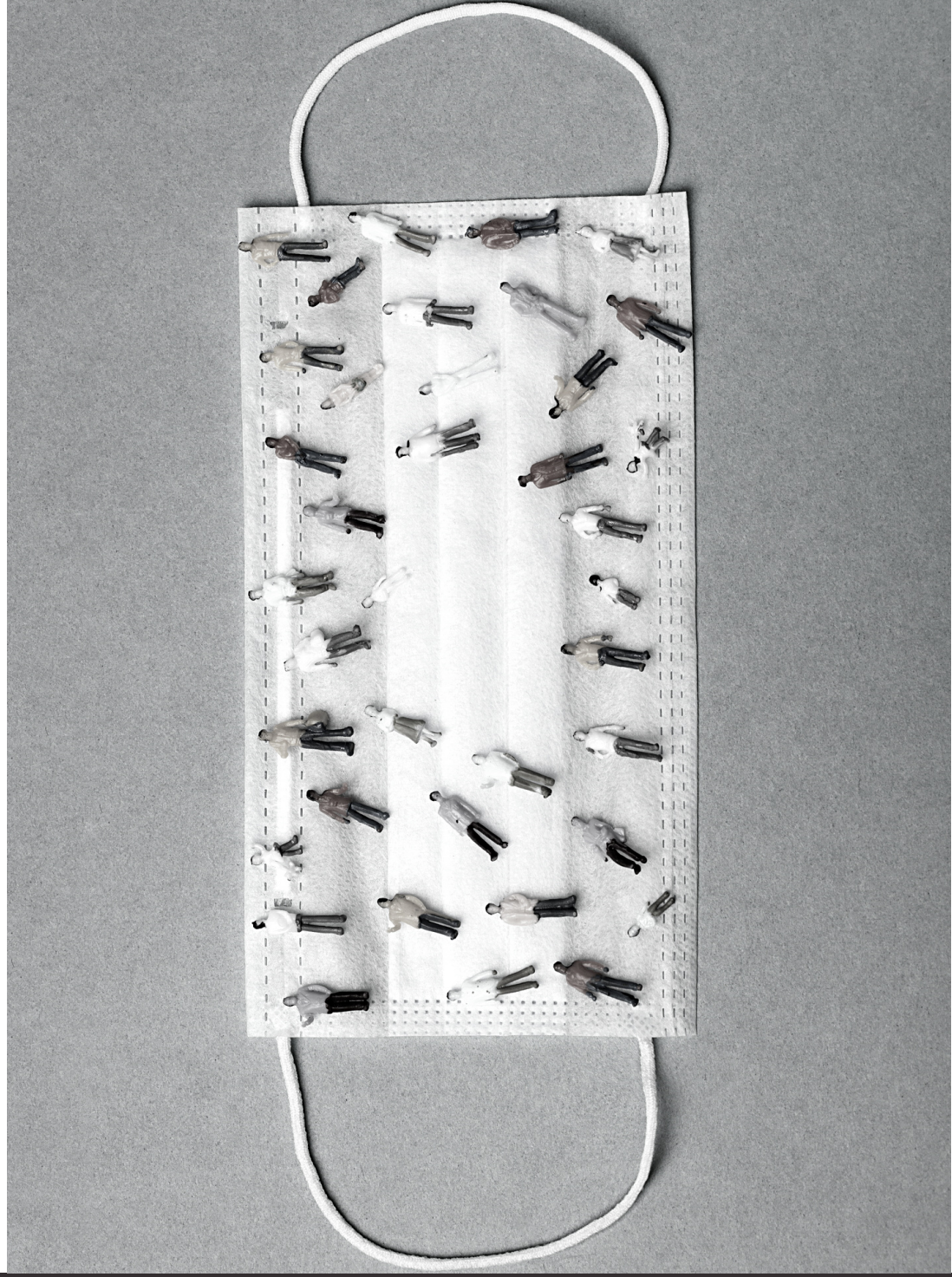
At the basic level, there are groups known as the Community Disaster Response Task Force (Taruna Siaga Bencana/Tagana), volunteers from the communities for disaster response task force, as stipulated in the Regulation of the Minister of Social Affairs No. 28 of 2012 on General Guidelines for Tagana. In order to ensure inclusiveness of disaster response efforts at this level, in 2019, the Social Service Agency of DIY established the group of People with Disabilities Disaster Response Task Force (Difabel Siaga Bencana/DIFAGANA), which consists of people with disabilities that will later team up with Tagana.

Another example is the involvement of children in advocacy for development of their region. In 2018, Wahana Visi Indonesia worked together with its partners in developing a Children's Forum in villages in Sigi, Palu, and Donggala, Central Sulawesi. This program was conducted post-disaster and was targeted towards children who suffered from trauma due to either physical or sexual violence (verbal/non-verbal). This program, that was aimed to relieve children from their trauma, was also expected to become an aspiration in village forums to be included as a priority program during the Development Planning Forum (Musrenbang) in such villages. Institutions or programs that directly involve representatives of at-risk groups have an advantage as they are able to obtain information and know the current needs so that they can provide assistance in a more targeted manner.

Figure 7.
Inauguration of DIFAGANA DIY in 2019. *Photo: Homepage of Social Services Agency of the Special Region of Yogyakarta*

Health matters such as pandemic are also included in disaster relief efforts, and therefore, institutional development in this field also affects resilience. An inclusive healthcare system can potentially increase the resilience of at-risk groups in dealing with health-related disasters. In order to anticipate such situation, the provincial government of the Special Region of Yogyakarta implemented the Governor's Regulation No. 50 of 2017 on Special Healthcare Insurance (Jamkesus) System for the persons with disabilities. In its practice, this program was once implemented by caseworkers of the UC-PRUK (United Cerebral Palsy Roda untuk Kemanusiaan/Wheels for Humanity) in 2017 at Pendowoharjo, Bantul Regency. This program, that was targeted towards people with disabilities, was able to increase the resilience of the community in the health sector.

In their effort to deal with the COVID-19 pandemic, the BPBD of the Special Region of Yogyakarta improved its integrated data collection system via the PUSKOVID DIY application. This application contains data on the development of COVID-19 at the village level, with one personnel tasked to be its administrator. This application has the potential to be developed into a platform that collects data on the most at-risk groups (children, older people, women, and people with disabilities).



Communication and Dissemination of Information

Communication and Dissemination of Information

Good communication and dissemination of information is one of the main keys for effective disaster risk reduction. A familiar example among our community is the traditional instrument known as the 'kentungan', which, in essence, is a communication and dissemination tool that is can be used quickly and effectively in times of emergencies and help alert people to evacuate. Nowadays, such effective communication and dissemination can be done through other technologies, such as through radio and television broadcasts, walkie-talkies among the local community, or even through WhatsApp groups. Communication and dissemination of information is not only important during emergency situations, but also during normal times. It is important to educate people about the threats they might face in times of disaster, how to mitigate them, and steps they might have to take to minimize any damage.

The use of language and instruments often determines the success in the communication and dissemination of information, especially if the targets are quite diverse in terms of culture, customs, types of disabilities, etc. One example of inclusive innovation in the field of communication is the creation of transparent face masks in 2020 that facilitate communication among the deaf community during the COVID-19 pandemic. The idea of these masks first came from a woman named Dwi Rahayu Februarti and was finally realized in Sleman, the Special Region of Yogyakarta in April 2020. Dwi was inspired to create this mask as she experienced difficulties in communicating with others while using regular masks that covered their mouths. This was quite tough as masks were essential in preventing the spread of the virus at that time. For the first seven months, Dwi produced more than 2000 transparent masks to fulfill orders from across Indonesia. This type of mask can also be used in times of disasters such as a fire or volcanic eruption to allow proper communication even in polluted conditions.

Figure 8. Transparent face masks by Dwi Rahayu Februarti facilitate communication within the deaf community. *Photo: BBC News Indonesia, April 2020. https://www.bbc.com/indonesia/majalah-52370647*

In terms of communication tools to reduce disaster risk, there are many options available in Indonesia, from social media, community radio, to board games that be played while learning about new information with family/community members. However, some of these tools are not inclusive or accessible enough for some groups of people. For example, not everyone is able to access social media, or for instance, our deaf friends may find it difficult to obtain information through radio communication. Therefore, accessibility features need to be added to these tools used for communicating information on disaster risk reduction. An example of a communication tool that was developed for the visually impaired are models made with Braille details to inform evacuation routes and gathering points in times of a disaster. These models model were developed by students from Universitas Gadjah Mada (UGM) as part of their community service program and have great potential to become an innovation of a communication product with proper evaluation from users and further development.

Online Platform for People with Disabilities

Online Platform for People with Disabilities

Nowadays, technological advancements stimulate the creation of all kinds of applications that we are increasingly accustomed to, whether it be for communicating, obtaining information, entertainment, transportation, or disaster risk reduction. Online applications/platforms created for disaster mitigation are also becoming more diverse in terms of their design and scope. However, not many online applications/platforms for disaster mitigation/resilience improvement are designed by considering the needs of the people with disabilities and their accessibility features. The Disaster E-learning System for People with Disabilities (Sistem Pembelajaran Kebencanaan dengan E-Learning untuk Difabel/SIPAKDEDIFA) is an innovation developed by the BPBD of Klaten Regency to educate people with disabilities about disasters. This learning system contains disaster-related materials that can be customized for easier access by its users. For example, the materials can be accessed in visual/video formats by the deaf community, and it can also be accessed in audio formats by the blind community.

Another example is the Kerjabilitas.com website that helps people with disabilities to find jobs. This platform connects jobseekers to employers who accept people with disabilities. This information system allows people with disabilities to upload their profiles as jobseekers and access information on job opportunities that are available to them. This platform is not limited to one region and is available nationally. The kerjabilitas.com platform not only helps people with disabilities in finding jobs to achieve financial resilience, but also to voice their opinions in communication forums related to other issues they face.

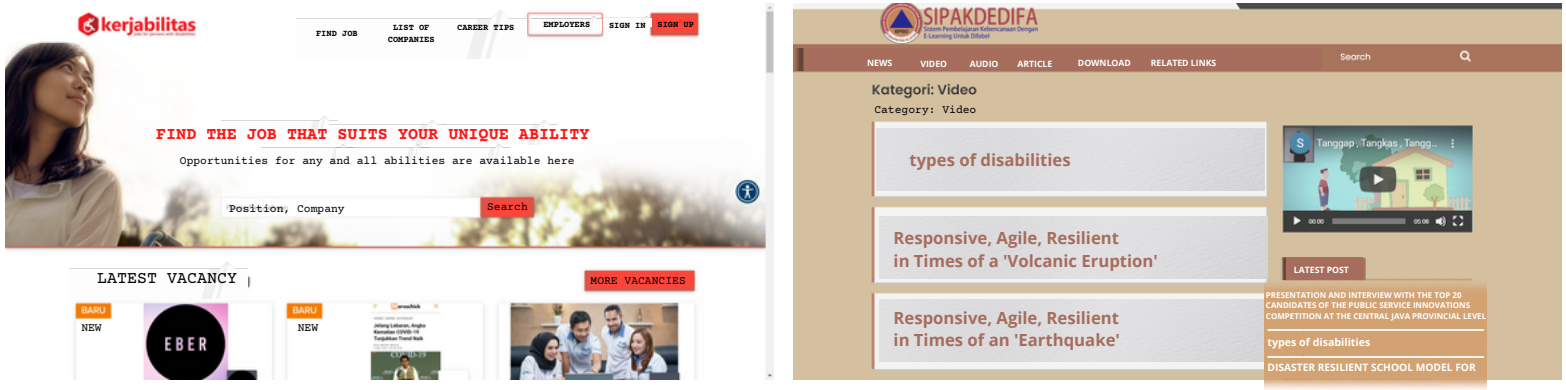


Figure 9. The homepage of the kerjabilitas.com and SIPAKDEDIFA websites.

Other applications that cater for the need of people with disabilities but are not only focused on disaster mitigation have also been initiated. Two good examples are Hear Me, a sign language application for deaf and hearing people created by students of the School of Business and Management (SBM) of Institut Teknologi Bandung (ITB), and TuneMap, a community-based map application to help the blind community navigate through neighborhood in the city. These applications were released a few years ago and have great potential to be further developed and utilized for disaster risk reduction for people with disabilities in various phases of disaster management.

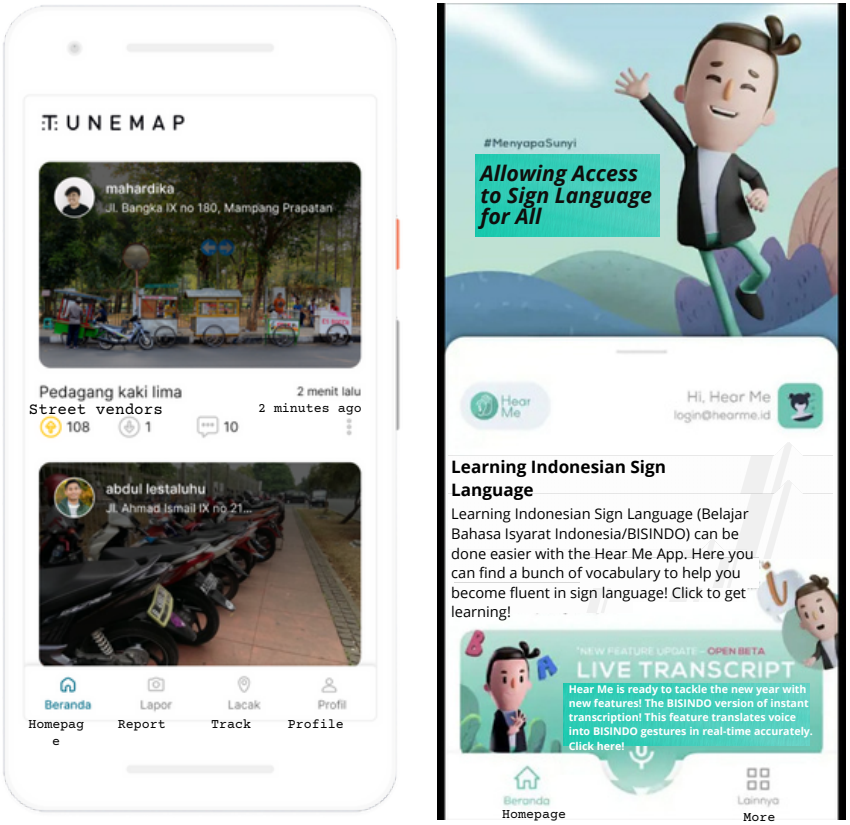


Figure 10.
The TuneMap and Hear Me Applications

Guidelines for the Inclusion of People with Disabilities in Humanitarian Activities

Guidelines for the Inclusion of People with Disabilities in Humanitarian Activities

The Guidelines in this chapter are a set of information that help provide directions or procedures in conducting humanitarian activities, especially disaster risk reduction, that are conducted by and targeted towards people with disabilities. These guidelines are necessary to help caseworkers, especially those who do not have much experience in working with the persons with disabilities, in performing their duties. Some guidelines that are currently available include the Humanitarian Hands-on Tools (HHOT), the Practical Guideline of Joint Research with People with Disabilities (Panduan Praktis Penelitian Bersama Penyandang Disabilitas), and Guidelines in Dealing with COVID-19 for every Type of Disability (Panduan Menghadapi COVID-19 bagi tiap Ragam Disabilitas). The Humanitarian Hands-on Tools (HHOT) is a practical guideline for humanitarian action, especially emergency response, to be accessible and inclusive for people with disabilities. This guideline was developed by the CBM, together with the BNPB and YEU in 2019.

This guideline contains ways to ensure that people with disabilities have dignified access to emergency response services, are able to actively participate in the development, implementation, and monitoring of emergency response programs. Once downloaded, the HHoT application can be used offline.

Formulation of the Practical Guideline of Joint Research with People with Disabilities was based on participatory research on inclusive WASH in humanitarian response conducted by three institutions: ASB, Pokja OPDis Pasigala, and the Center for Health Policy and Management of Universitas Gadjah Mada in 2020-2021 for 18 months in Sigi Regency and Donggala Regency as well as in the City of Palu. The people with disabilities involved are trained to have expertise in the humanitarian field, so that they can participate in planning, implementing, and monitoring humanitarian programs. This activity is aimed to improve the capacity of people with disabilities, which in turn, will provide maximum result in terms of fulfillment of their own needs.

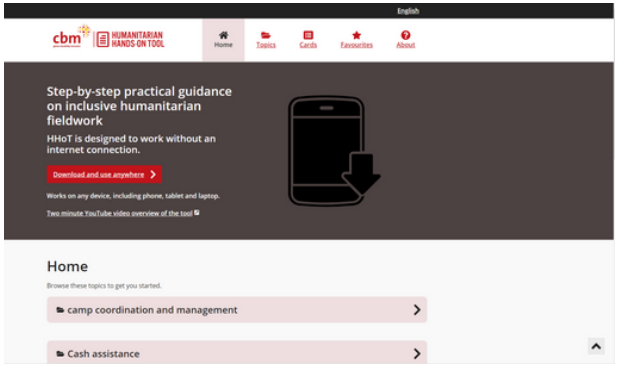


Figure 11. Humanitarian Hands-on Tools (HHOT)

The Guidelines in Dealing with COVID-19 for every Type of Disability is a book on info-graphics and a video created to help protect people with disabilities from COVID-19. Of the many kinds of information available concerning Covid-19, many of them are not yet accessible or suitable for people with disabilities. This guideline was made by Sapda and Disability Rights Fund, along with disability communities, media advocates, art workers, “Santoso Menyenangkan” production house, and Covid-19 Response DPO.

So far, the utilization of the guideline are; (1) utilized by the COVID-19 task force of DIY as one of its practical guidelines; (2) utilized by the Human Resource Research and Development Agency (Lakpesdam) of PBNU as one of its main references; (3) utilized as an inventory of COVID-19 guidelines as managed by the sub-cluster of the national shelter; (4) published by Tribun Jogja news channel; (5) repackaged as posters as an alternative format for visual information for people who struggle to understand lengthy sentences; (6) adapted into different protocols created by the Ministry of Women Empowerment and Child Protection. Moreover, the video of the guidelines has also been published via SAPDA's YouTube, Instagram, Facebook, and Twitter account, and has since gained more than 200 views (as of May 2020).

Contributing Parties

The followings are descriptions of the parties that initiated and managed the many inclusive programs/movements/tools on disaster risk reduction as explained in this chapter. It should be noted that in developing their innovations, each of those parties collaborated with one another or with other third parties that may not be identified in this research. Therefore, the mapping of contributing parties in this section shall only mention the categories and samples of identified parties in this report.

Public Sectors

City Governments
(eg.,Banjarmasin, Klaten)

Provincial Governments
(eg., DIY, Central Java)

Ministries
(eg., PUPR, BNPB)

UN Agencies
(eg., UNESCO)

People/Communities

Community organizations
(eg., disability communities, Covid-19 Response DPO, RWs/ villages)

Individuals
(media advocates, art workers, activists)

Non-Governmental Institutions

Private Sectors
(eg., 'Santoso Menyenangkan' production house)

Academics
(eg., students, study centers, at UGM, Unnes, ITB)

NGOs
(eg., WVI, CRI, Kota Kita, YEU, ASB, Kaki Kota, Sapda, CBM, ACT Alliance)

Development Timeline of the Inclusive DRR Innovations

2008
Education of Disability-Inclusive DRR at the school level (ASB)

2009
Village Information System (CRI)

2013
Inclusive and Resilient Village Model (BNPB and (ASB)

2014
DRR playful tools for students with disabilities and models using Braille (KKN UGM)

2015
Kerjabilitas.com

2017
- The Decree of the Governor of DIY No. 50 of 2017 on Special Healthcare Systems (Jamkesus) for People with Disabilities
- DRR book with braille (Anisa Rohmah from UNNES)
- TuneMap
- Disability-inclusive Service Unit (LIDI) of the BPBD of Central Java

2018
- Toolbox of Disability Data Collection and Profiling of Disability-Inclusive Cities (Kota Kita, UNESCO and partners)
- Collaborative planning for improving slum areas (KOTAKU by the Ministry of PUPR)
- Children Forums in villages affected by disasters (Wahana Visi Indonesia and partners)

2019
- Humanitarian Hands-on Tools (HHOT) (CBM, BNPB and YEU)
- People with Disabilities Disaster Response Task Force (DIFAGANA)
- Hear Me

2020
- PUSKOVID DIY Application (BPBD DIY)
- Transparent face masks (Dwi Rahayu Februarti)
- A book on infographics and a video created to help protect people with disabilities from COVID-19 (Sapda, Disability Rights Fund, communities of persons with disabilities, media advocates, art workers, "Santoso Menyenangkan" PH, Covid-19 Response DPO).
- Collective activities for improving female resilience during the COVID-19 pandemic (YEU)
- Construction of safe, healthy, and accessible buildings and training for 242 local construction workers (YEU, ACT Alliance)
- SIPAKDEDIFA (Disaster E-learning System for People with Disabilities)
- Disaster Resilient Community Units in Yogyakarta

2021
- Practical Guidelines for Research with the persons with disabilities (ASB, Pokja OPDis Pasigala, Center of Health Policy and Management of Universitas Gadjah Mada)
- Accessibility audit on evacuation shelters provided after the eruption of Merapi (YEU and partners)

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