

Nine Inclusive Disaster Risk Reduction Innovations:

Learning from Yogyakarta's Cases



Funded by



elrha



START
NETWORK



Inspire
Indonesia

Nine Inclusive Disaster Risk Reduction Innovations:

Learning from Yogyakarta's Cases



Funded by



elrha



START
NETWORK



Inspire
Indonesia



elrha



START
NETWORK



Nine Inclusive Disaster Risk Reduction Innovations:

Learning from Yogyakarta's Cases

Copyright YAKKUM Emergency Unit © June 2022

Jalan Kaliurang KM 12, Dusun Candi 3 Nomor 34 Yogyakarta
55581 - Indonesia

Phone: +62-274-882477 | www.yeu.or.id

Written by: U-INSPIRE Indonesia

Edited by: YAKKUM Emergency Unit

Layout by: Rispama Damar Yanti Saragih

About CLIP IDEAKSI

The Community-Led Innovation Partnership (CLIP) supports the emergence and development of locally-driven solutions to humanitarian problems in Democratic Republic of Congo (deferred), Guatemala, Indonesia and the Philippines. YAKKUM Emergency Unit (YEU) runs the IDEAKSI program (short for Idea, Innovation, Action, and Inclusion) as its CLIP project in Indonesia. As part of the partnership, IDEAKSI seeks to find innovative and inclusive solutions to disaster management for most-at-risk groups, including persons with disabilities and the elderly.

Through the support provided by Elrha, Start Network, the Asia Disaster Reduction and Response Network (ADRRN) Tokyo Innovation Hub, and funding by the UK Foreign, Commonwealth, and Development Office (FCDO), YEU is able to organize IDEAKSI as its CLIP project in Indonesia.

About the partners

Elrha is a global charity that finds solutions to complex humanitarian problems. Our Vision is of a world equipped to mitigate the impact of humanitarian crises. We are an established actor in the humanitarian community working in partnership with humanitarian organisations, researchers, innovators and the private sector to tackle some of the most difficult challenges facing people all over the world.

Start Network is a global network of non-governmental organisations, made up of more than 50 national and international aid agencies from five continents. Its mission is to create a new era of humanitarian action that will save even more lives through innovation, fast funding, early action, and localisation.

Asian Disaster Reduction and Response Network (ADRRN) is a network of national civil society organizations across the Asia-Pacific region. Since 2002, ADRRN has rapidly evolved from an awareness focussed network to a regional voice in advocacy and capacity building issues as well. Its main aims have been to promote coordination, information sharing and collaboration among CSOs and other stakeholders for effective and efficient disaster reduction and response in the Asia-Pacific region.

YAKKUM Emergency Unit (YEU) is a work unit of YAKKUM (the Christian Foundation for Public Health) with the mandate of emergency response and community preparedness initiatives. Since 2001, YEU has provided humanitarian services and assistance to more than 300 villages, and partnered with various stakeholders, including disaster management actors, local governments, and community-based organizations, both in and outside of Indonesia. YEU maintains its neutrality and impartiality in its work, regardless of race, religion, or any group affiliation, and puts humanitarian interest above all in inclusive disaster management.

About

This report is prepared as a part of a collaboration between U-INSPIRE Indonesia and YAKKUM Emergency Unit (YEU) in a program called IDEAKSI. U-INSPIRE is a platform for youth and young professionals in the fields of science, technology, and innovation for disaster risk reduction. This platform was first established in Indonesia in 2018 and has now been proliferated across several nations.

Acknowledgements

As the drafting team, we would like to express our appreciation to the whole team of local innovators: members of CIQAL, DIFAGANA, FKWA, FPRB GK, Lingkar, MRC, Ngudi Mulyo, PB Palma, and SEKOCI, for the many lessons and inputs they have given us throughout the making of this report. We also would like to thank YEU and the partners for the opportunity to be involved and learn in IDEAKSI. While preparing this report, we realized that there were a handful of amazing ideas that had never occurred to us before. As such, the process of preparing this report undoubtedly served as a new 'monument of wisdom' that we are eager to share with friends from U-INSPIRE Indonesia.

Finally, we would like to thank Devita Marwana and all U-INSPIRE staffs who have provided great support throughout our involvement in IDEAKSI.

The Drafting Team (in alphabetical order):

Hilman Arioaji

Nurul Sri Rahatiningtyas

Reza Prama Arviandi

Risye Dwiyani

Said Fariz Hibban

Saska Shafira Rizkia

Wina Natalia

Cover Image:

Photos taken during the activities of the nine teams of innovators : CIQAL, DIFAGANA, FKWA, FPRB GK, Lingkar, MRC, Ngudi Mulyo, PB Palma, and SEKOCI.

Table of Contents

Table of Contents	i
Abbreviations (ID)	ii
Abbreviations (EN)	v
A . Introduction	1
B. Development of Inclusive Disaster Risk Reduction Innovation through IDEAKSI	16
CIQAL	18
DIFAGANA	25
FKWA	33
FPRB-GK	40
LINGKAR	46
MRC	53
Ngudi Mulya	60
PB Palma GKJ Ambarrukma	67
SEKOCI	74
C. Learning Conclusion	82
References	96



Figure 1. Installation of evacuation guidance instrument. Photo by: MRC

Abbreviations (ID)

ASB	Arbeiter Samariter Bund
BPBD	Badan Penanggulangan Bencana Daerah
BNPB	Badan Nasional Penanggulangan Bencana
CBM	Christian Blind Mission
CIQAL	Center for Improving Qualified Activities in Life of People with Disabilities
CLIP	Community-led Innovation Partnership
COVID-19	Corona Virus Disease 2019
DIFAGANA	Difabel Siaga Bencana
DIY	Daerah Istimewa Yogyakarta
FKWA	Forum Komunikasi Winongo Asri
FPRB-GK	Forum Pengurangan Risiko Bencana Gunungkidul
GKJ	Gereja Kristen Jawa
IDEAKSI	Ide Inovasi Aksi Inklusi
LIA	Local Innovator Advisor
Musrenbang	Musyawarah Perencanaan Pembangunan
MRC	Merapi Rescue Community
OPD	Organisasi Penyandang Disabilitas
PB Palma	Penanggulangan Bencana Palma
PPDI	Perkumpulan Penyandang Disabilitas Indonesia
PRB	Pengurangan Risiko Bencana

PUPR	Pekerjaan Umum dan Perumahan Rakyat
RT	Rukun Tetangga
RW	Rukun Warga
SAPDA	Sentra Advokasi Perempuan, Difabel, dan Anak
SFDRR	Sendai Framework of Disaster Risk Reduction
SID	Sistem Informasi Desa
SIGAB	Sasana Inklusi dan Gerakan Advokasi Difabel
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
UKDW	Universitas Kristen Duta Wacana
WVI	Wahana Visi Indonesia
YEU	YAKKUM Emergency Unit

Abbreviations (EN)

ASB	Arbeiter Samariter Bund
BPBD	Local Disaster Management Agency
BNPB	National Disaster Management Agency
CBM	Christian Blind Mission
CIQAL	Center for Improving Qualified Activities in Life of People with Disabilities
CLIP	Community-led Innovation Partnership
COVID-19	Corona Virus Disease 2019
DIFAGANA	People with Disabilities Disaster Response Task Force
DIY	Special Region of Yogyakarta
FKWA	Winongo Asri Communication Forum
FPRB-GK	Disaster Risk Reduction Forum of Gunungkidul
GKJ	Javanese Christian Church
IDEAKSI	Ideas Innovation Action Inclusion
LIA	Local Innovator Advisor
Musrenbang	Developmental Planning Discussion
MRC	Merapi Rescue Community
OPD	Organization of People with Disabilities
PB Palma	Palma Disaster Management
PPDI	Association of People with Disabilities in Indonesia
PRB	Disaster Risk Reduction (DRR)

PUPR	Public Works and Housing
RT	Neighborhood Administration Unit
RW	Community Unit
SAPDA	Advocacy Center for Women, Disabilities, and Children
SFDRR	Sendai Framework of Disaster Risk Reduction
SID	Village Information System (VIS)
SIGAB	Center for Inclusion and Disability Advocacy Movement
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
UKDW	Duta Wacana Christian University
WVI	Wahana Visi Indonesia
YEU	YAKKUM Emergency Unit

A. Introduction



Background

In 2020, the Special Region of Yogyakarta Province had a moderate disaster risk index, in which three of five regencies/municipalities in Yogyakarta were given a high disaster risk index (BPNB, 2020). Natural disasters in DIY include earthquakes, volcanic eruptions, floods, landslides, droughts, extreme waves/coastal abrasions, forest and land fires, extreme weather, and tsunamis. This province has the highest number of older people and the fourth highest number of people with disabilities in Indonesia. Groups who are of high risk in the event of a disaster, such as people with disabilities, are often considered vulnerable and seen as always requiring assistance from others. When in fact, many disaster risk reduction efforts actually fail to regard people with disabilities. Inclusive innovations are intended to empower everyone, including highly risks groups, so they can actively participate in disaster management and overcome their personal challenges through creative means.

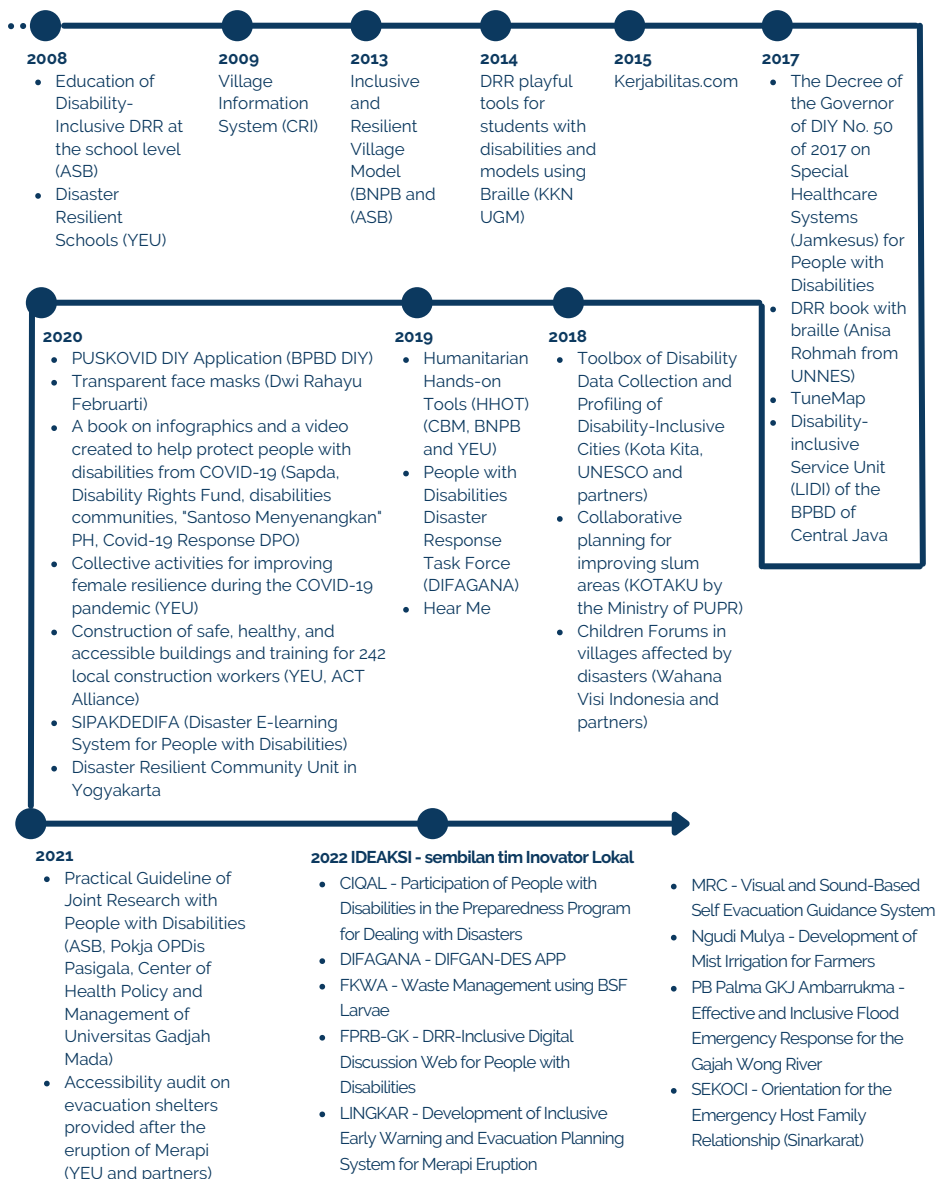
With the support of Elrha, Start Network, and the Asia Disaster Reduction and Response Network (ADRRN), funded by the UK Foreign, Commonwealth, and Development Office (FCDO), the YAKKUM Emergency Unit (YEU) has been carrying out a program known as the "Community-Led Innovation Partnership" (CLIP) or Partnership for Community-based Innovations from April 2020 which will continue until March 2023.

This project is dedicated to support innovators at the community level to produce, test, and develop solutions for many issues and challenges faced in terms of emergency response and disaster preparedness, both locally and nationally. To realize this project, YEU has organized a program known as IDEAKSI (Ide Inovasi Aksi Inklusi/Ideas Innovation Action Inclusion) to give innovators in Yogyakarta the opportunity to submit their proposals of inclusive disaster risk innovation development. The proposals were then selected and compiled together in an innovation incubation process between September 2021 and April 2022. The innovations developed through IDEAKSI have helped enrich the list of inclusive DRR innovations developed in Indonesia, as shown in Figure 2.

In conducting IDEAKSI, YEU partnered with the five main components of society (the pentahelix) to develop inclusive disaster risk reduction (DRR) innovations. To increase the capability of participants, collaborators who were in charge as technical reviewers and local innovation advisors (LIA) consisted of people from various backgrounds of expertise, such as members of non-governmental organizations, academics, and governmental organizations, local and international, which represented three out of the five elements of the pentahelix. YEU also partnered with Solider.id media through the innovation development process (some of their articles can be accessed [here](#)), and the Corporate Social Responsibility (CSR) Forum of the Special Region of Yogyakarta that provided input and feedback

regarding the potential of sustainability of the innovations that were being developed by the local innovators.

Figure 2. Development Timeline of the Inclusive DRR Innovations (U-INSPIRE, 2021, modified)



Overview of the Innovation Development Process

This Learning Report is a documented summary of the learning activities in the innovation development process carried out by teams of local innovators for eight months, since the selection phase in August 2021 to March 2022. Each team was given an equal amount of funds to develop their innovation. Throughout the innovation development process, the teams of innovators were also supported through the assistance of mentors, coaching, monitoring, and regular reflective sessions. Risk mapping was also done regularly, the mitigation of which was discussed together. By the end of the innovation prototype development cycle, on April 22-23, YEU and its partners held an "Exhibition of Idea Innovation Action Inclusion for Disaster Preparedness and Management", which allowed for an exchange of ideas, experience, and learning between teams, and enabled the teams to communicate their innovation to the broader community.

Here is an explanation on the innovation development process that all the teams of local innovators went through:

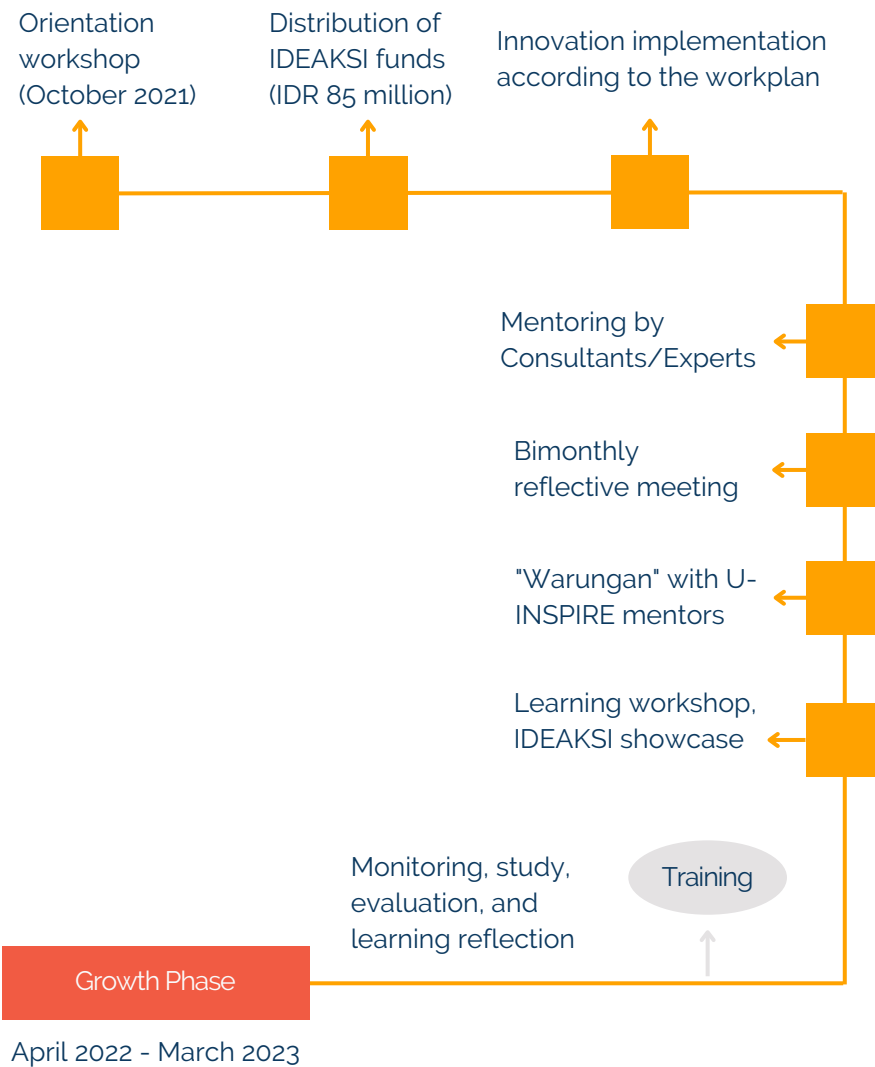


Figure 3. Innovation Development Process by Innovator Teams.
Source: YEU, 2022 (modified)

Capability Improvement for the Teams of Local Innovators

Throughout the innovation development process in IDEAKSI, all of the local innovator teams were given various forms of training and materials as a part of capability improvement of teams in implementing their respective innovation prototypes. All teams participated in the "Orientation Workshop" before moving on to the development phase. During this workshop, the teams were briefed on how to formulate their progress reports and financial reports. Local innovators were also given various capability improvement modules according to their needs to further perfect their innovation development design, such as social media training and inclusive digital innovation mentoring.

During IDEAKSI, the progress and development of each team of local innovators were monitored by technical reviewers, from the proposal selection stage, prototype development stage, to the later stages. The Technical Reviewers consisted of Mrs. Sipora Purwanti from SIGAB, Mr. Danang Syamsu from BPBD DIY, Mrs. Titi Moektijasih from UNOCHA, Mr. Surya Rahman Muhammad from HFI, and Mr. Winta Adhitia Guspara from UKDW. These five individuals were in charge of the reviews, evaluations, evaluation criteria suggestions, and inputs for the local innovator teams to improve their ideas according to their respective background of expertise and experience.

A team of local innovation advisors (LIA), or U-INSPIRE Indonesia in this case, also joined the technical reviewers. U-INSPIRE Indonesia were responsible in providing assistance, inputs, and learning from the other mentors throughout the innovation development process. LIA also conducted a needs analysis to improve the capabilities of the local innovator teams through a "Warungan Discussion session with U-INSPIRE", which was held remotely (online) with all of the teams of innovators during the early stages of innovation development. During this discussion, LIA gathered as much information as possible from each team and gave feedback to improve their innovation development.

Each team also gathered for reflective meeting sessions which was held twice, in the middle and final portion of the development phase. During these sessions, each team gave a presentation, reflected on their learning process, and had discussions with the mentors, including people from YEU, the technical reviewers, and LIA. The key points of the capability improvement sessions, which provided important lessons that may have an impact to the innovation designing and development process of the local innovator teams, can be found in the following page.

Key Points of the Capability Improvement Sessions for the Local Innovator Teams

Orientation Workshop (October 2021)

- Orientation of the stages of the risk mitigation and innovation development process
- SOP for finance, bookkeeping, and logistics
- Narrative reporting mechanism
- Supporting data, including beneficiary data
- Documentation and visibility guideline
- Complaint handling mechanism
- Code of ethics, standards, and accountability

Reflective Sessions for the Innovator Teams (bimonthly)

- Each innovator team shares their progress and reflect on the process they have undergone

Warungan Discussion with U-INSPIRE (11-25 October 2021)

- Discussion with each innovator team to identify important issues to improve the capability of local innovators and their innovation development
- Issues identified were then utilized to set up a capability improvement support system required for the next stages
- Exploration of the capability of each innovator team, along with the challenges they face and potential areas of improvement

- Important recommendations include: improvement on the ability to guarantee accessibility to the digital-based innovation development; documentation of the prototype development processes, and comprehensive descriptions of the developed system so that the prototype can be replicated/up-scaled

Writing and Storytelling Training by Dwi Rahmah Hidayanti, M.Pd., editor of parenting and children books (January 2022)

- Practical tips to write using proper Indonesian grammar (EYD), introduction to useful apps and websites, such as Sipebi (Indonesian Spelling App), typoonline.com, and ejaan.id
- Accessibility in digital writing
- Storytelling basics and techniques
- Training on video-making and writing, along with constructive suggestions from the presenter
- Tips for documenting innovation in writing and video format

Branding and Social Media Training by Catherine Pamela, a BNPB Disaster Risk Reduction Ambassador 2021 and Marketing Communications Officer of RedR Indonesia (February 2022)

- Branding basics and brand mapping training
- Utilization of social media and its accessibility features

- Aspects to consider when creating content
- Training on creating content ideas and advocacy content
- Overview of free graphics tools for social media development, such as Canva, All Hashtag, Creator Studio, IG Blade, Medium, Google Trends, etc

Mentoring by Mr. Emmanuel Setawijaya Eka Atmaja, expert in village development and community-based disaster risk management

- Assisting Sekoci
- Providing inputs regarding guidelines/SOP, ensuring continuity with a contingency plan/procedure from regional government agencies, such as the BNPB, BPBD, Sister Village program
- Ensuring accessibility of innovation concepts and protection towards high-risk groups

Mentoring by Mr. Supriyadi, Expert in Agriculture

- Assisting Ngudi Mulya
- Conducting a study on soil saturation and the duration needed to irrigate crops with a fog irrigation system

Mentoring by Dian Organic Farm

- Assisting FKWA
- Business plan formulation on organic waste management
- Baseline survey analysis with the community

- Integrated agriculture with a disaster mitigation approach
- Maggot farming assistance to create high quality maggots, verified with a lab result on the protein content

Inclusive Digital Innovation Mentoring by Rahma Utami, Suarise

- Assisting the teams, such as Difagana, FPRB GK, Lingkar, and Ciqal, in developing digital products.
- Universal design principles, accessible and inclusive designs for disaster response apps, A11y Concept (Accessibility)
- Discussion on three scopes of app components: information architecture, UI Design Principles, UX Writing
- Common misconceptions when developing an inclusive and accessible app, and the importance of receiving direct feedback from users with disabilities, especially users who are visually impaired
- Four fundamental characteristics of an ideal app interface: perceivable, robust, understandable, and operable
- Recommendation of app development workflow that works in stages
- Sharing tools for reference: Browser plugins (WAVE , Web Disability Simulator), Figma plugins (STARK, Colour Blind), Desktop Apps (Colour Contrast Checker), Mobile Apps (Android Accessibility Checker)

Mentoring by Prof. Ir. Sunarno, M.Eng., Ph.D., IPU, Head of the Sensor and Tele-control System Laboratory, Universitas Gadjah Mada

- Assisting MRC and PB Palma GKJ Ambarrukma
- Testing innovations for effectiveness and quality control of the early warning system and evacuation guideline
- Providing recommendation for improving the quality of innovations, from technical and proper technology utilization perspectives

Reflective Sessions for the Innovator Teams and Socialization of the Up-scaling Proposal (March 2022)

- Each team shares their progress and reflect on the process
- Discussion on up-scaling to maximize the benefit of innovation in development
- Preparation of IDEAKSI phase-out
- Socialization of the Up-scaling Proposal Formulation Guideline

Definition

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 document 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.



Figure 4. Inclusive Digital Innovation Mentoring by Suarise. Photo by: YEU

This report presents the learning process of the nine innovator teams who are still developing their innovations with IDEAKSI after April 2022. The purpose of presenting this summary of innovation development learning are: (1) so that it can be used as a reference for the strategic formulation of future innovation developments by innovator teams, YEU, and partners; (2) so that readers who are interested to replicate or adopt similar innovations can understand the important aspects to consider and challenges to anticipate when developing an inclusive disaster risk reduction innovation. This report is hoped to be useful for innovator teams, academics, practitioners, the government, and the general public.

References used in the making of this report include the proposals and monthly reports of innovator teams up to February 2022 and notes from the U-INSPIRE Indonesia team when giving assistance during the monthly reflection and Warungan session. We should also note that due to the COVID-19 pandemic, field visitations were not possible during the learning documentation process.

This report contains brief profiles of the local innovator teams, description of the added value offered by their innovations, their starting assets, their innovation development process, the parties involved, the challenges faced, lessons learned when developing the innovation, and the conclusion of the whole IDEAKSI process.

B. Development of Inclusive Disaster Risk Reduction Innovations through IDEAKSI



Nine Inclusive Disaster Risk Reduction Innovations through IDEAKSI 2021-2022

CIQAL

Participation of
People with
Disabilities in the
Preparedness
Program for Dealing
with Disasters

DIFAGANA

DIFGAN-DES APP

FKWA

Organic Waste
Management Using
BSF
(Black Soldier Fly)
Larvae

FPRB-GK

Inclusive DRR Digital
Discussion Web for
People with
Disabilities

LINGKAR

Development of
Inclusive Early
Warning and
Evacuation Planning
System for Merapi
Eruption

MRC

Visual and Sound-
Based Self
Evacuation
Guidance System

Ngudi Mulya

Development of Mist
Irrigation for Farmers

PB Palma GKJ Ambarrukma

Effective and
Inclusive Flood
Emergency
Response for the
Gajah Wong River

SEKOCI

Orientation of the
Emergency Host
Family Relationship
(Orientasi Jalinan
Keluarga Angkat
Darurat/Sinarkarat)

Participation of People with Disabilities in the Preparedness Program for Dealing with Disasters in Kepuharjo Village

CIQAL (Center for Improving Qualified Activities in Life of People with Disabilities) Foundation developed an innovation to increase the Participation of People with Disabilities in the Preparedness Program for Dealing with Disasters in Kepuharjo Village, Sleman Regency. Through this innovation, they managed to organize the following: (1) data of people with disabilities in Kepuharjo Village, which was then visualized in a Management Information System (SIM), (2) a Standard Operational Procedure for evacuation and rescue, more accessible evacuation areas, as well as policies and budgets for better protection towards people with disabilities, (3) formation of a Village Disability Group (Kelompok Disabilitas Desa/KOMDIK), and (4) disaster management education for village leaders, the Destana Team, and people with disabilities. The Management Information System built by CIQAL can be accessed here: simdis.desakepuharjo.id. Going forward, KOMDIK hopes to advocate for the formulation of the Village Regulation on protection and fulfillment of the rights of people with disabilities in Kepuharjo Village. The CIQAL team also plans to develop similar disabilities data collection models, SIM, and SOP, as well as advocate for similar regulations in Wukirsari Village, the sister village of Kepuharjo Village. They hope that the systems of these two villages can later be integrated.

Added Values of the Innovation: The existence of an information system that is integrated with the Kepuharjo Village Website and has a space for involving people with disabilities in Disaster Preparedness Programs.

Team's starting assets:

- Experienced and have knowledge in working with people with disabilities
- Experienced in disaster preparedness training for people with disabilities, and equipped with its guidebook.
- Experienced in disaster management that involves people with disabilities
- Experienced in advocating for regency and village governments
- Relevant partners/networks for dealing with issues on disability

Involved parties:

- Kepuharjo Village Government
- People with disabilities and their family
- PKK Members, Disaster Resilient Village Team
- Information and technology experts
- Universitas Muhammadiyah Yogyakarta
- Muhammadiyah Disaster Management Center

Innovation Development Process

The development of innovation started with collecting the data of people with disabilities in the Kepuharjo Village, which consist of 8 sub-villages. The data was then used to create a mapping of the people's address, category of disabilities based on the Law on Disabilities No. 8 of 2016, their educational background, needs, social security ownership, and forms of empowerment they expect to receive. CIQAL also conducted activities, such as workshops and focus group discussions, among which was for formulating an SOP by involving people with disabilities. The SOP contained evacuation and rescue plans for emergency situations that provide special protection for people with disabilities. For now, the SOP is still under development. Focus group discussions were held to promote accessibility in evacuation areas and evacuation shelters by advocating for better policies and budget allocation for people with disabilities.

A village disability group, named Komunitas Disabilitas Kepuharjo (Kepuharjo Disability Group/KOMDIK), was recently formed, with an administrative period of 2022-2027. Data of people with disabilities was utilized, among others, for forming the administrative structure of KOMDIK and the planning of its programs. KOMDIK was inclusively formed, and was led by a woman with disability, with several members who were also people with disabilities, PKK members, as well as village and sub-village government staffs. The organization was established under the Decree of the Head of Kepuharjo Village

of 2022. KOMDIK has succeeded in advocating for the distribution of support from the Department of Social Services of Sleman Regency. Several members of KOMDIK have also received assistance in the form of prosthetic legs and wheelchairs in return. In general, the process of innovation development by CIQAL can be observed in the following diagram.



Figure 5. IDEAKSI Innovation Development Process by CIQAL.

Source: Monthly report and presentation by CIQAL Team during a reflective session.



Figure 6. Formulating an SOP for Evacuation and Rescue in Emergency Situations that Provides Special Protection to People with Disabilities. Photo by: CIQAL

Figure 7. Focus Group Discussions for advocating better accessibility and fulfillment of special needs.
Photo by: CIQAL



Figure 8. Kepuharjo Village Management Information System Interface. Photo by: CIQAL

Figure 9. One of the data set in the Management Information System of Kepuharjo Village. Photo by: CIQAL

Disabilities Mby of Kerpoharjo Village

Gender Age Disability Type Count

Disabilities Mby of Kerpoharjo Village

Search by the Content of Disability

Gender	Age	Disability Type	Count
Male	1	Disability Type	1
Female	2	Disability Type	2
Male	3	Disability Type	3
Female	4	Disability Type	4
Male	5	Disability Type	5
Female	6	Disability Type	6
Male	7	Disability Type	7
Female	8	Disability Type	8
Male	9	Disability Type	9
Female	10	Disability Type	10
Male	11	Disability Type	11
Female	12	Disability Type	12
Male	13	Disability Type	13
Female	14	Disability Type	14
Male	15	Disability Type	15
Female	16	Disability Type	16
Male	17	Disability Type	17
Female	18	Disability Type	18
Male	19	Disability Type	19
Female	20	Disability Type	20
Male	21	Disability Type	21
Female	22	Disability Type	22
Male	23	Disability Type	23
Female	24	Disability Type	24
Male	25	Disability Type	25
Female	26	Disability Type	26
Male	27	Disability Type	27
Female	28	Disability Type	28
Male	29	Disability Type	29
Female	30	Disability Type	30
Male	31	Disability Type	31
Female	32	Disability Type	32
Male	33	Disability Type	33
Female	34	Disability Type	34
Male	35	Disability Type	35
Female	36	Disability Type	36
Male	37	Disability Type	37
Female	38	Disability Type	38
Male	39	Disability Type	39
Female	40	Disability Type	40
Male	41	Disability Type	41
Female	42	Disability Type	42
Male	43	Disability Type	43
Female	44	Disability Type	44
Male	45	Disability Type	45
Female	46	Disability Type	46
Male	47	Disability Type	47
Female	48	Disability Type	48
Male	49	Disability Type	49
Female	50	Disability Type	50
Male	51	Disability Type	51
Female	52	Disability Type	52
Male	53	Disability Type	53
Female	54	Disability Type	54
Male	55	Disability Type	55
Female	56	Disability Type	56
Male	57	Disability Type	57
Female	58	Disability Type	58
Male	59	Disability Type	59
Female	60	Disability Type	60
Male	61	Disability Type	61
Female	62	Disability Type	62
Male	63	Disability Type	63
Female	64	Disability Type	64
Male	65	Disability Type	65
Female	66	Disability Type	66
Male	67	Disability Type	67
Female	68	Disability Type	68
Male	69	Disability Type	69
Female	70	Disability Type	70
Male	71	Disability Type	71
Female	72	Disability Type	72
Male	73	Disability Type	73
Female	74	Disability Type	74
Male	75	Disability Type	75
Female	76	Disability Type	76
Male	77	Disability Type	77
Female	78	Disability Type	78
Male	79	Disability Type	79
Female	80	Disability Type	80
Male	81	Disability Type	81
Female	82	Disability Type	82
Male	83	Disability Type	83
Female	84	Disability Type	84
Male	85	Disability Type	85
Female	86	Disability Type	86
Male	87	Disability Type	87
Female	88	Disability Type	88
Male	89	Disability Type	89
Female	90	Disability Type	90
Male	91	Disability Type	91
Female	92	Disability Type	92
Male	93	Disability Type	93
Female	94	Disability Type	94
Male	95	Disability Type	95
Female	96	Disability Type	96
Male	97	Disability Type	97
Female	98	Disability Type	98
Male	99	Disability Type	99
Female	100	Disability Type	100

Challenges

- Perfecting the information system required more time and training due to the lack of prior experience in designing such platform.
- Helping the participants understand the provided material in a short amount of time.
- Involving people with disabilities with various types of disabilities, educational backgrounds, and experience in interacting with many people.
- The pandemic, extreme weather, and Mt. Merapi activities.

Learning

1. It is important to involve PKK members, heads of villages and sub-villages, and people with disabilities to make sure that there is no public resistance in the data collection and updating process. Data collection that involves village residents is also effective as they could provide information on the address of people with disabilities.
2. This innovation has improved the comprehension of the heads of villages and sub-villages, PKK members, and the village's Tagana Team on procedures that have to be followed, especially by people with disabilities, when disaster strikes.
3. It is very possible to integrate this innovation with an existing village administrative structure. Data collection and information systems are in fact needed by the village. Currently, there are staffs who manage this information system.

4. The program is also in line with the Kamituo program (of the village's social department), as a prepared exit strategy, one of which is to ask for a website extension/maintenance budget from the village.
5. Showing and proving that people with disabilities can still play an important role in the community hopefully can change the common perception of the general public, as well as the heads of the villages and sub-villages who believe that people with disabilities lack the capability to participate actively in various community activities.

DIFAGANA (Difabel Siaga Bencana/People with Disabilities Disaster Response Task Force)

DIFGAN-DES APP

The DIFAGANA Team developed an Android app called DIFGAN-DES (DIFAGANA Disaster Emergency Support), which connects the needs of older people and people with disabilities regarding disaster responses with the authorities. As such, the app is specifically designed to make it accessible and easy to understand by people with hearing and visual impairments, as well as the older people.

The DIFGAN-DES app consists of (1) a Local EWS (Early Warning System); (2) education and information on disaster response; (3) up to date information on the current weather and eruption & earthquake warning. This app has been tested by people with hearing disabilities, visual disabilities, and the older people. It is currently available to download in the Playstore.

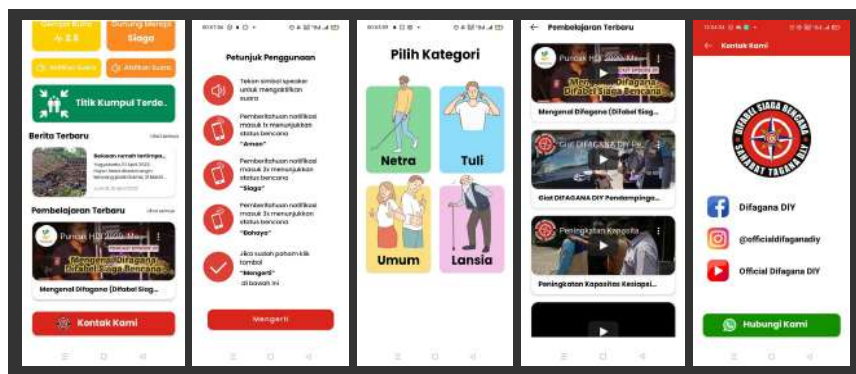


Figure 10. DIFGAN-DES App interface.

Photo: DIFGAN-DES, DIFAGANA App. Accessed on 6 April 2022

Added Values of the Innovation: This app facilitates accessible communication between people with hearing & visual disabilities and the authorities on matters related to disaster response.

Team's starting assets:

- Strong communal relationship; personnel are well connected to several local communities
- DIFAGANA was formed by the Department of Social Services of DIY, therefore has a strategic position and is in line with the programs from DIY's Dept. of Social Services
- Experienced in Android development and are a part of Android developer communities

Involved parties:

- The Difagana Team
- Sign Language Interpreters
- MATRASH (app developer)
- People with hearing and visual disabilities in disaster-prone areas that are members of the Disaster Resilient Village, Tagana, PPD I Turi, RT, RW, Posbindu, Elderly Posyandu, and Sub-villages.
- Department of Social Services of DIY

Innovation Development Process

Research in the sub-village of Manggungsari and Sangurejo, Wonokerto Village, in Turi Subdistrict was conducted to obtain a preliminary overview on the profiles of people with disabilities and older people in the region and their capabilities with regard to disaster response. DIFAGANA later consolidated with a number of representatives from organizations, including MATRASH as developer of the app, Head of the Natural and Social Disaster Management Department, DIFAGANA DIY supervisors, and representatives of TAGANA DIY. In order to introduce this app and the work programs for developing it, DIFAGANA visited the Command Base (Markas Komando/MAKO) of TAGANA in several regencies/municipalities in DIY, such as Bantul, Yogyakarta City, and Sleman. DIFAGANA DIY supervisor and DIY's Dept. of Social Services agreed to store the data of DIFGAN-DES in the server of the Dept. of Social Services. The Dept. of Social Services also are willing to provide further support by recommending the DIFGAN-DES app to residents of Disaster-Ready Villages (Kampung Siaga Bencana/KSB) in Yogyakarta.

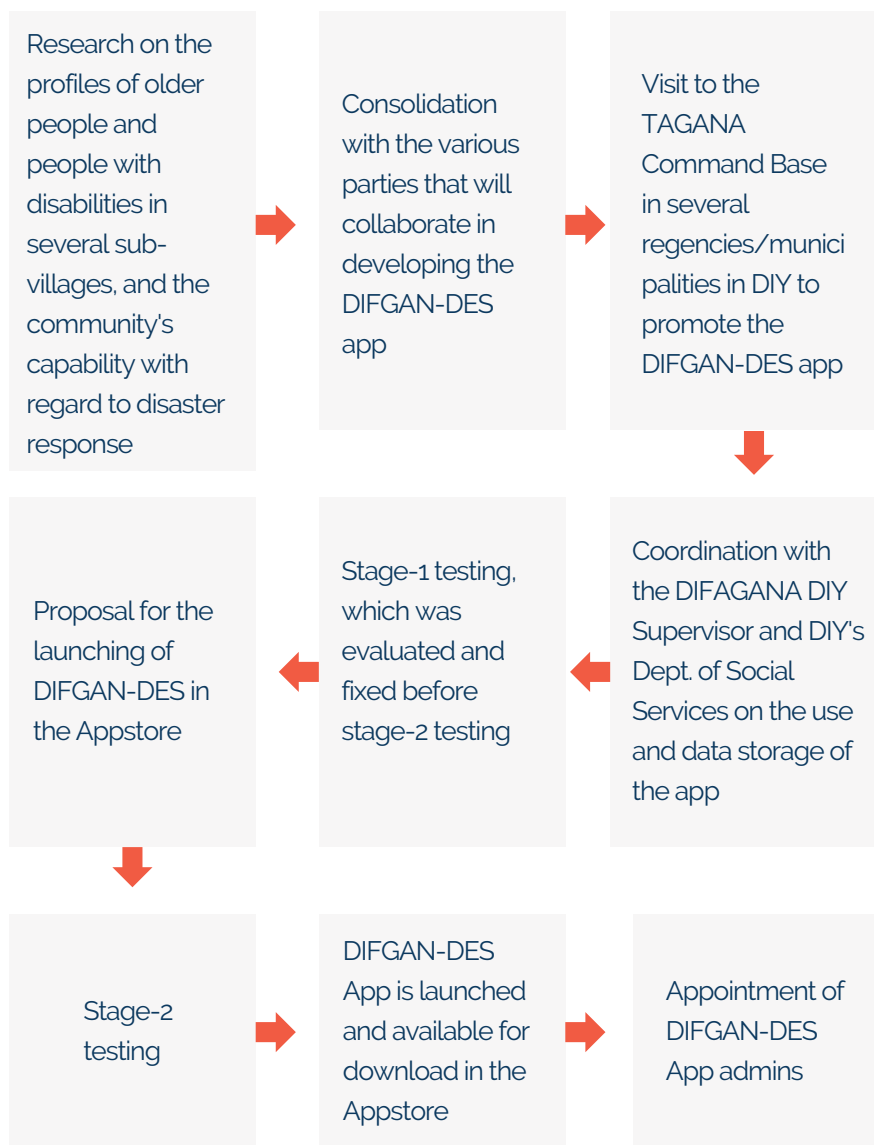


Figure 11. IDEAKSI Innovation Development Process by DIFAGANA. Source: Monthly reports and presentations by DIFAGANA Team during a reflective session.

After the app was developed, the DIFAGANA Team conducted testings at least twice which involved its prospective users, people with hearing and visual disabilities, and the older people. Stage-1 testing involved DIY's Dept. of Social Services, Sahabat TAGANA, TAGANA DIY, KSB, PORDAM DIY, people with low vision, and other organizations. During the testing, DIFAGANA received some feedback from the users, concerning better accessibility for people with hearing and visual disabilities, the older people, and broader community. The fixes made based on such feedback were then tested in the Stage-2 Testing.



Figure 12. Stage-1 Testing of DIFGAN-DES App with people with hearing and visual disabilities, facilitated by MATRASH. Photo by: DIFAGANA

Stage-2 Testing of the DIFGAN-DES App involved parties who were suitable based on the feedback given in the Stage-1 Testing, namely people with hearing & visual disabilities, sign-language interpreters, MATRASH, and DIFAGANA themselves. DIFAGANA facilitated the testing by involving two sign language interpreters. The testing was led directly by MATRASH as the developer of the app. During this second stage of testing, several issues that were found during the first testing had been fixed, such as issues with the screen display size that did not fit the respective smartphone's screen,

which made it hard to access the buttons within the app; difficulties in inputting OTP codes by users; and the fact that there was no button or link to return to the home menu after selecting one of the categories, such as older people, visually impaired, hearing impaired, and the general public. A month after its stage-1 testing, DIFAGANA applied to launch the app in the Appstore, and today, DIFGAN-DES app can be downloaded in the Appstore.

The DIFAGANA DIY team plans to continue the development of DIFGAN-DES app by adding new features. In April 2022, new features, such as information on gathering points, educational videos, and the "Contact Us" option were added to facilitate more room for interaction between users and DIFAGANA. Other features to be added include spatial information on at-risk groups based on the existing data of people with disabilities and older people. There are also plans to develop the application so that it can provide information on the number of people from at-risk groups who have gathered at a certain gathering point. This information can be used by the disaster emergency community to provide help accordingly and recommended a suitable evacuation path.

Challenges

1. Ensuring the wide adoption of this android app in the community, especially since its target users are older people and people with disabilities.
2. Continuous improvement of its existing features to achieve the desired goal, namely communicating information and learning about disaster preparedness and response, especially for people with hearing and visual disabilities, and the older people, which includes a simulation of how the user should use the app during an emergency/disaster.
3. Better cooperation with the government and expansion of the working area of Disaster Resilient Villages to improve the functionality and use of DIFGAN-DES in disaster cluster areas outside of those covered by the Dept. of Social Services.
4. Similar to any other disaster response app, internet connection is vital to the utilization of this system. As such, a manual (non-app) implementation scheme of the system that does not require internet connection might be necessary. The DIFAGANA Team have come up with an idea to utilize the mechanism of the Sister Village or Supporting Village community or using a disaster radio concept. This concept shall serve as an alternative so that the web-based app can still work without internet, though it will still require local BTS connection.

Learning

1. In general, when developing an android app, we should always consider the duration of the app review process by Google before it will become available for download in the Appstore.
2. Involvement of various parties with appropriate backgrounds as key users during the app testing stages is quite crucial to the innovation development process because we can receive positive feedback on areas to maintain and complaints/issues to fix according to the users.
3. Involvement and support from local stakeholders will be very helpful to the innovation development process, in terms that the app can reach more users and be promoted to an even broader public.
4. Sign language interpreters must be involved in the trial and promotion process to ensure an inclusive innovation development process for people with hearing disabilities.

FKWA

Waste Management using BSF (Black Soldier Fly) Larvae

The Winongo Asri Communication Forum (Forum Komunikasi Winongo Asri/FKWA) has cultivated maggots as a way to reduce the amount of waste that ends up in the Piyungan Landfill. This project is a development of an existing waste management program in Kricak Village, which already has a Waste Bank dedicated for non-organic waste. The FKWA plays an important role in organic waste management and in improving the quality of life of the local community.

The innovation they developed was the cultivation of BSF (Black Soldier Fly) maggots, that help process organic waste. The project was carried out in two Community Units (Rukun Warga/RW) in Kricak Village. This maggot farming facility is known as Kandang Maggot Jogjakarta (KMJ) or the Jogjakarta Maggot Farm. The maggots are ready for harvest every 25 days. Today, with ten biopond units, the KMJ can absorb 100kg of organic waste daily from the two RWs, and produce 15 kg of fresh maggots that are sold for IDR6000/kg. They also sell dried maggots that can be used as animal or pet feed.

In order to achieve a decentralized management and to improve public participation, the FKWA also developed the Maggobox, a practical set of tools for maggot farming that can be used by members of the two RWs in various points. The Maggobox can absorb up to 3 kg of organic waste per day,

and produce 6 kg of maggots and 1 kg of "kasgot" (residue/droppings of black soldier fly maggots). The use of maggoboxes as an organic waste processing tool powered by maggots has become more popular. Currently, six maggoboxes have been sold for the price of IDR350,000 per unit.

Added Values of the Innovation: Implementation of circular economy to improve environmental sustainability and improve the livelihood of the community

Team's starting assets:

- Experienced in environmental advocacy and assisting the community
- Well connected to members of environmental organizations, women solidarity organizations, Walhi, and Omah Maggot Jogja regarding organic waste processing innovation.

Involved parties:

- The FKWA Team
- Neighborhood Associations (Rukun Tetangga/RT), Community Units (Rukun Warga/RW), Villages, Sub-districts
- Dasawisma (a community consisting of women from each of the ten households in the same village)
- Dian Farm
- Darmo Farm

Innovation Development Process

The FKWA developed its innovation through learning visitations, experiments, and promoting their project to various parties to gather support. The following diagram shows their workflow.



Latest activities (March 2022)

Figure 13. IDEAKSI Innovation Development Process by FKWA. Source: monthly reports and presentations by FKWA Team during a reflective session.

Throughout the process, there were many changes from the initial innovation development design, especially those driven by the support of various stakeholders from the established structures in the community. In terms of the program's target, the FKWA initially only targeted two RWs. However, after a socialization was carried out in the village, others became interested in the maggot farm idea to fulfill the needs of the other RWs, thus expanding the target to 13 RWs. In terms of the distribution of roles, the need for support from various parties became clearer after being directly involved in the innovation development process. The dasawisma system supported community empowerment, while the formulation of business plans was conducted under the guidance of Dian Farm. The management of maggot farms as the center of organic waste processing along with maggot bio-conversion as a business unit required specific care to ensure its sustainability. The distribution of roles helped the FKWA in dealing with challenges regarding capability in empowering and developing the business at the same time.

Moving forward, the FKWA plans to expand the scope of its service to all RW's in Kricak Village. They also plan to develop the maggobox along with an instruction guide as an education medium for the community. Along with several Schools for People with Special Needs (Sekolah Luar Biasa/SLB) in Yogyakarta City, the FKWA plans to organize socialization and training in managing organic waste in the school environment using maggoboxes.



Figure 14. (left)
Petfood product
made from outputs of
organic waste
processing using
maggots by FKWA;
Figure 15 (right)
Maggobox. Photo: Ich



Challenges

1. Not everyone feels comfortable processing their waste using maggot bio-conversions as they might feel frightened or queasy.
2. Regeneration of new RT/RW staffs made it challenging to gather the community for an education session.
3. The medium used for maggot farming still needs further development to provide more options of mediums that suit the community's conditions and competence.
4. The Business process scheme still needs to be developed towards organizational self-sustainability in order to ensure that the production and sale can run smoothly, and for realizing a sustainable empowerment of a self-sufficient society.

Learning

1. As a community empowerment strategy, the team has approached the following groups:
 - a. Dasawisma and PKK members to help organize the community in gathering organic waste;
 - b. Food sellers were given buckets where they can collect their organic waste
 - c. Waste pickers, who were willing to cooperate and hand over their organic waste.

2. Additional human resources needed in the development of this innovation:

- a. Branding & marketing on the production of maggots;
- b. Community assistance in waste management;
- c. A team who will collect data on the amount of organic waste every household produces.

3. The maggot farm is quite effective in reducing organic waste at a fast rate and offers a promising product sale value. The maggobox media has the potential to raise the awareness on the importance of practical organic waste management. There is a decent number of prospective buyers or target 'market' for the maggobox or maggots, especially after the community became aware of the benefit it offers.



FPRB-GK

DRR Inclusive Digital Discussion Web for People with Disabilities

The Disaster Risk Reduction Inclusive Digital Discussion Web for People with Disabilities serves as a survey platform for accessibility, DRR education, and marketplace of creative economy products. The concept began as a way to solve the limited availability of channels for voicing the aspiration of groups of people with disabilities in terms of policy making in Gunungkidul Regency. The majority of people with disabilities use their own smartphones, but they still rely on the help from others for mobility and access to economic development. Aspiration data with regard to accessibility was then managed by the FPRB and presented in the Musrenbang (Musyawarah Perencanaan Pembangunan/Developmental Planning Discussion). Statistically, per 20 April 2022, there have been 6,998 people who have visited the developed web, with an average daily visitor of 114-177 people.



Figure 15. A series of Evacuation Guideline and Social Support for People with Disabilities available for download on the FPRB-GK web. Photo: Ich

Added Values of the Innovation: Accessibility audit feature that can fill the gap of field data and access to policy making.

Team's starting assets:

- Members with experience in community assistance who have been actively involved in developing DRR programs and activities.
- The FPRB GK team was very effective in initiating a collaboration with various parties, which served as a good starting point for the usability and sustainability of the innovation being developed.

Involved Parties:

- Disaster Resilient Disability Forum (Forum Disabilitas Tangguh Bencana/FDTB)
- Mitra Ananda, Bumi Aku Creative,
- Disability Communication Forum in Gunungkidul
- Mitra Sejahtera Disability Empowerment Group
- Gunungkidul Government: Dept. of Communication and Information, BPBD, DP3AP2KB, Bappeda, Dept. of Social Services, Dept. of Health, Dept. of Industry, Cooperatives, UMKM and workers, Dept. of Community Empowerment

Innovation Development Process

Development of the web began with the coordination of various parties, including people with disabilities. It was followed by an agreement on a collaboration for web development with the Dept. of Communication and Information of Gunungkidul Regency. The complete process is shown in the following diagram:



Figure 16. IDEAKSI Innovation Development Process by FPRB-GK. Source: monthly reports and presentations by Tim FPRB-GK during a reflective session.

By March 2022, 30 news articles have been uploaded to the FPRB-GK web by the website administrator, which mainly cover activities conducted by the FPRB and the FDTB. Regarding the accessibility survey menu, we have collected 36 accessibility surveys and 52 creative economy activities by people with disabilities and their family. Based on such data, we were able to identify the public facilities and locations that have yet to provide accessibility access. We also found that there is still a crucial non-physical barrier, which, once overcome, can lead to improved accessibility. For example, not every village is equipped with a disability empowerment organization, and there is still an insufficient amount of data on people with disabilities, which means many people with disabilities might not receive the required assistance and help during emergency situations.

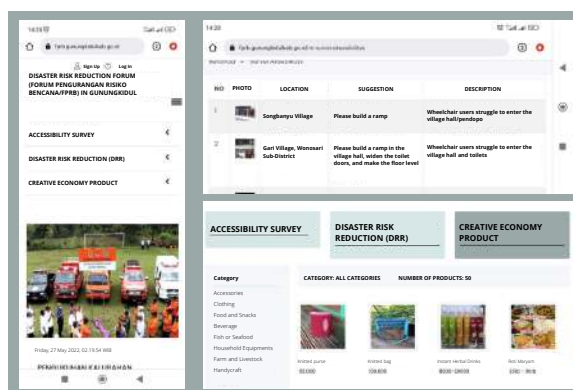


Figure 17. FPRB-GK website interface: homepage (left), accessibility survey data by the community page (top right), community marketplace by people with disabilities and their family (bottom right) . Source:

<https://fprb.gunungkidulkab.go.id/> -- accessed from a smartphone and PC, 8 June 2022

Challenges

1. Creating a response mechanism from the feedback/suggestions given (in the web) towards the relevant stakeholders.
2. Managing the website from its content and maintenance aspect so it can effectively serve as a media to advocate for the many suggestions received.
3. Ensuring that the suggestions received by the website will be responded with a follow-up action by the relevant stakeholders.
4. Synergizing with the BPBD of Gunungkidul Regency in promoting the implementation of inclusive DRR for at-risk groups.
5. Integrating the information in the FPRB-GK Website, especially in the accessibility survey section, with web planning at the regional level, to optimize the absorption of information and provide a faster response to issues faced in the development, even at the regional level.

Learning

1. Innovation developed regarding the information system or the system built for communicating the information needed by the community. Important learning in the development process of this innovation was made during the coordination between the implementing team and the Dept. of Communication and Information of Gunungkidul Regency, followed by the signing of the MoU with the Technical Staffs of the Dept. of Communication and Information of Gunungkidul Regency for developing the Web.

2. In order to ensure the sustainability of the web management, the team requested a Server and Web Domain to the government of Gunungkidul Regency through the Dept. of Communication and Information of Gunungkidul Regency.
3. In order to ensure an effective web function, the team conducted multiple education and training sessions to gather feedback for the web in development.

After the development of this Website prototype, the FPRB-GK Team will continue to ensure that the website remains operational and useful. The team shall make efforts to improve the management and contents of the web by adding a disability data menu and humanitarian organization data along with the relevant resources. To improve the visibility of the web, the next challenge is to optimize all features of the web to connect it with the FPRB social media accounts and education efforts via the web. The team shall push for the formation of Disaster Resilient Villages in all villages of Gunungkidul (currently formed in 70 out of 144 villages), since one of Kaltana's role is to promote the web to the broader public. The FPRB-GK Team will also synergize and collaborate with many parties through activities such as the disaster risk reduction forum, disaster-resilient disability forum, disability empowerment center, CSR, and relevant regional organizations, including public officials, such as the Regency Head (Bupati).

LINGKAR

Development of Inclusive Early Warning and Evacuation Planning System for Merapi Eruption

The Lingkar Team developed an early warning system for people with hearing disabilities by utilizing technology in the form of an android App in Girikerto Village, Sleman Regency. The app was connected to the existing EWS (Early Warning System) to ensure that the information provided are consistent. When there is a change to Mt. Merapi's alert status, the app will notify the users with a vibration alert. The developed app also contains information on the planned evacuation route, gathering point, contact number of the village preparedness team, and evacuation Standard Operational Procedure (SOP).

The development of this system also included an increase in the capability regarding disaster and inclusion concept, by involving people with disabilities, village staffs, and the village-preparedness team. Local villages were very receptive of the improvements made with regard to disability issues and opened up opportunities for integration of programs related to disability issues through the development planning mechanism in the Village, known as the Developmental Planning Village Discussion (Musyawarah Perencanaan Pembangunan Kalurahan/Musrenbangkal).

Added Values of the Innovation: The creation of a mobile app that is integrated with existing EWS, and formulation of inclusive evacuation SOP.

Team's starting asset:

- Equipped with the skill and knowledge to support the village, specifically with regard to village disaster preparedness
- Good networking and connection with local governmental offices/departments related to the development of early warning systems

Involved parties:

- PPD
- People with disabilities, especially hearing disabilities
- Girikerto Village Government
- Girikerto Village DRR Forum
- Village preparedness team
- The BPBD of Sleman Regency

Innovation Development Process

This development of innovation in the form of a mobile app and SOP emphasizes on developing an inclusive early warning system and evacuation procedure. The policy section of the contingency plan document already contains disability issues, though it is still quite general in nature. Throughout the process, the Lingkar Team conducted a series of consultations and discussions with various parties, such as the BPBD, village officials, disability groups, and the general public. The following are a few feedback they received during the process:

- To add GPS coordinates for the gathering points and evacuation route
- To add several warnings, such as to prevent accidental crossing of a river
- To add information, such as: sister village, geo-location on safety points, evacuation route alternative in image format that can be downloaded when running the app for the first time, in case there is no cell reception to connect to Google Maps

The following diagram illustrates the steps taken by the Lingkar Team in developing this innovation:



Figure 18. IDEAKSI Innovation Development Process by Lingkar. Source: monthly reports and presentations by the Lingkar Team during a reflective session.

Challenges

- Ensuring that the app will still be able to provide information even when disconnected from the internet (offline), especially information on evacuation routes.
- Organizing the times and availability of teams and involved parties, both developers and beneficiary of the project (sub-district officials and people with disabilities), which required adjustment to the schedule of activity.
- Synchronization of the app with 1) The existing early warning system SOP, and 2) The dynamic conditions in the field during an actual emergency situation. Efforts were made to deal with the challenges by cooperating with technical staffs of Prevention and Preparedness Unit of Pusdalops BPBD of Sleman Regency.
- The continuation of the app, specifically with regard to the need of an admin, since the existing system of the Sleman Regency is not entirely digital, so the app still needs an administrator or manager to update the information and initiate the transmission of early warning notifications.



Figure 19. (top) Focus Group Discussion on Evacuation SOP; Figure 20. (center) Introduction to Inclusion Training; Figure 21. (bottom) Ethical Interaction with People with Disabilities during an Emergency Evacuation Training. Photo by: Lingkar

After the early phase of developing the prototype of this innovation, the Lingkar Team prepared a follow-up plan for an early warning application development, which will give the app some feature adjustments to facilitate users with various disabilities. This application is hoped to be able to reach more people.

The Lingkar Team will also develop a locus of activities to increase the capacity and application usage by involving residents from several additional villages.

Learning Points

1. The application management and maintenance system must be taken into account since planning phase.
2. It is important to make a wire-frame or working path for the application so that it is possible to identify which part needs repair or further development.
3. It is important to have a timeline of application development planning and to anticipate potential risks.
4. Community involvement can help the development of innovations that are efficient and easy to use, especially because the application is expected to be more inclusive. Many important technical aspects were discovered by the Lingkar Team on their effort in becoming more inclusive, e.g. colour choice, graphic design, and programming language optimization.
5. The involvement of people with disabilities in the activities with the Preparedness Team and Village indirectly increased awareness on the importance of inclusion and drove a change in perspective towards people with disabilities.

Merapi Rescue Community (MRC)

Visual and Sound-Based Self-Evacuation Guidance System

Based on local community's experience, when Merapi erupted, their surroundings became darker and blackouts even occurred in certain areas that caused people to panic. People could only count on visual signs around Mount Merapi to obtain information on evacuation routes, and these signs were not visible in the dark. Because of this, the MRC Team developed a direction guide facility that is able to function even in the dark and emits an audio signal. It is equipped with an independent power supply, namely solar power and a battery that is quite durable. This system that supports visual and audio signals is expected to make it easier for individuals to self-reliantly find evacuation routes towards gathering points quickly.

Currently, the MRC Team along with its partners have succeeded in constructing 40 marker posts, including guideposts, monitoring posts, and gathering point posts in three villages, namely Tritis and Wonorejo Village in Sleman Regency, and Tlogowatu Village in Klaten Regency. Outside of an emergency, these guides can also function as a road light. An introduction video of the evacuation guide with the directional guide that has been implemented by MRC can be accessed [here](#).

In addition, the community also participated by providing information about homes that have members who are a part of at-risk groups so those houses can be distinguished appropriately.

They decided to distinguish these houses by painting a certain colour at the front of the house, similar to the triage that usually is done by the evacuation team, so that it can facilitate the evacuation process for at-risk groups.

Added Values of the Innovation: increasing people's accessibility during evacuation, especially for deaf and blind people, and people with low vision. In normal conditions when there is no eruption, this guide system can be used as lighting in the village, leveraging its solar energy. Besides, there is a triage system for the sweeping process and help distribution with color markings defined by disability categories.

Team's starting assets:

- Skilled in evacuation and rescue
- Close to the local community and experienced in mitigating and responding to disasters in the assisted location.

Involved parties:

- Village officials
- The community and stakeholders in Tritis, Wonorejo, and Tlogowatu Village.
- FPRB (Disaster Risk Reduction Forum)
- Centre of Entrepreneurship and Innovation (Centrino), Duta Wacana Christian University

Innovation Development Process

The MRC Team worked closely with UKDW since the stages of problem mapping, surveys, trials, and up to innovation dissemination. Special skills were needed for the installation of electronic circuits, so expert technicians handled this part. In the future, there will be manufacture, management, and maintenance guidelines for the equipment prepared for the residents so that they will be able to do it on their own. The innovation design development process takes into account the input of residents as users and trial results. A trial using the prototype for evacuation route markers was carried out to determine the distance and volume of the audio produced and the energy required for each marker. The MRC Team and its partners are extremely open to reports and suggestions, including for the older people, people with disabilities, and women.



Figure 23. (right) Installation of An Evacuation Guiding Post. Photo: MRC

The following is the path that MRC Team and partners went through in developing the innovation of the Self-Reliant Evacuation Guidance System:



Figure 22. IDEAKSI Innovation Development Process by MRC. Source: Extracted from the MRC Team's monthly report and presentation at a reflective session

Challenges

- Special skills are needed for the installation of the electronic system.
- The costs to build and maintain the CCTV integration system is quite high, so a funding strategy is needed to ensure the system's sustainability.

After the initial development phase of this innovation, the MRC Team and its partners plan to install additional posts in residential areas. Although resources are limited at this time, installation of posts is still prioritized for main roads .



Figure 24. (left) Result on the mapping of evacuation routes with residents; Figure 25. (right) The evacuation guidance design for areas around Merapi. Source: MRC

Learning Points

1. Since the initial stage, an overview of the prototype design that will be made has been prepared, so that the team is aware of various things that needed to be considered when making a product innovation, including having a deeper understanding in the context of the situation, as well as the interaction between the user-environment-activity.
2. In addition to the functions that will be activated in an emergency, the instruments can still be used for daily needs and assisting the residents' daily activities, for example as a street lighting.
3. The selection of installation points was carried out through deliberation with the community. This process was one of the prerequisites for installation because there were only a limited number of instruments at the time.
4. Communication with local residents to participate voluntarily in monitoring the system and reporting to MRC Team to help maintain the installed instruments.
5. By implementing this innovation in three villages with different characteristics, the team realized that a problem shouldn't be generalized to all conditions without an in-depth understanding of the existing situation and potentials.
6. This innovation has increased the confidence of the older women in the three villages to do more activities (going for a night-stroll in the dark), conditions that are similar to when an eruption occurs.

7. Universities involved in the process helped in designing an innovation that fits the needs and intuitions of local residents as users. In turn, such processes also contributed to the development of knowledge among academics by preparing written publications on the results of innovation development.



Figure 26. Trying out the system at night. Photo: MRC

Ngudi Mulya

Development of Mist Irrigation for Farmers

To mitigate the issues of limited water and accessibility challenges for elder farmers in irrigating land during the dry season, the Ngudi Mulya Farmers Group adopted a mist irrigation technology after it was successfully implemented in Bantul where the system was adopted to irrigate agricultural land in Ngoro-oro Sub-Village, Giriasih Village, Purwosari Sub-District, Gunung Kidul Regency. There were 23 members of the Ngudi Mulya Farmers Group who were involved. Usually, these farmers buy and transport water for irrigation purposes, and most of them are older people. As a prototype, the mist irrigation was designed to irrigate ten plots of land. A water meter was then installed in each plot of used land and the total contribution would be measured according to usage. Currently, mist irrigation is used for planting rice, corn, chilies, sweet potatoes, and shallots.



Figure 27. The irrigation system model using mist irrigation system made by the Ngudi Mulya Team.
Photo: Ich

Added Values of Innovation: Helping to make it easier for most older people, members of the farmers group to get water for agricultural purposes. This program also serves as an effort to save water through mist irrigation innovation that can maintain the sustainability of water sources in the soil.

Team's starting assets:

- Experienced in developing agricultural system.
- Working together with KP-SPAM that has succeeded in managing a drinking water supply program.

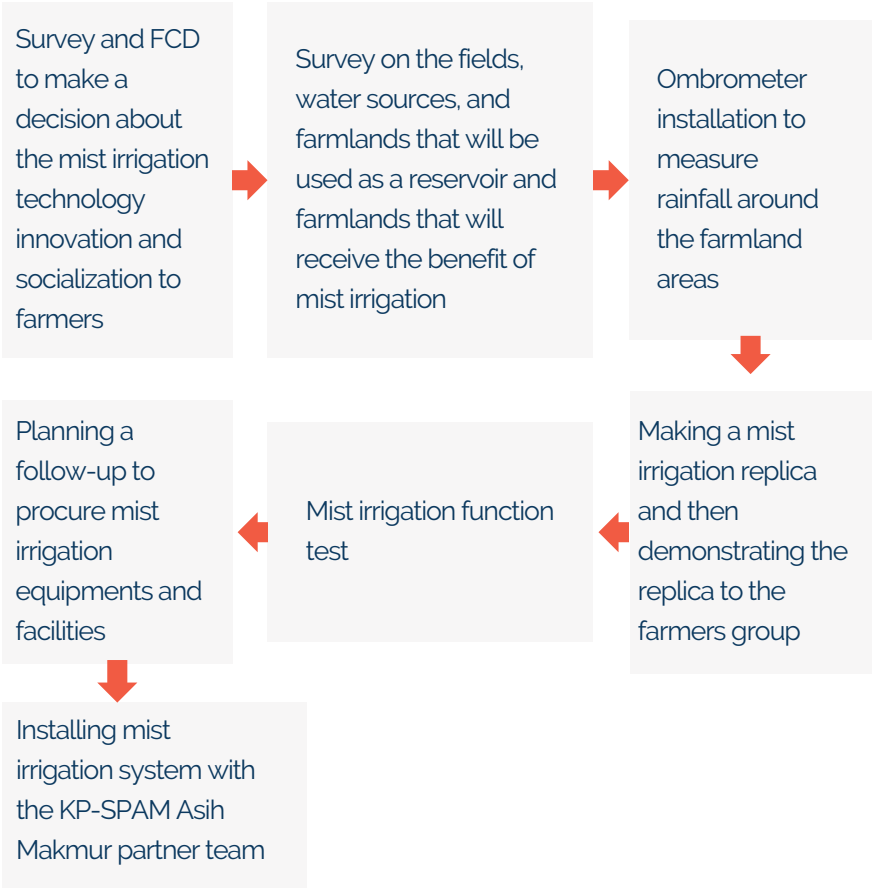
Involved parties:

- Ngudi Mulya Farmers Group
- All Farmers in Ngoro-oro Giriasih Sub-Village
- KP-SPAM/Kelompok Pengelola Sarana Pengelolaan Air Minum (Drinking Water Supply Management Group)
- Mist irrigation experts for various types of crops
- BPP Purwosari, Department of Agriculture
- Government of Giriasih Village, Purwosari Subdistrict, Gunungkidul Regency

Innovation Development Process

The decision to apply the mist irrigation technology was made based on the results of a survey and focus group discussion with relevant stakeholders. After the idea to adopt mist irrigation technology was agreed upon, Ngudi Mulya Team carried out a field survey to prepare the technical details on applying the technology in Gunung Kidul area, and consulted the KP-SPAM Asih Makmur Team. This was successful in providing a clean water supply system from Pego Cave in which the water was sucked out using a submersible pump to a water reservoir and then distributed by pipes to farmlands.

In general, the process of innovation development is as seen in the following diagram.



Latest activities (March 2022)

Figure 28. IDEAKSI Innovation Development Process by Ngudi Mulya.
Source: Ngudi Mulya Team's monthly report and presentation at a reflective session.

Challenges

1. Expanding the mist irrigation service reach considering farmers in Gunung Kidul own large farm land areas.
2. Expensive operational costs for detailed measurement of irrigation water needs using water meters for each plot of farmland.
3. Mist irrigation is still operated manually in order to determine how much or how long pump should run based on the needs of each kind of plant.



Figure 29. Irrigation system using the mist irrigation technology by Ngudi Mulya Team . Photo: Ngudi Mulya

Learning Points

1. Although there was initially a lack of understanding about the mist irrigation development technique for farming, and there was no prior record of anyone else applying the same system in Gunung Kidul area, the Innovator Team managed to develop this innovation through discussion and collaboration with the right people.
2. During the process, there was an increase of knowledge and skills with regard to pipe-installation techniques, starting from primary pipes to distribution pipes in farmlands.
3. The field survey to decide the right designing technique, discussion, and replica making and tests had supported the manifestation of mist irrigation model for farming by leveraging gravitational compression in Gunung Kidul.

From the results of activities in the field, both from the technical side of installing the mist irrigation system with partners and the outcome of discussions with members of the farmers group, the Innovator Team is confident that the mist irrigation innovation can be developed in all agricultural lands. This innovation has the potential to be replicated and proven to increase accessibility during farming for older people farmers and people with physical disabilities.

Moving forward, the Ngudi Mulya Team plans to develop a smart mist irrigation system using internet-based technology that can be operated via smartphones so that agricultural irrigation activities can be done automatically, systematically, and integrated to the Big Data Pertanian's storage. It is hoped that the development of this next innovation can improve the welfare of farmers.



Figure 30. (left) Biological pesticide produced by the Ngudi Mulya Team that was mixed into the mist irrigation system to spray it more evenly.

Figure 31. (right) The reservoir before it was distributed to farmlands through pipes. Photo: Ngudi Mulya Team

PB Palma GKJ Ambarrukma

Effective and Inclusive Flood Emergency Response for the Gajah Wong River

The Gajah Wong River is one of the rivers in the Special Region of Yogyakarta that is surrounded by houses built on its bank. This condition causes a risk of flood. The PB Palma (Disaster Management and Community Service Unit) of GKJ Ambarrukma built a flood early warning system (EWS) and formed the preparedness of river communities and surrounding communities to evacuate all residents at risk of being affected by the flood, including at-risk groups. The targeted locations include six RTs (neighborhood associations) in Papringan Sub-Village and three RTs in Ambarrukma Sub-Village, Caturtunggal Village, Depok Sub-District, Sleman Regency.

One of the functions of the EWS instrument is to detect the river's water level. Under certain altitude conditions, the main EWS device will turn on the rotary light as an early warning. If the water level is close to flooding, the system will give a warning by turning on the siren at the EWS location and sending a signal to a receiver installed at a distance of 300-500 meters from the Main EWS location. The receiver will also activate a siren as a warning. The instruments are powered by solar power during the day and PLN (Indonesian state-owned electricity distribution company) at night. If both power sources are unavailable, the battery/inverter will act as the alternative

power supply for 20 hours. The determination of spare parts for the built EWS instrument is adjusted to the technical ease of replacement and availability in the market.

Added Values of Innovation: The process of preparing an early warning system, making and installing signs, as well as preparing an SOP was done in a participatory and inclusive manner, including for the older people, people with disabilities, and migrants.

Team's starting assets:

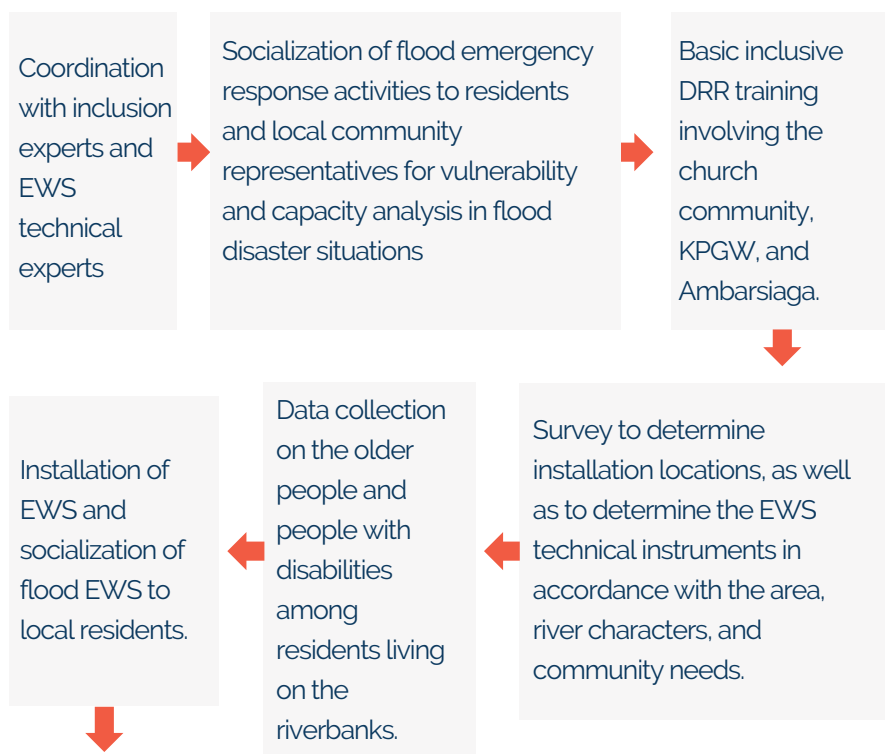
- Experienced in disaster response, social volunteer organizing
- Experienced in inclusive community involvement
- Experienced in training mobilization equipment usage for at-risk groups, making SOPs for preparedness, simulation & learning videos.

Involved parties:

- RT (neighborhood associations) and local communities as the driving force, including at-risk group at riverbanks.
- Head of the Papringan & Ambarrukma Sub-Village, Jagabaya Caturtunggal Village
- Komunitas Peduli Gajah Wong (Gajah Wong Social Community/KPGW), Pemuda Padukuhan Papringan (Youth Community of Papringan Sub-Village), GKJ Ambarrukma, Ambarisiaga Community
- The BPBD of Sleman Regency

Innovation Development Process

The PB Palma Team started the innovation development by coordinating with inclusion experts and EWS technical experts, and then carried out a socialization of the concept and plan of the activities. This socialization was attended by representatives of the GKJ Ambarrukma commissions, the Head of Papringan Sub-Village, 6 RT Heads from Papringan Village that suffered floods from the Gajah Wong river, the youth community, and the KPGW. The whole development process of this innovation can be seen in the following chart.



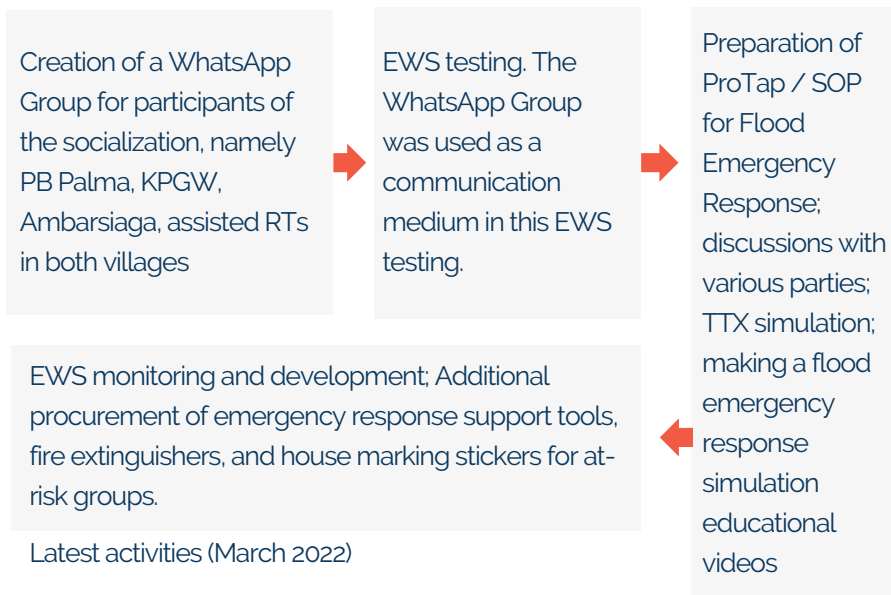


Figure 32. IDEAKSI Innovation Development Process by PB Palma GKJ Ambarrukma. Source: PB Palma's monthly report and presentation during a reflective session.

The installed EWS has been tested by the occurrence of heavy rains in Sleman area and by a significant increase in the water level of the Gajah Wong river. At that time, the EWS detected an increase of 150 cm in the water level, so it turned on the first signal which is the rotary lamp light signal. The PB Palma team then compiled a detailed SOP for Flood Emergency Response together with the KPGW and Ambarsiaga. This procedure is hoped to be a reference for the community to work together to manage flood risk in residential areas around the Gajah Wong River.

Challenges

- Due to the COVID-19 Pandemic, the format of various activities had to be adjusted.
- It was hard to find the convenient time for the three communities and the speakers to conduct the training.

Learning Points

- The flood EWS application in residential areas around the river must take into consideration all residents in the watershed region, not just the residents of any particular administrative unit occupying one side of the river. This was realized by involving a community from across the river, the Ambarsiaga Community, who are also at risk of getting flooded , and who can also benefit from using the same EWS.

- This innovation development can be an example of the role of faith-based organizations (FBO), which are known to have a close relationship with the community and have regular humanitarian programs, in an inclusive disaster risk reduction.
- The common understanding between the PB Palma, KPGW, and RTs regarding the importance of building an EWS and the preparedness of river communities and residents around the Gajah Wong River in order to mitigate flooding is a good asset in activity planning.
- By collaborating, procurement of several tools that were previously in PB Palma's budget was covered by other parties, e.g. the church and KPGW. Therefore, the innovator team could allocate the available funding towards more emergency response support and post-flood house cleaning equipment.



Figure 33. Implementation of Flood SOP Preparation Activity
Photo: PB Palma GKJ Ambarrukma



Figure 34. One of the EWS instruments that have been installed . Photo: PB Palma GKJ Ambarrukma

Moving forward, the PB Palma plans to scale up this innovation: developing this system for 3 other sub-villages in Caturtunggal Village, installing alternative lighting source on critical tracks and spots during emergency, developing a database with disaggregated data for people with disabilities and older people, advocating planning and budgeting at the village level to ensure the sustainability of this effort, and involving various parties in accordance with the pentahelix element in the environment around the assisted region.

SEKOCI

Orientasi Jalinan Keluarga Angkat Darurat (Orientation of the Emergency Host Family Relationship/Sinarkarat)

The SEKOCI team made an innovation by building a host family system for families of people with disabilities to mitigate problems related to shelter in the event of a disaster. The innovation development consisted of capacity development activities, simulation of host families welcoming participants with disabilities, inauguration of the host family association, creating an MoU with the Local Government of Sleman, and preparing guide books for all participants. The participants are people with disabilities that go to the Bakti Pertiwi Prambanan SLB (Sekolah Luar Biasa/school for people with special needs) (kindergarten to senior high school, 68 students) and their families, as well as host families whose main criteria had been determined beforehand, i.e. well-established, committed, and from trusted networks. The SLB is located in Bokoharjo Village Prambanan Sub-District, Sleman Regency.



Figure 35. Evacuation simulation to the host family's house, in collaboration with online motorcycle taxis. The process is documented to provide illustration for all potential participants who were not able to be directly involved due to the pandemic. Photo: SEKOCI

Added Values of Innovation: Building an inclusive disaster preparedness and response system using family values that have existed for a long time among the people of Yogyakarta.

Team's starting assets:

- representation of disability with experience in training & community facilitation;
- networks in the provincial and regency/municipality level government;
- networks with SLBs and SLB alumni associations.

Involved parties:

- Families of People with Disabilities
- Emergency Host Family Volunteers
- The Sekoci Team
- Bhakti Pertiwi SLB (teachers and students)
- Village officials
- The FPRB of the Bokoharjo Village
- The BPBD of Sleman Regency
- The Online Transportation Community

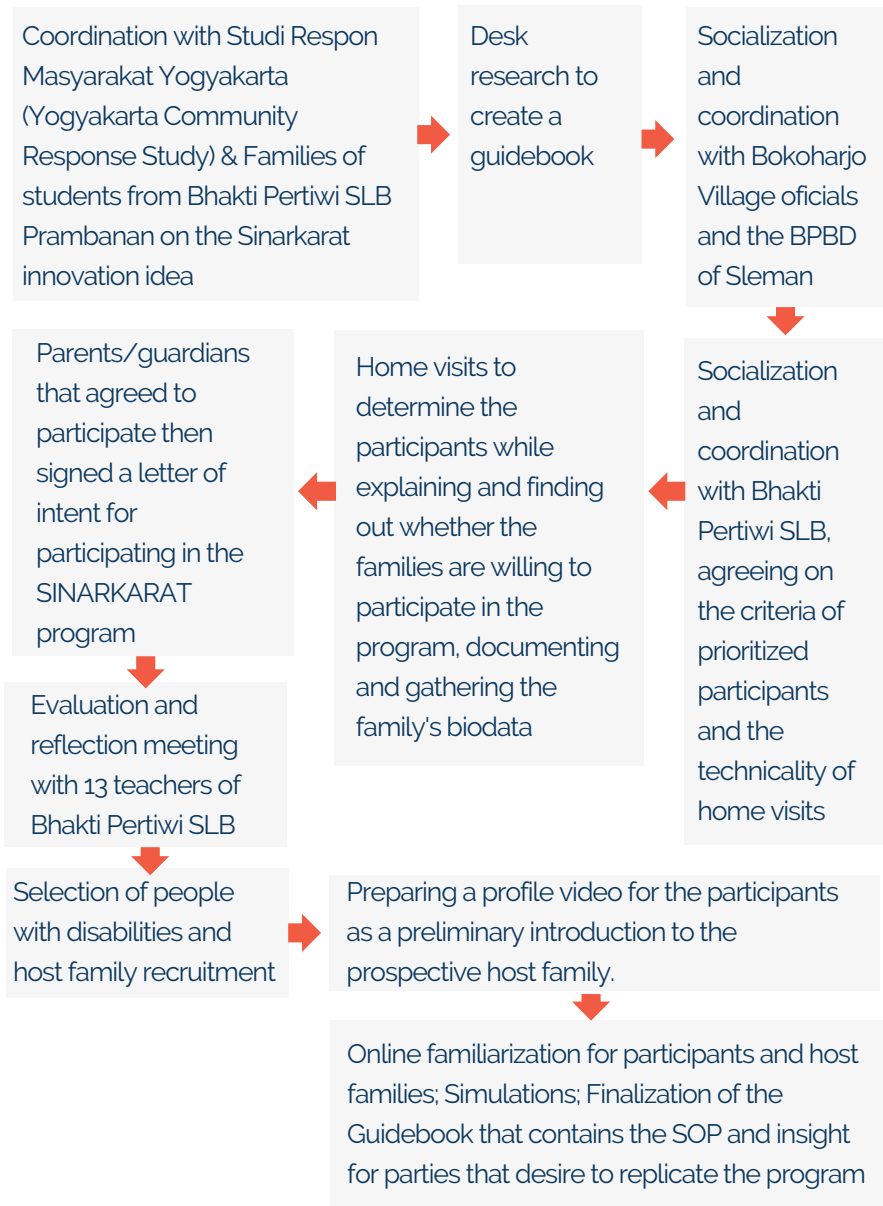
Innovation Development Process

The development of innovation began with a study of the interests of all potential participants and host families with the idea of an emergency host family for people with disabilities. In the process, the SEKOCI Team made arrangements with various parties, such as the Bokoharjo Village Government, the BPBD of Sleman, Bhakti Pertiwi SLB, and potential host families. The input obtained from these parties greatly contributed to the design of the activity.

The BPBD suggested that the team incorporated a pandemic SOP in the simulation plan and guidebook that was being prepared, and that it would be better if the host family volunteers resided outside of Kalasan and Prambanan sub-districts, so that their risk of being affected by disasters would not be the same as the potential participants. The Bhakti Pertiwi SLB not only provided input, but also facilitated communication with families of students with disabilities, assisted the visits to students' homes, and led the process of determining the criteria for priority participants. Such criteria include the level of disaster risk of the participant's residence, the willingness of students and their families to participate in this program, and other considerations such as the character of the students, the family background of the student's guardian, etc. With these criteria and assessment of the families with disabilities, the students were then selected to determine the prioritized participants that will be involved in the early stages of the innovation development.



Figure 36. Home-visits were carried out to students' houses to understand their home life and find out if the family would be willing to participate in the program. Photo: SEKOCI



Latest activities (March 2022)

Figure 37. IDEAKSI Innovation Development Process by SEKOCI. Source: The SEKOCI Team's monthly report and presentation in a reflective session.

During the coordination and reinforcement process with the IDEAKSI team, there were several changes in the design and schedule of activities. The COVID-19 pandemic also affected the design of activities, such as the introduction process with host families that was originally supposed to be carried out done face-to-face. Instead, the SEKOCI Team prepared video profiles of the participants and conducted the introduction process online. Evacuation simulations at the host family's houses were still carried out on a small scale and recorded on video. The entire process was documented in a guidebook, to provide an overview to those who seek to replicate or further develop the innovation.

Furthermore, the SEKOCI Team plans to expand the coverage of participants with disabilities so that it not only includes students from one school for people with special needs, but one entire village. Therefore, the first step that must be taken is to update the data of people with disabilities in the whole of Bokoharjo Village. In addition, the SEKOCI team will conduct advocacy regarding the importance of inclusion in disaster risk reduction for village governments and local communities.

Challenges

1. Convincing various parties, such as the Bokoharjo Village Government, the BPBD of Sleman, and Bhakti Pertiwi SLB, that the Sinarkarat program is relevant and the right solution.
2. Understanding the reality of the potential participants' conditions and determining an appropriate long term empowerment plan.
3. The developed innovation required the team to conduct meetings in person (e.g. familiarization of host families and participants, home-stay simulations), which were hard to do during the pandemic.



Figure 38. A Student who is a participant of the Sinarkarat program, creating their profile video as familiarization media with host families during the pandemic. Photo: SEKOCI

Learning Points

1. The team's starting assets were extremely crucial, such as being experienced in organizing training, trained as a facilitator for the community and children, as well as having established networks in the Government of the Special Region of Yogyakarta and Sleman Regency, including with the Vice Head of the Regency.
2. Discussions with many parties (such as people from the SLB, village, BPBD, YEU, U-INSPIRE) helped reinforce the capacity of the program by clarifying the design of the activity and facilitating communication with future participants by SLB teachers.
3. Home visits with SLB teachers are important to really understand the life challenges faced by the potential participants and their families, for example challenges related to a low economic background, the danger levels of the participant's living area, and challenges that the SEKOCI Team may face during the period of the program in relation to the diversity of existing participants' disabilities.
4. The whole process also drove the SEKOCI Team to continue the empowerment for long term, including for students that have not been included as priority participants for the Sinarkarat program.
5. It is important that the design of the activity is adaptable and flexible, so it can still continue even when faced with conditions beyond our control, like a pandemic.

C. Learning Conclusions



Learning Point #1: Added Values of Collaboration

Collaboration in innovation development has been practiced by the entire team during IDEAKSI. At the central level, partnerships carried out in line with the five pentahelix elements, as described in Chapter 1. Each team involved at least two of the five pentahelix elements (academics, business, community, government, and media), one of which must be the local government. The added value obtained through collaboration for each team varied depending on the form of collaboration. Based on the analysis conducted on the added value of the collaboration of the entire team, three categories of added value were obtained, namely: (1) an increase in the capacity of the innovator team; (2) a changed view on stigmas; and (3) the ability to reach out to the public or potential users of the innovation according to the objectives of innovation development.

Examples of learning points for innovator team in relation to the collaboration's added values

Increasing the capacity of the innovator teams

- Universities involved in the process helped in designing an innovation that fits the needs and intuitions of local residents as users. In turn, such processes also contributed to the development of knowledge among academics by preparing written publications on the results of innovation development (MRC)

- Collaboration with various parties such as special needs schools (SLB), village officials, BPBD, YEUE, and U-INSPIRE helped clarify the activity design (Sekoci)
- The procurement of several tools previously in PB Palma's budget were fulfilled by other parties, such as the church and KPGW (PB Palma)

Changing the public's perspective on people with disabilities or other high risk groups

- Involvement of people with disabilities in activities with Preparedness Teams and Villages indirectly increased awareness on the importance of inclusion and caused a change of perspective towards people with disabilities (Lingkar)

Reaching the targeted community or potential users according to the objectives of the innovation development

- Involvement of the community, village and sub-village officials, and people with disabilities ensured that there is no resistance from the local community in data collection/data updating (CIQAL)
- Collaboration with the Dasawisma and PKK members to help organize residents in collecting organic waste, as well as with scavengers that are willing to work together to hand over their organic waste (FKWA)
- SLB teachers helped the communication with potential participants (Sekoci)

Learning Point #2: Added Values of Involvement of Potential Users in Early Stages

The teams of innovators, who aimed to develop inclusive disaster risk reduction innovations, involved potential users since early stages to obtain a broader picture of aspects that need to be considered in designing their innovations. They include users of the developed applications and websites, or residents of the relevant village/sub-villages.

After involving potential users since an early stage, the teams of innovators gained the following added values: (1) they were able to create innovations that were more effective based on the conditions and variety of the potential users; and (2) they managed to correctly determine the priority of activities in the development of innovation.

Learning examples related to added values from involving potential users since early stages

Appropriate innovations based on adequate understanding of the conditions and needs of various potential users

- The involvement of key users at the testing stage of the applications was quite crucial in the innovation development process to help the team understand the positive aspects that need to be maintained and complaints/issues that need to be fixed according to users (DIFAGANA)
- Community involvement helps ensure that the development of innovations are effective and easy to use, especially as applications are expected to be more inclusive. There were several important technical aspects found by the Lingkar Team in terms of inclusiveness, such as color selection, graphic design, and optimization of programming language (Lingkar).

Determining priorities appropriately

- The selection of installation points was carried out through deliberation with the community. This process was one of the prerequisites for installation because there were only a limited number of instruments at the time. (MRC)
- In determining the prioritized students who will participate in their pilot project, the Sekoci team conducted home visits with SLB teachers to interact with students with disabilities in their homes to help understand the challenges in their

lives and their family's, for example challenges related to a low economic background, the danger levels of the participant's living area, and challenges that the SEKOCI Team may face during the period of the program in relation to the diversity of existing participants' disabilities. (Sekoci)

Learning Point #3: Things to Consider in Innovation Development

Through the patterns of innovation developments applied by the nine innovator teams, we can see that there are several conclusions regarding aspects that need to be considered or anticipated in planning an innovation development. Here is the summary.

Application/Web-based Innovation Model

In general, the development of technology-based innovations needs to be initiated by assessing the extent to which existing features in the community have functioned optimally, then gradually and iteratively develop features to satisfy the needs or complaints from the experience of innovation users.

Application-based innovation demands more experiments by users in order to get various pain and gain points. With that, the innovation can continuously get improved based on users' suggestions, including from people with disabilities.

Here are a few important aspects that must be prepared at the beginning of an application and/or website development:

- timeline of application development planning and strategies to anticipate any risks that may arise;
- wire-frame or the flow of application, so that parts that still need improvements or further development can be identified;
- application management and maintenance system;
- how this system can be implemented with a manual scheme (without an application) in an environment that does not have access to internet;
- collaboration with parties that already have a stably built system, such as local governments through the Ministry of Communication and Information, to provide web servers and domains;
- for Android apps, it is necessary to allocate time for application review by Google until the app is available for download in the Appstore.

Innovation Model Related to Infrastructure/Public Service

The design of innovation development related to infrastructure and public services is strongly influenced by spatial and social factors. Therefore, it is very important to start with a field survey to capture the local physical conditions as well as the social-economic profiles of the residents that will be potential users. Another important effort to consider is the strategy in approaching potential users so that innovation ideas will be

more easily accepted and the benefits are immediately enjoyed.

Good practices regarding spatial context

- Field survey processes for proper design techniques, discussions, replicas, and trials have supported the realization of the mist irrigation model for agriculture by utilizing gravity compression in Gunung Kidul (Ngudi Mulya).
- Preparation of technical drawings of prototype designs provided an early picture of various aspects that must be considered in creating product innovations, including in understanding the context of the situation, as well as user-environment-activity interactions (MRC).

Good practices regarding strategies in approaching potential users

- Maggot farms were proven to be quite effective in reducing organic waste in a short time and offered a promising selling value. However, residents were not necessarily interested in participating in the Maggot Farming system. The FKWA then developed the maggobox media to provide a choice of media that is easier to use and is smaller in size, making it more practical (FKWA).
- Guide-posts that are activated during an emergency can also function as a source of lighting. Therefore, residents can immediately benefit from the existence of this tool for daily use even when there is no eruption (MRC).

Learning Point #4: Challenges in IDEAKSI Innovation Development

During the innovation development process, each team faced various challenges, both technical and non-technical, as described in the previous chapter. Some of these challenges were successfully handled by the innovator teams, but there remain some challenges that still need to be resolved at a later stage. It is important that these challenges, along with the strategies to overcome them, are conveyed to the public, especially if there are parties that are interested in adopting similar innovations. All of these challenges are summarized into the following seven points.

Capacity or expertise

The development of an innovation definitely requires a certain capacity or expertise. For example, in the development of the mist irrigation device with a gravity system by Ngudi Mulya, knowledge and expertise capacity was required in designing and installing a piping system that suits local conditions. Identifying capacity that must be added and people that can enforce such capacity was a challenge faced by several innovator teams, especially at the early stages of development.

Coordination and collaboration

Collaboration is a way to strengthen capacity, build synergy, and ensure acceptance of the innovation among potential users. However, there were times when innovators faced challenges in convincing others about the innovation ideas offered (Sekoci), and in adjusting the schedules of various parties for carrying out coordination and joint activities (PB Palma).

User Acceptance

The main essence of IDEAKSI is to develop inclusive innovations. Therefore, it is crucial to receive acceptance from the intended users. Difagana, for example, needed to ensure the usability of the developed Android application, which mainly targeted the older people and people with disabilities. CIQAL faced challenges in accommodating users with various types of disabilities.

Sinergi

Several innovator teams, especially the ones that developed application/web-based innovations, such as the FPRB-GK, faced challenges in integrating their innovations with existing systems that were developed by government. Synergy and integration are considered important because it can strengthen the collective efforts of all parties who share the same goal, and can support the sustainability of innovation operations.

Adaptation during the Pandemic

Innovation developments that were carried out during the pandemic had limited opportunities for in-person meetings. This was a major challenge, especially for activities that could not be carried out online. Therefore, it is important that activities are designed to be adaptable and flexible.

Technical Issues

The technical issues each team faced varied, depending on the types of innovation they were developing. For example, application developers sought to figure out how their application could continue to provide information without internet (Lingar); developers of the irrigation project struggled to obtain detailed measurement of the amount of irrigation water needed in each agricultural plot (Ngudi Mulya); system integration with CCTVs were fairly expensive to do (MRC).

Sustainability

Sustainability of the innovation's effectiveness according to the original goal was one of the biggest challenges faced by all of the teams. The FKWA, for example, needed to prepare a business scheme that could finance operational needs and expand service coverage while ensuring community empowerment in processing waste, so that the Maggot Farms that were built will remain effective and profitable socially, economically, and environmentally.

Conclusion

The innovations developed by all of the teams of IDEAKSI has provided many important lessons that have been summarized in this document. The nine innovators who were selected to go through the joint incubation process are quite a diverse group in terms of the types of innovations developed, locations, and approaches to the innovation. All of the innovation development processes were carried out in a structured and well-documented manner. The regular reflective sessions for all of the teams that were held every two months and the monthly reflective reports for each team were great ways to provide space for the innovator team to take a break from their activities, to reflect on the passed process, and to think about improvements that needed to be done in the next stages. The reflection processes always focused on identifying and mitigating the risks in innovation development, so that each team was always aware of the aspects they needed to anticipate. The incubation system prepared by the organizers was also very adaptive and accommodating to the capacity reinforcement needs identified at the start or in the middle of the process.

Analysis results of the innovation development processes carried out by all of the teams of innovators provided four main lessons related to (1) added values of collaboration; (2) added values of early involvement of potential targets; (3) aspects to consider in the development of application/web-based

innovations as well as infrastructure/public services; and (4) challenges faced by the innovator teams during innovation development. Collaboration provides added values in terms of increasing the capacity of the innovator teams, changing views on stigmas, and reaching the target community or potential innovation users according to the goals of the innovation development. Involvement of potential users from an early stage gave added values in creating innovations that were more effective based on the conditions and variety of the potential users and making sure that such targets were appropriate. The seven challenges faced by the teams of innovators were generally related to capacity or expertise, coordination and collaboration, user acceptance, synergy with other parties/programs, adaptation during the pandemic, technical issues, and sustainability.

In line with the purpose of this summary, we hope that the innovation processes described in here can inspire many parties to adopt the good practices and anticipate the challenges that may occur when replicating or in supporting the scaling-up process of the innovator teams. Finally, we hope that this learning documentation can be a reference for local innovator teams and all IDEAKSI organizers to make sure the innovations that have been developed by all of the teams of innovators can remain sustainable and effectively build resilience for everyone.

References



References

- Rahatiningtyas, N., Dwiyani, R., Hibban, S.F., Rizkia, S.S. (2021). Laporan Pemetaan Inovasi PRB Inklusif di Indonesia. U-INSPIRE Indonesia
- U-INSPIRE Indonesia. (2021). Laporan Kegiatan Pendampingan dan Monitoring 10 Tim Inovator Lokal dalam IDEAKSI Oktober 2021. U-INSPIRE Indonesia
- Wiguna, S., dkk. (2020). Indeks Risiko Bencana Indonesia Tahun 2020. Badan Nasional Penanggulangan Bencana Indonesia
- World Bank. (2013). Inclusion Matters: The Foundation for Shared Prosperity. New Frontiers of Social Policy. Washington, DC
- Yakkum Emergency Unit (2022). Materi presentasi YEU dalam sosialisasi pengembangan scale-up IDEAKSI

Innovator Team Reports

CIQAL. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

DIFAGANA. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

FKWA. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

FPRB GK. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

Lingkar. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

MRC. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d. Februari
2022. Yogyakarta, Indonesia

Ngudi Mulyo. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

PB Palma. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

SEKOCI. Laporan bulanan IDEAKSI bulan Oktober 2021 s.d.
Februari 2022. Yogyakarta, Indonesia

**"The only true wisdom is
knowing that you know nothing"**

-GEORGE RR MARTIN



hello@uinspire.id



uinspire.id



[@uinspire.indonesia](https://www.instagram.com/uinspire.indonesia)



[U-Inspire Indonesia](https://www.facebook.com/U-Inspire-Indonesia)



[@uinspire_id](https://twitter.com/uinspire_id)



[U-Inspire Indonesia](https://www.youtube.com/U-Inspire-Indonesia)

Funded by



elrha



START
NETWORK



YAKKUM Emergency Unit

Jalan Kaliurang KM 12, Dusun Candi 3 Nomor 34

Yogyakarta 55581 - Indonesia

Telepon: +62-274-882477 | www.yeu.or.id