
COMMUNITY-LED CLIMATE ADAPTATION ACTION RESEARCH PROJECT REPORT

Climate Adaptation Championship

LANGUAGE
ENGLISH



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EXECUTIVE SUMMARY

This report details community-led action research, named Climate Adaptation Championship (CAC), addressing the priority concerns of residents in informal settlements in relation to climate change impacts and infrastructure through various in-depth assessments and prototype solution implementations. The project is financially supported through a microgrant provided by the Adaptation Research Alliance (ARA). The project design is developed by Doh Eain, and the execution is facilitated by 4 members, i.e., Social Empowerment with Ethical Responsibility, Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar, of the Yangon Neighborhood Network (YNN), a unique network initiated by Doh Eain since 2020 bringing together over 150 local neighborhood groups who are deeply integrated into their respective communities.

Marginalized populations experience a wide range of climate change effects that exacerbate pre-existing vulnerabilities and present obstacles to their overall welfare. The combination of these effects, together with socio-economic problems, obstruct development endeavors and jeopardize the well-being of individuals residing in these areas. The informal settlement communities in developing nations experience several significant climate change impacts, including heightened occurrences of flooding, intense heat waves, water scarcity, storms and cyclones, landslides, illnesses, economic disruptions, and insufficient infrastructure.

The main objectives of this action research are

1. To identify burning challenges in informal settlement communities in relation to climate change and infrastructure.
2. To develop and test community-based solutions to address those challenges.
3. To share knowledge via a published solution toolkit, disseminating it across local neighborhood groups through the reach of the Yangon Neighborhood Network (YNN).

Key Insights on Climate Vulnerabilities in Informal Settlements

1. Water Scarcity

All general surveys and focus group discussions highlight the urgency of water scarcity. The communities emphasize the significance of securing access to clean water and call for collaborative efforts to address water scarcity, such as the establishment of well-built water storage.

2. Flooding

Multiple surveys point to the vulnerability of communities to flooding. Suggestions include raising streets and repairing drainage systems to minimize flooding impacts. Community involvement and proper planning are emphasized to effectively tackle flooding challenges.

3. Infrastructure Vulnerabilities

Communities express a need for better transportation infrastructure and resilient housing. Well-maintained streets are stressed for schoolchildren and elderly people's safety. Infrastructure upgrades are seen as crucial for building resilience and adapting to changing weather conditions.

4. Waste Management

Proper waste management is identified as a crucial aspect of climate change adaptation. Suggestions include neighborhood cleanup and organizational support to address waste-related challenges.

5. Community Involvement and Collaboration

Community involvement is consistently emphasized across surveys as a key strategy for addressing climate impacts. Collaboration among residents, education on climate issues, and collective efforts with support from authorities are highlighted.

6. Financial Support and Income Opportunities

Respondents express a need for financial support and income opportunities to address climate change challenges effectively. Financial support is appreciated for tackling water scarcity, and requests for income opportunities are highlighted in the general and in-depth surveys.

7. Health Concerns

Health-related concerns, such as the need for medical supplies, are highlighted. In those communities, inadequate waste management and water pollution pose significant health risks, including waterborne disease, respiratory issues, and vector-borne illnesses. The emphasis on addressing health issues indicates the interconnectedness of climate impacts and public health.

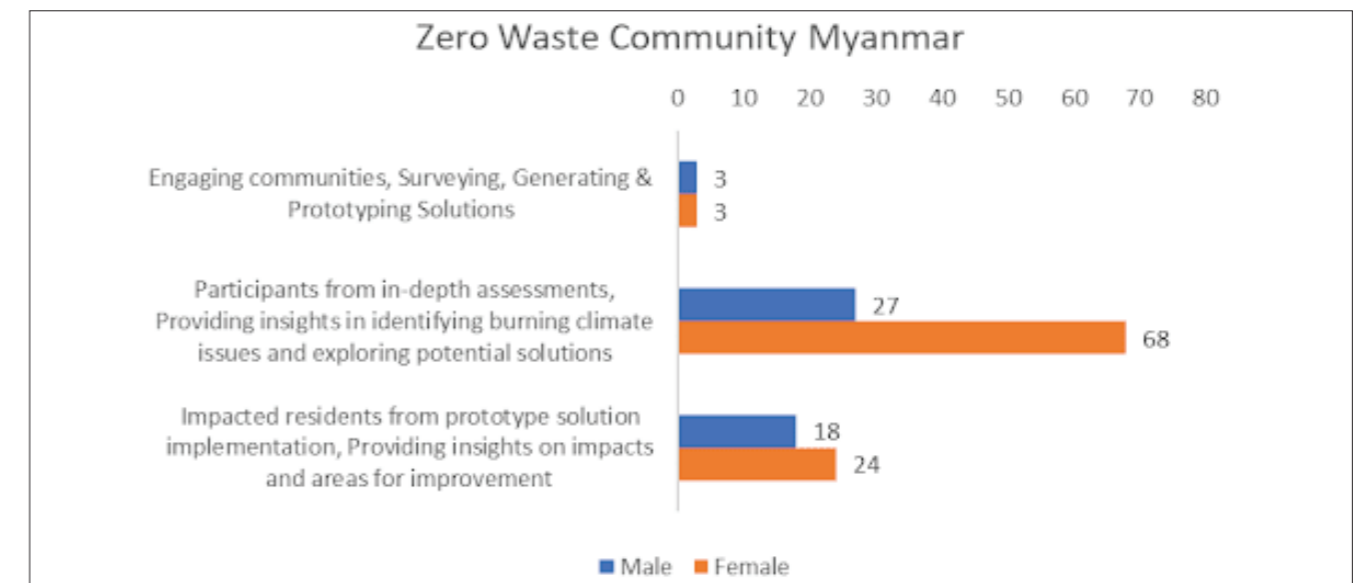
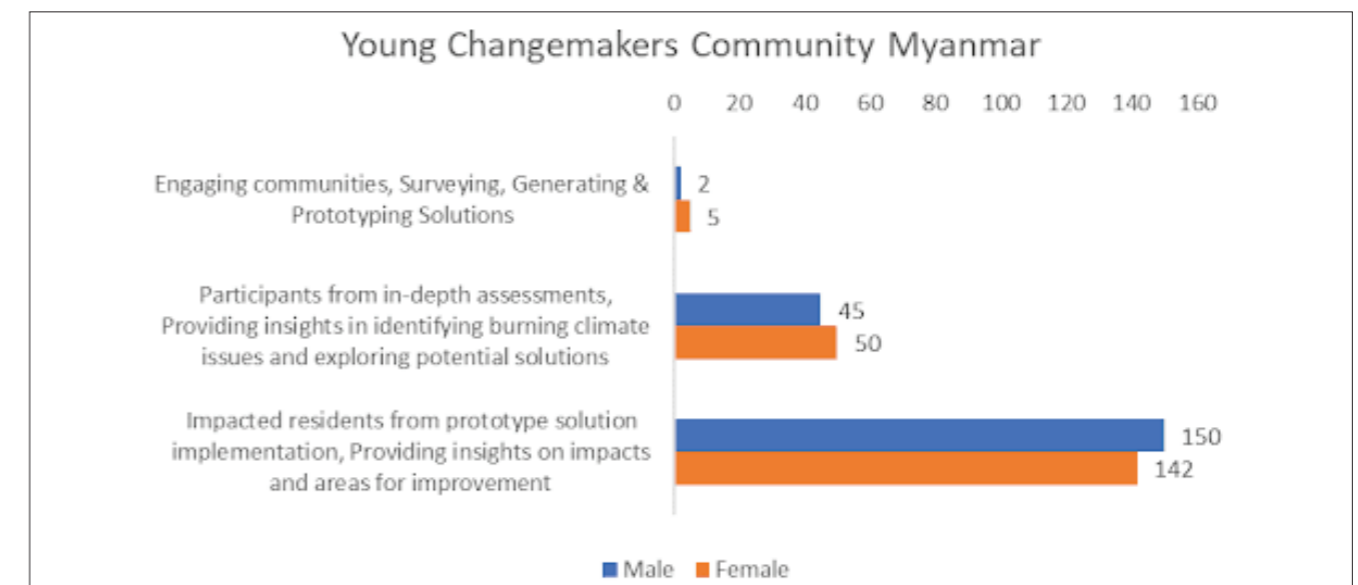
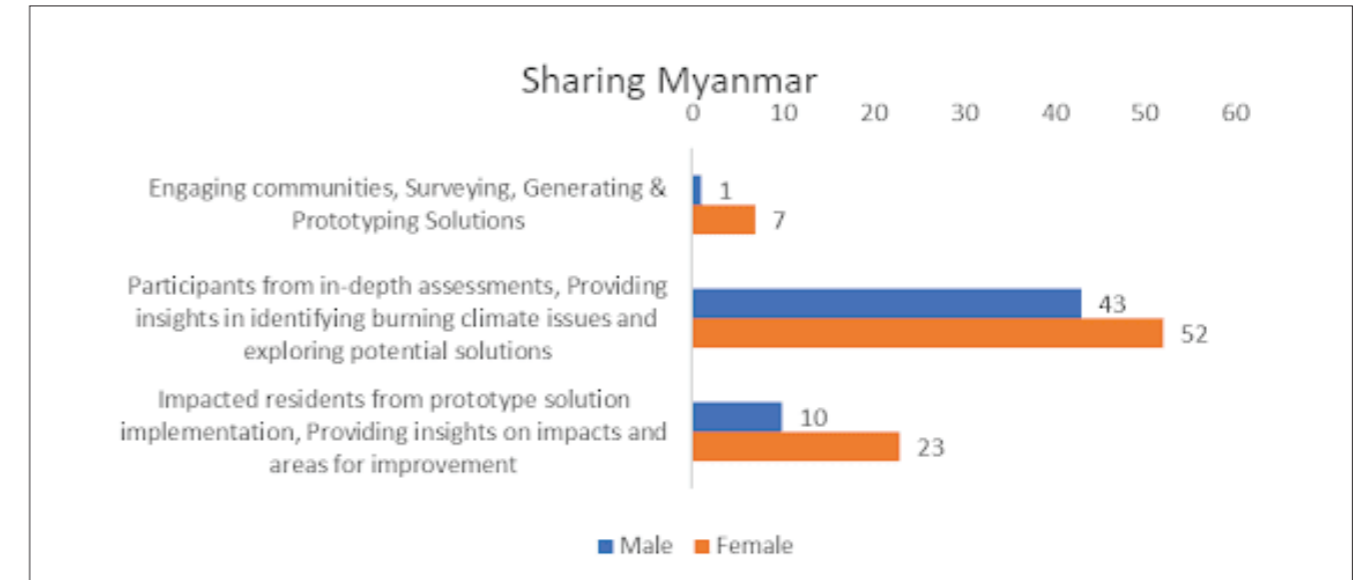
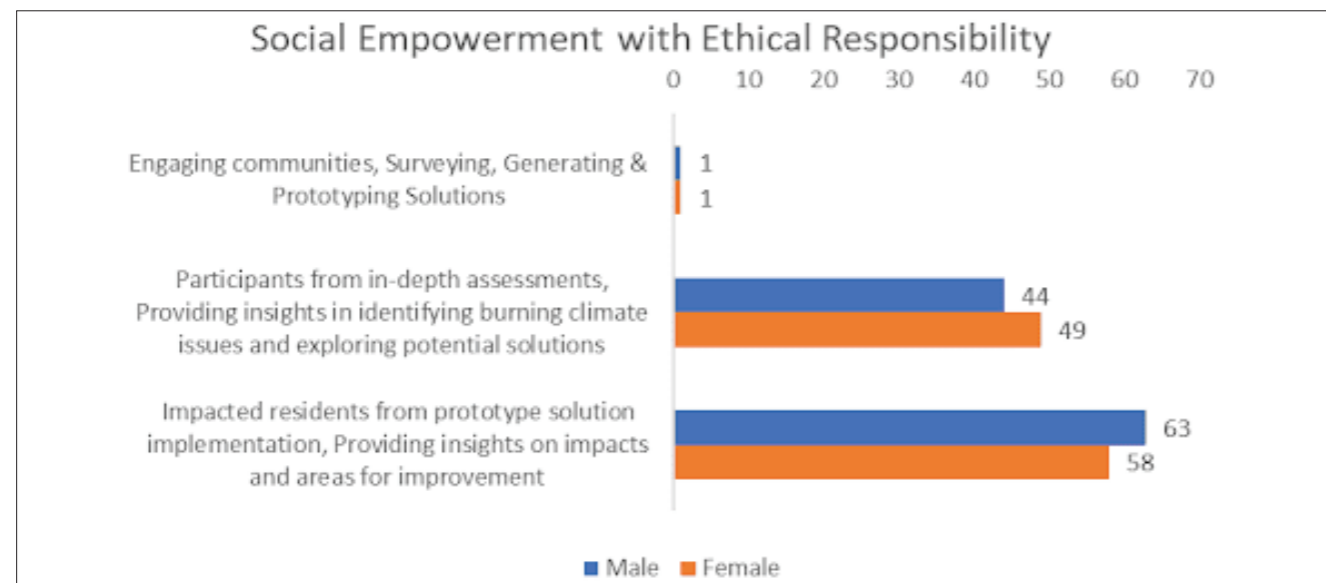
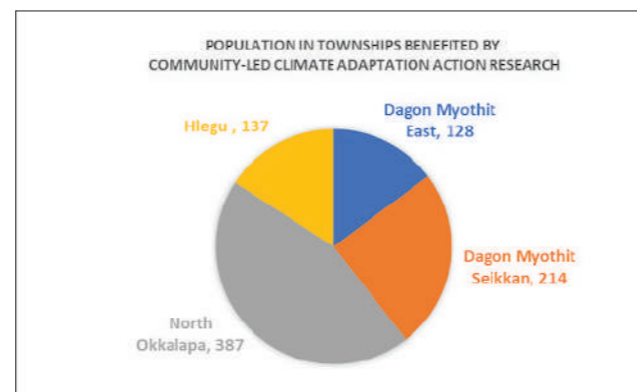
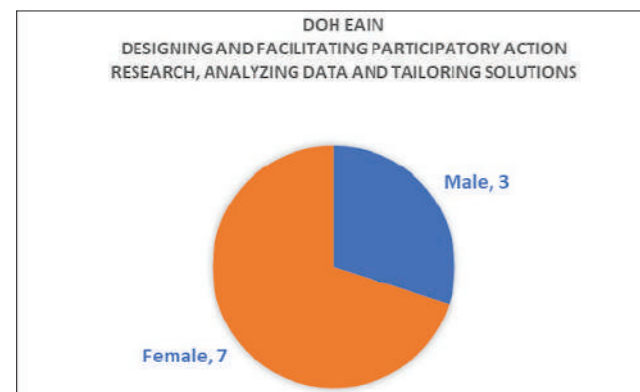
8. Awareness and Education:

Communities stress the importance of knowledge training, awareness programs, and education on climate issues. Timely weather information and continuous efforts for climate change adaptation are deemed crucial.

9. Government and Organizational Support:

Support from local authorities and governments is essential for addressing climate change challenges effectively. Organizational support and improved infrastructure are highlighted for building resilience and adapting to changing weather conditions.

Building upon the key insights mentioned above, 4 YNN members, recognized as Climate Adaptation Champions, have generated numerous potential solutions and have prototyped some with varying degrees of resources, aiming to empower communities and adapt to the impacts of climate change. A total of 36 solutions have been developed, and detailed descriptions of each are featured on the solution toolkit, which is published within the Yangon Neighborhood Network (YNN).



The above charts demonstrate the collective engagement of the Climate Adaptation Championship and the extent of the population benefiting from it. The research areas covered the following areas around the Yangon region: Ward 93 in Dagon Myothit (Seikkan) township, Ward 108 in Dagon Myothit (East) township, Shu Khin Thar Kannar Road in North Okkalapa township, and the village in Hlegu township, respectively.

Based on insights and knowledge gained, recognizing water scarcity and flooding as focus climate issues during the Climate Adaptation Championship, it is recommended to extend efforts both beyond these identified issues and a wider spectrum of climate issues. Thorough assessments, community involvement, and prototyping solutions are vital for effectively addressing climate-related issues in these vulnerable informal settlement communities. Investing in better infrastructure, like improved housing, streets, and water facilities, is essential for overall climate resilience. Economic empowerment programs should be established to alleviate income challenges. Simultaneously, launching awareness campaigns in these areas is important to educate residents about the challenges and consequences of climate change.



1. INTRODUCTION

Climate change, often referred to as global warming, is a significant and pressing environmental issue that has garnered international attention and concern. It is driven primarily by the increase in greenhouse gas emissions resulting from human activities, particularly the burning of fossil fuels, deforestation, and industrial processes.

Climate change is a pressing and intricate issue that demands a united global effort alongside individual commitment. It presents formidable challenges, yet through a dedicated push to curtail greenhouse gas emissions, adapt to shifting environmental conditions, and safeguard fragile ecosystems, we have the potential to alleviate its most detrimental impacts and forge a future that is sustainable and resilient.

Climate and infrastructure: communities in informal settlements are at the forefront of the impact of climate change on their living conditions. However, they have resources and ideas, and by channeling them into action, the ingenuity of local people can respond to many people's struggles with adaptation in a changing environment.

1.1. IMPACTS OF CLIMATE CHANGE

Climate change has far-reaching impacts worldwide. It's causing temperatures to rise, making heat waves more common, and leading to more intense storms, floods, and droughts. This can harm agriculture, damage homes, and threaten our water supply. Additionally, as the Earth warms, ice in polar regions is melting, causing sea levels to rise. This, in turn, can lead to coastal areas flooding and displacing communities. Climate change also poses risks to plants and animals, as it disrupts ecosystems and can lead to the extinction of some species. Overall, the impacts of climate change affect the environment, our communities, and our way of life.

Climate change also has serious health implications for people around the world. Rising temperatures can worsen air quality, leading to more respiratory problems. Extreme weather events can result in injuries and loss of life. Additionally, changes in temperature and precipitation patterns can affect the spread of diseases like malaria and dengue fever. The stress and disruptions caused by climate change can have profound consequences for mental health as well. So, addressing climate change is not only crucial for the environment but also for the well-being of people everywhere.

1.2. IMPACTS OF CLIMATE CHANGE IN MYANMAR

Myanmar, situated in the western part of Southeast Asia, experiences a diverse range of climates due to its geographical features, encompassing delta regions, coastal areas, the central dry zone, and mountainous regions. Consequently, the country faces a combination of subtropical and tropical climates. Like other nations in Southeast Asia, Myanmar grapples with the impacts of climate-related disasters, including sea-level rise, droughts, annual flooding primarily occurring from June to October, and heatwaves typically observed from April to May. Extensive research underscores Myanmar's position as one of the three most vulnerable countries to extreme weather events driven by global warming.

In the aftermath of these disasters, natural ecosystems such as mangroves in coastal regions and forests in elevated areas suffer significant losses. These environmental changes, which also include higher annual temperatures and more precipitation, make the difficulties that the people of Myanmar face worse.

Flooding stands as one of the most formidable threats to Myanmar, with research indicating that more than 2 million people are exposed to flood hazards each year, particularly during the monsoon season from June to October. The vulnerability of our population to flooding is attributed to poor governance, insufficient infrastructure, and inadequate management systems. This vulnerability extends beyond urban centers, affecting rural and hilly regions as well. Flash floods in these areas result in detrimental consequences, including increased poverty, agricultural losses, public health issues, and ecological degradation. Addressing these challenges is imperative to safeguarding the well-being of our nation and its people.

Water scarcity is indeed another significant concern in Myanmar caused by the impacts of climate change, including changes in rainfall patterns, rising temperatures, and extreme weather events. These changes can have profound effects on water availability and quality. Addressing water scarcity requires a combination of adaptive measures, sustainable water management practices, and international cooperation. It is crucial for policymakers, communities, and organizations to collaborate to create plans for saving water, using resources wisely, and building infrastructure that can withstand the impacts of climate change.

Moreover, climate change is posing severe threats to livelihoods in Myanmar, particularly impacting agricultural communities. Rising temperatures, erratic rainfall, and extreme weather events disrupt traditional farming practices, leading to reduced crop yields and economic instability. Coastal regions face threats from sea level rise, affecting fisheries and coastal economies. Additionally, extreme events like cyclones exacerbate vulnerabilities, causing widespread damage to infrastructure and displacing communities. The changing climate demands adaptive strategies to sustain livelihoods, including the promotion of climate-resilient agriculture, sustainable fisheries management, and the development of community-based initiatives to enhance environmental resilience and secure the well-being of Myanmar's population.

The United Nation's Intergovernmental Panel on Climate Change (IPCC) stipulated that the climate crisis will disproportionately impact poor and conflict-affected countries, intensifying existing vulnerabilities and increasing the risk of violent conflict. Research has shown that climate change is a "threat multiplier," meaning that it can amplify the effects of other stressors, such as poverty, state weakness, and inequality. However, there are still gaps in our understanding of how to address the complex challenges posed by climate change in contexts of conflict and state oppression.

1.3. THE NEED FOR ADAPTATION

Climate change exacerbates existing social inequalities. As a result, vulnerable communities with limited resources and infrastructure are most affected. The challenges they face include water scarcity, access to clean water, reduced crop yields, and increased health risks. Environmental justice issues come to the forefront, as it is often the most marginalized communities that bear the heaviest burdens of climate change.

Climate adaptation refers to the strategic process of adjusting and preparing for the impacts of climate change. This involves taking measures to minimize the negative effects of climate change on human and natural systems and maximize the potential benefits. Climate adaptation measures can be taken at various levels, such as the individual, community, national, and global levels.

The goal of climate adaptation is to increase resilience and reduce vulnerability to the impacts of climate change. Climate adaptation builds resilience. The resilience to cope with short-term, high-impact climate disasters and the resilience to manage long-term, slow-onset social and economic challenges. The climate is changing and impacting lives. If we don't adapt, lives and livelihoods will be severely affected, felt most acutely by those most vulnerable but affecting everybody.

Adaptation efforts can take various forms, from constructing resilient infrastructure to changing agricultural practices and protecting natural habitats. The nature of these adaptations depends on local conditions and priorities. For example, in low-lying coastal areas, adaptation might involve building flood defenses and relocating communities to higher ground, whereas in arid regions, it may focus on water management and drought-resistant crops.

1.4. COMMENCEMENT OF THE CLIMATE ADAPTATION CHAMPIONSHIP

Recognizing the critical importance of adaptation, the Climate Adaptation Championship (CAC) was initiated. This project was born out of a growing awareness of the urgent need to adapt to a changing climate and the belief that this championship could serve as a catalyst for transformation.

The project was conceived through the collaboration of Adaptation Research Alliance (ARA) and Doh Eain, both of which have a long-standing commitment to environmental conservation and climate resilience. They recognized the need for a dedicated initiative to identify, empower, and support Climate Adaptation Champions, i.e., individuals or groups committed to climate adaptation efforts, who would lead and inspire adaptation actions in informal settlement areas.

About Doh Eain

Doh Eain ("Our Home") is a multi-disciplinary restoration and place-making social enterprise based in Yangon since 2017. In a world of rapid urbanization, our vision is that of cities maintaining their unique character while being liveable, inclusive, resilient, and sustainable. To that end, Doh Eain works on the presentation of small-scale family-owned heritage, improving public spaces, organizing activities that connect people to places, and strengthening community resilience. Taking a user-centered approach, local homeowners and residents are central to all of our work. We are a diverse team of 30+ researchers, designers, architects, community engagement specialists, PR professionals, and a mix of Yangon natives and long-time Yangon residents originally from Europe, the US, and Australia.

Doh Eain uses a 5D framework based on human-centered design: discover, define, develop, deliver, and deepen. This framework provides a clear structure for research, design thinking, and participation while also remaining flexible to adapt to different environments, communities, and project types. Each engagement point is also an opportunity to build the community's or beneficiary's skills, confidence, and cohesion. We work alongside community-based organizations to carry out research and implement projects in thematic areas such as public space improvements, livelihoods, education and capacity building, MHPSS, community engagement, infrastructure, the circular economy, and climate adaptation.

About Adaptation Research Alliance

The Adaptation Research Alliance (ARA) is a global coalition committed to a new paradigm of adaptation research for impact. ARA supports action-oriented research that informs adaptation solutions and reduces risks from climate change at the scale and urgency demanded by science. ARA generates investment and opportunities for action research between the funders, researchers, and practitioners that make up its membership. By bringing together international expertise, ARA enables inclusive research partnerships and collaborations that lead to effective innovations for those on the frontlines of climate change.

Action-oriented research covers all factors relevant to user needs, is co-produced with local experts, and is equitable in practice. As an advocate, facilitator, and catalyst for this approach, ARA delivers resources to those adapting to a future with a new climate.

1.5. THE ROLE OF CLIMATE ADAPTATION CHAMPIONS

Adaptation is a complex and multifaceted process, requiring the cooperation of governments, organizations, and communities. It also calls for leaders and advocates who can champion the cause of climate resilience. These individuals, known as Climate Adaptation Champions, play a pivotal role in driving adaptation efforts forward.

Climate adaptation champions are individuals or organizations that have demonstrated a commitment to and expertise in climate adaptation. They work to raise awareness about the urgent need for adaptation, advocate for effective policies, and support practical on-the-ground initiatives. These champions may come from diverse backgrounds, including government, academia, civil society, and the private sector. Their common goal is to ensure that climate adaptation is a priority in decision-making and that strategies are implemented effectively. They will eventually act as catalysts for action on a local, regional, and international scale, as well as sources of inspiration and direction.

During the Climate Adaptation Championship, Doh Eain collaborated with 4 Climate Adaptation Champions: Social Empowerment with Ethical Responsibility, Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar. These champions are active members of the Yangon Neighborhood Network (YNN), a unique network initiated by Doh Eain during the COVID pandemic. Now, YNN has reached over 150 members across Yangon, representing diverse groups that span more than 15 demographics and are aligned with nine thematic criteria, including diversity and inclusion, youth, mental health and psychosocial support (MHPSS), environment, and climate, etc. All members are deeply embedded in a place or community and are working directly with beneficiaries.



2. METHODOLOGY

2.1. ABOUT CLIMATE ADAPTATION CHAMPIONSHIP

The Climate Adaptation Championship, a community-led action research initiative led by Doh Eain and funded by the Adaptation Research Alliance's Grassroots Action-Research Micro-Grant, addresses the priority concerns of residents in informal settlements in relation to climate change and infrastructure. Employing an action research framework, CAC utilizes methods such as general assessments, KOBO surveys, and focus group discussions, along with hands-on prototype implementations. In addition, led by Doh Eain, CAC adopted a community-led approach through partnerships with four local neighborhood groups, i.e., Social Empowerment with Ethical Responsibility (SEER), Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar. Each group focuses on addressing specific climate challenges within their targeted informal settlement areas. SEER addresses flooding in Dagon Myothit (Seikkan), Sharing Myanmar focuses on water scarcity in Dagon Myothit (East), Young Changemakers Community addresses water scarcity in North Okkalapa, and Zero Waste Community Myanmar tackles flooding and livelihood concerns in Hlegu.

The **Objectives** of Climate Adaptation Championship are to

1. To identify burning challenges in informal settlement communities in relation to climate change and infrastructure.
2. To develop and test community-based solutions to address those challenges.
3. To share knowledge via a published solution toolkit, disseminating it across local neighborhood groups through the reach of the Yangon Neighborhood Network (YNN).

2.2. SELECTION OF CHAMPIONS AND CHAMPIONS' JOURNEY

The four local neighborhood groups participating in the Climate Adaptation Championship, i.e., Social Empowerment with Ethical Responsibility (SEER), Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar, underwent a thorough selection process. This involved providing organizational details and nominating a contact person for effective communication. Prioritization was given to those actively contributing to communities, particularly in informal settlements. Applicants were assessed based on their articulation of existing climate-related challenges and proposed solutions, providing insights into their problem-solving capabilities. The criteria also included expressing previous endeavors in climate-related activities, research engagement, and

training initiatives to ensure a solid foundation for effective project participation. Groups also confirmed their commitment to the project's comprehensive approach, including full participation in all project activities.

Climate Adaptation Championship Journey

The Climate Adaptation Championship is scheduled to run from April to November 2023, involving the following steps:

1. YNN Recruitment

Call for participation in the Yangon Neighborhood Network (YNN) to identify local neighborhood groups who will actively engage in the project.

2. Develop Research Methodology

Develop a robust research methodology and tools that align with the project's objectives.

3. Undertake Research

Execute the research phase, which includes conducting surveys and organizing focus group discussions within local communities.

4. Capacity-Building Workshops

Conduct capacity-building workshops to empower the participating local neighborhood groups with knowledge and skills related to climate-resilient design. Capacity-building workshops and training include topics on climate change issues, climate adaptation strategies, and community engagement.

5. Develop Prototyping Solutions

Based on the research findings, create a clear and concise brief for solution prototyping.

6. Implementation of Prototyping Solutions

Support the participating local neighborhood groups in implementing their prototypes in their respective local communities.

7. Feedback Survey

Support the participating local neighborhood groups in implementing feedback surveys in their respective local communities to assess the impact and effectiveness of the prototyping solutions.

8. Develop Toolkit

Review the solutions developed by the participating local neighborhood groups and consolidate them into a comprehensive toolkit, serving as a practical guide that can be shared and used by members throughout the Yangon Neighborhood Network (YNN).

9. Develop a Research Report

Compile all project data, including research findings, prototyping outcomes, and survey results. Create a research report that provides a comprehensive overview of the project, its achievements, and its potential for future scalability and impact.

2.3. GAME PLAN

To instill enthusiasm and vitality into the Climate Adaptation Championship, Doh Eain crafted a meticulously structured work plan, namely game plan, for four Climate Adaptation Champions, outlined as follows:

| LEVEL | ACTIVITY | DESCRIPTION | DURATION |
|-------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 0 | General Assessments | Starting with commencing initial assessments by examining 15 households to gain a comprehensive understanding of the community's primary climate challenges. | 1 week |
| 1 | KOBO Surveys | Deploying KOBO surveys among 50 community members to gather diverse perspectives, insights, and experiences related to climate change. | 2 weeks |
| 2 | Focus Group Discussions | Hosting focus group discussions with 30 community members to delve deeper into identified climate issues and community viewpoints. | 2 weeks |
| 3 | Prototype Solution Implementation with \$50 | Developing a minimum of 3 innovative prototype solutions and executing one out of 3 with a \$50 budget. | 2 weeks |
| 4 | Prototype Solution Implementation with \$100 | Developing a minimum of 3 innovative prototype solutions and executing one out of 3 with a \$100 budget. | 2 weeks |
| 5 | Brainstorming Session for all Potential Prototype Solutions | Brainstorming with peer Climate Adaptation Champions to generate a multitude of innovative prototype solutions, unconstrained by budget limitations. | 1 week |
| | Tweaking Final Prototype Solution | Developing one final innovative prototype solution. | 1 week |
| Final | Prototype Solution Implementation with \$850 | Executing the developed solution with a \$850 budget. | 4 weeks |
| | Community Feedback Sessions | Gathering insights on the implemented prototype solutions and their impact. | 2 weeks |

2.4. EXPECTED OUTCOMES AND IMPACT

The YNN members are all local neighborhood groups that are deeply embedded in their local communities. Neighborhood community groups have incredible resourcefulness, manpower, dedication, knowledge, and relationships. By combining action and research, the Climate Adaptation Champions are able to harness local knowledge at the core of a climate issue and support the development of solutions by grassroots actors that respond directly to the needs of the local community. Through the active participation of these groups, the research solutions will be direct, impactful, flexible, and adaptable across other areas and groups. The research will provide solutions that respond directly to the needs of local communities.

Through our previous work engaging with YNN members in informal settlements for infrastructure improvements, we have become aware of the acute issues that local people challenge. In our previous projects, this has been identified as a challenge around flooding, safe water supply, energy supply, resilient shelters, etc. Through our approach of engaging with local community groups to identify one challenge and one solution, we will support communities to be able to develop tangible options for adaptation.

The expected outcomes from the Climate Adaptation Championship are

- Local neighborhood groups have the chance to test and implement innovative solutions for climate adaptation in informal settlements.
- Enhanced collaboration between local neighborhood groups and local stakeholders, resulting in improved reporting of climate-related issues and more effective allocation of funding.
- Increased community awareness of climate change, coupled with the dissemination of research findings and solutions, fosters the promotion of sustainable practices and resilience.

Doh Eain believes that the impact of this community-led action research is tremendous for the local communities, enhancing local resilience and preparedness, fostering sustainable development, and adapting to the adverse effects of climate change.

2.5. PROJECT LIMITATIONS

The Climate Adaptation Championship faced some limitations, as follows;

1. Political Constraints

The military coup in Myanmar has induced significant political constraints in the Climate Adaptation Championship. This political turmoil has escalated into an ongoing conflict between anti-coup groups and military factions, creating an uncertain and challenging environment for the implementation of project activities on sites.

2. Informal Settlement Areas

The project encountered unique challenges due to its focus on informal settlement areas. These areas often lack formal infrastructure and government support, making it more difficult to implement and maintain climate adaptation solutions. The informal nature of these settlements poses obstacles in terms of land tenure, resource allocation, and community mobilization, impacting the project's ability to execute its activities seamlessly. The demands of the community extend beyond initial expectations. Beyond the climate-related challenges, there is a pressing demand for solutions that not only alleviate environmental concerns but also foster economic resilience, social equity, and political stability for sustainable and inclusive development.

3. PROJECT AREAS OVERVIEW AND CAPACITY BUILDING WORKSHOPS

The participating 4 local neighborhood groups for Climate Adaptation Championship, namely 4 Climate Adaptation Champions, are Social Empowerment with Ethical Responsibility (SEER), Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar. Each of these groups conducted individual research in different project areas. Sharing Myanmar conducted their research in Ward 108, Dagon Myothit (East), while the Young Changemakers Community focused on Shu Khin Thar Kannar Road, North Okkalapa. SEER's research area encompassed Ward 93 in Dagon Myothit (Seikkan), and Zero Waste Community Myanmar conducted research in Pote Thin Nyo village, Hlegu. The following sections provide detailed community profiles for each of the research areas.

3.1. CLIMATE ADAPTATION CHAMPIONS

3.1.1. SOCIAL EMPOWERMENT WITH ETHICAL RESPONSIBILITY (SEER)

Social Empowerment with Ethical Responsibility (SEER) was established on January 8, 2012, and comprises five permanent employees and 16 members. Its operational presence spans Yangon Region, Shan State, Kayin State, Rakhine State, and Sagaing Region. SEER's goal is to create a peaceful and prosperous society in which all human beings have full rights and justice. The objectives are:

- (1) Ensuring every citizen can enjoy a better social life through awareness of rights and responsibilities, and a participatory society.
- (2) Providing necessary assistance to vulnerable groups in social distress.
- (3) Promoting awareness of basic knowledge on human rights and strengthening knowledge among the community.
- (4) Establishing networking among respective organizations to provide necessary referrals and links.

Research Area in Dagon Myothit (Seikkan)



The red-shaped areas represent the targeted informal settlement communities of SEER, identified as the most flooded areas in the neighborhood.

Geographic Location: The site is situated in the informal settlement area of ward 93, Dagon Myothit (Seikkan), characterized by frequent flooding. Additionally, it is a densely populated neighborhood where residents have low levels of basic education and lack access to electricity.

No. of Households: Over 2,000 (estimated)

Total Population: Over 10,000 (estimated)

Accessibility: In terms of accessibility, there is no direct bus line; only bus access to wards 92 and 94 is available. Visitors then have to rely on rickshaws and bike carriers to reach the site. The streets in the neighborhood are narrow and unsafe for travel at night.

Stakeholder Involvement:

1. Pastors, deacons and members of the communal Church
2. Community volunteers
3. Residents

3.1.2. SHARING MYANMAR

Sharing Myanmar collaborates with small businesses in natural settings, focusing on food waste management, including kitchen waste like rice, curry, fruit pulp, and sawdust. Their initiatives involve implementing natural soil recycling, cultivating home and kitchen gardens with recycled materials, and promoting environmental awareness.

Research Area in Dagon Myothit (East)



The red-shaped ponds are utilized by residents in ward 108, Dagon Myothit (East): the square-shaped pond corresponds to the area behind the communal monastery, and the triangle-shaped one corresponds to the lake around which informal settlement residents reside.

Geographic Location: The community is situated in the heart of Ward 108, Dagon Myothit (East), centered around a sizable lake, i.e., a triangle-shaped area in the photo, with houses constructed along its perimeter. Adjacent to the community runs a tributary of the Nga Moe Yeik River, enclosed by a large retaining wall.

No. of Households: Between 500 and 1,000 (estimated)

Total Population: 1,500 (estimated)

Accessibility: Navigation is challenging, given the absence of public transportation lines. Access to bus service requires the use of bike carriers. While the main roads are in good condition, the neighborhood streets pose difficulties, especially for children and the elderly. During floods, the sidewalks become submerged, worsening mobility challenges within the community.

Stakeholder Involvement:

1. Chairperson of Community Funeral Service
2. Community Service Volunteers
3. Street Supervisor
4. Construction Worker
5. Residents

3.1.3. YOUNG CHANGEMAKERS COMMUNITY (YCC)

Young Changemakers Community is a youth organization rooted in civil society and operating under the umbrella of the With Me Group. YCC was founded by passionate individuals committed to global transformation and was established in March 2020 amid the COVID-19 pandemic. YCC strives to disseminate accurate information about the virus in the face of misinformation. In addition to engaging in collective donations for the struggling, YCC also conducts online panel discussions fostering youth and community development. As an independent entity, YCC stands to support Myanmar's community, political, business, and social sectors. The goal is to establish a youth-led charity that works to improve communities.

Research Area in North Okkalapa



The red shaped-area is where the targeted informal settlement community of YCC resides.

Geographic Location: Shu Khin Thar Kannar Road, at the corner of Thandar Road, North Okkalapa, near Kheminda Rama monastery, which distributes water for the informal settlement community.

No. of Households: Over 120 (estimated)

Total Population: Over 400 (estimated)

Accessibility: Since streets in the neighborhood are not in good condition, traveling to the site is challenging, and there is a risk of slips, especially during the rainy season.

Stakeholder Involvement:

1. Ward administrator
2. Kheminda Rama Monastery Monk
3. Community Elder
4. Well excavators
5. Community volunteers
6. Residents

3.1.4. ZERO WASTE COMMUNITY MYANMAR

Started in 2019, Zero Waste Community Myanmar has been volunteering and working together with the communities to reduce waste by bringing together young people living in Yangon. The members are only volunteers without gaining fees for their service. In addition, children and young people have knowledge outside of school lessons. The courses are taught in collaboration with volunteer teachers. Our group is still only volunteers, so it is not yet an officially registered organization.

Research Area in Pote Thin Nyo village, Hlegu



The red-shaped area is where the targeted community of Zero Waste Community Myanmar resides.

Geographic Location: Pote Thin Nyo village is located in both highlands and lowlands, characterized by numerous trees and expansive forested areas. Adjacent to the fields, there is a loch resembling a wetland. The region undergoes substantial rainfall in the wet season and transforms into an arid and hot environment during the summer. Given the village's untamed surroundings, activities such as wood and bamboo cutting are widespread, often occurring without imposed restrictions.

No. of Households: 230 (estimated)

Total population: 1,000 (estimated)

Accessibility: Several areas in the village lack internet access. The central village road is the only concrete pathway, with other routes as dirt paths passed by cow and buffalo carts daily. In the rainy season, large trucks carrying wood cross these streets, causing damage. Residents in the lower part of the village face issues such as muddy floods and road damage.

Stakeholder Involvement:

1. Village Elder\
2. Community leader
3. Home Gardening Trainer
4. Disaster Awareness Trainer
5. Village volunteers
6. Residents

3.2. CAPACITY BUILDING WORKSHOPS

In an effort to bolster climate change awareness and explore potential adaptation strategies within 4 Climate Adaptation Champions, a series of climate change training sessions were organized, featuring field experts. Invitations were further extended to member groups of the Yangon Neighborhood Network, leading to the enthusiastic participation of multiple interested groups.

The capacity building workshops included KOBO training, Facilitation training, Running Effective Focus Group Discussions, Climate Change Knowledge Sharing session, Tharketa Climate Resilience Project Experience Sharing session, Waste Management Workshop, Flooding Issue Knowledge Sharing session, Water Scarcity in Cities Knowledge Sharing session, and Heat Wave Knowledge Sharing session.

The demographic data for capacity building workshops is well-recorded for both virtual and in-person sessions. The breakdown includes the number of male and female participants, providing a comprehensive overview of the workshop's audience composition.

| DEMOGRAPHICS FROM CAPACITY BUILDING WORKSHOPS | | | | | | | | |
|-----------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | WS 1 | WS 2 | WS 3 | WS 4 | WS 5 | WS 6 | WS 7 | WS 8 |
| Female up to 35 | 7 | 17 | 13 | 8 | 8 | 11 | 6 | 5 |
| Female more than 35 | 3 | 2 | 3 | 3 | 1 | 0 | 4 | 4 |
| Male up to 35 | 2 | 3 | 1 | 1 | 4 | 2 | 1 | 1 |
| Male more than 35 | 1 | 3 | 0 | 1 | 1 | 1 | 1 | 1 |
| Total | 13 | 25 | 17 | 13 | 14 | 14 | 12 | 11 |

3.2.1. KOBO SURVEY TOOLBOX TRAINING

Date: 24.5.2023

Location: Doh Eain's office

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 13 Participants)

Session Outlines:

This session covered several important aspects related to the KoBo Toolbox, a versatile data collection and survey tool. Participants gained an understanding of what the KoBo Toolbox is and how it differs from other survey platforms like Google Forms. The session also guided attendees through the process of opening a KoBo Toolbox account, exploring the key features available within the toolbox, and demonstrating how to create a form using this tool. Additionally, participants learned about the KoBo Collect App, its usage, and the process of filling out KoBo Forms in the field. The session concluded by addressing the practical application of the information collected through the KoBo Toolbox for informed decision-making and research purposes.



Source: Doh Eain

3.2.2. FACILITATION TRAINING_RUNNING EFFECTIVE FOCUS GROUP DISCUSSIONS

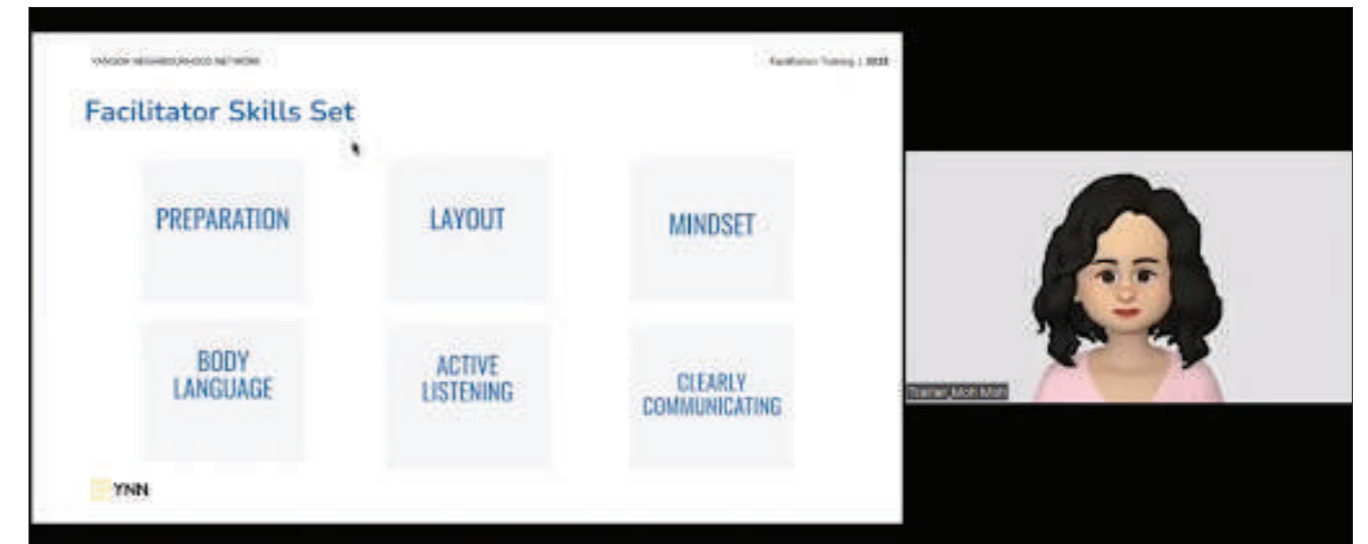
Date: 6.6.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 25 Participants)

Session Outlines:

This session provided a comprehensive understanding of facilitation and its importance in community engagement. Participants delved into the intricacies of facilitation planning and preparation, gaining insights into how to effectively guide focus group discussions involving community members. The session also focused on the essential qualifications and skills required for successful facilitation. In addition, it explored practical strategies for creating an inclusive and participatory environment during community interactions. This session equipped attendees with the knowledge and techniques necessary to facilitate constructive and productive group dialogues within diverse community settings, fostering a more collaborative and informed approach to decision-making and problem-solving.



Source: Doh Eain

3.2.3. CLIMATE CHANGE KNOWLEDGE SHARING SESSION

Date: 18.6.2023

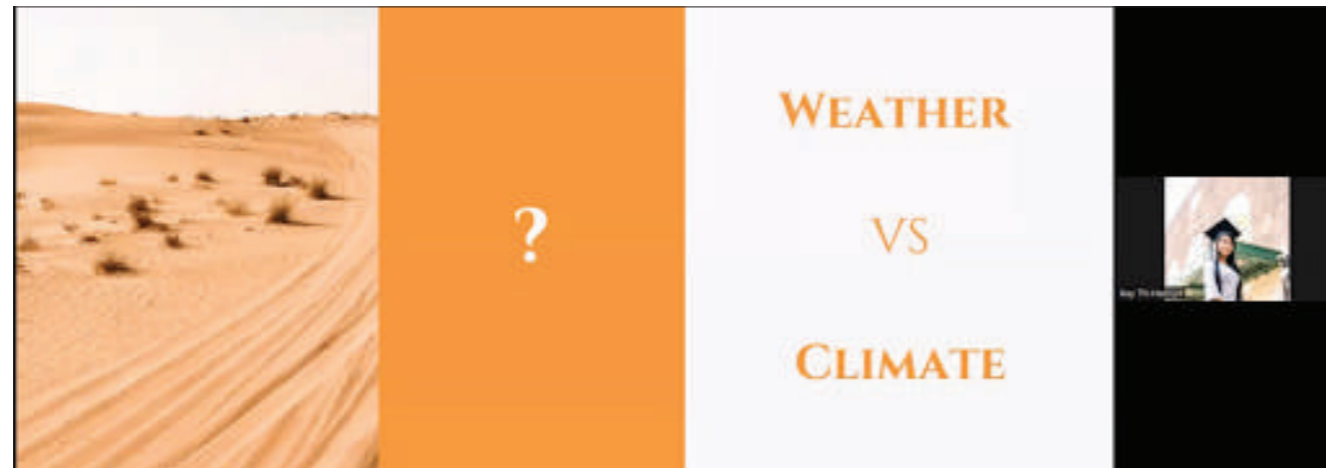
Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 17 Participants)

Session Outlines:

This session outlined four key components regarding climate change. First and foremost, participants delved into 'Understanding Climate Change,' gaining insight into the fundamental principles of this global issue. Subsequently, the focus shifted towards exploring the 'Causes of Climate Change,' identifying contributing factors that have accelerated this crisis. The next part was dedicated to comprehending the 'Impacts of Climate Change,' shedding

light on the far-reaching consequences that affect ecosystems, communities, and economies. Lastly, the session addressed strategies for 'Long Term Prevention,' equipping attendees with knowledge and tools to mitigate and adapt to climate change, ensuring a more sustainable and resilient future.



Source: Doh Eain

3.2.4. THARKETA CLIMATE RESILIENCE PROJECT EXPERIENCE SHARING SESSION

Date: 10.7.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 13 Participants)

Session Outlines:

This session covered a range of topics. It started off with a look at the "Project Overview" and then delved into how the project was planned in collaboration with partners. The importance of "community engagement" was emphasized, involving learning from and conversing with the community. The session also covered the practical "implementations" and the effort to build capacity for sustainability.



Source: Doh Eain

3.2.5. WASTE MANAGEMENT WORKSHOP

Date: 21.7.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 14 Participants)

Session Outlines:

The session covered four main topics. Firstly, an "Overview of Waste Challenges," was presented, looking at the problems we face with waste. Next, it discussed the "impacts" of these challenges, highlighting their effects on humans and the environment. The session also explored "Waste Challenges in Relation to Climate Change," explaining the connection between waste and climate issues. Finally, it delved into "Waste Management Practices," showing how we can manage and deal with waste effectively.



Source: Doh Eain

3.2.6. FLOODING ISSUE KNOWLEDGE SHARING SESSION

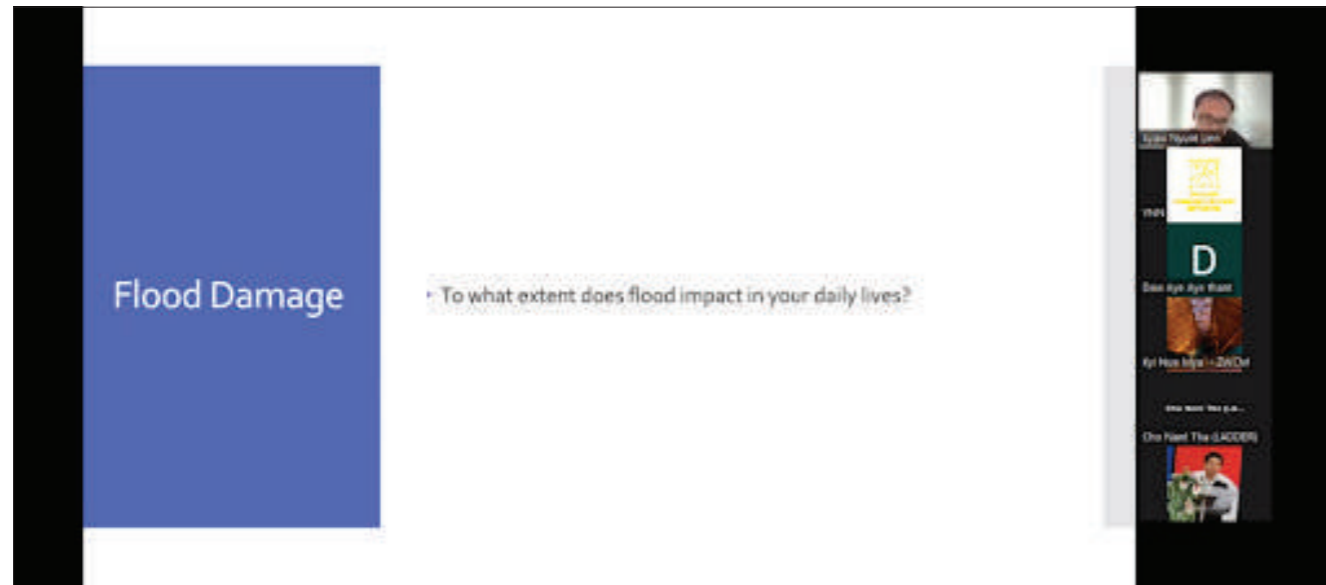
Date: 23.7.2023 & 30.7.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 14 Participants)

Session Outlines:

This session covered an overview of flooding problems, examining their relationship with climate change and urbanization. It also covered past flooding events, offering insights into future projections, and concluded with a discussion of adaptation strategies aimed at addressing this critical environmental challenge.



Source: Doh Eain

3.2.7. WATER SCARCITY IN CITIES KNOWLEDGE SHARING SESSION

Date: 2.8.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 12 Participants)

Session Outlines:

This session covered a comprehensive understanding of pressing water scarcity issues, exploring its causes, wide-ranging impacts, and potential solutions. Participants gained insights into the factors contributing to water scarcity in urban areas, the environmental, social, and economic consequences it produces, and the innovative approaches and strategies available to address and mitigate this critical challenge.



Source: Doh Eain

3.2.8. HEAT WAVE KNOWLEDGE SHARING SESSION

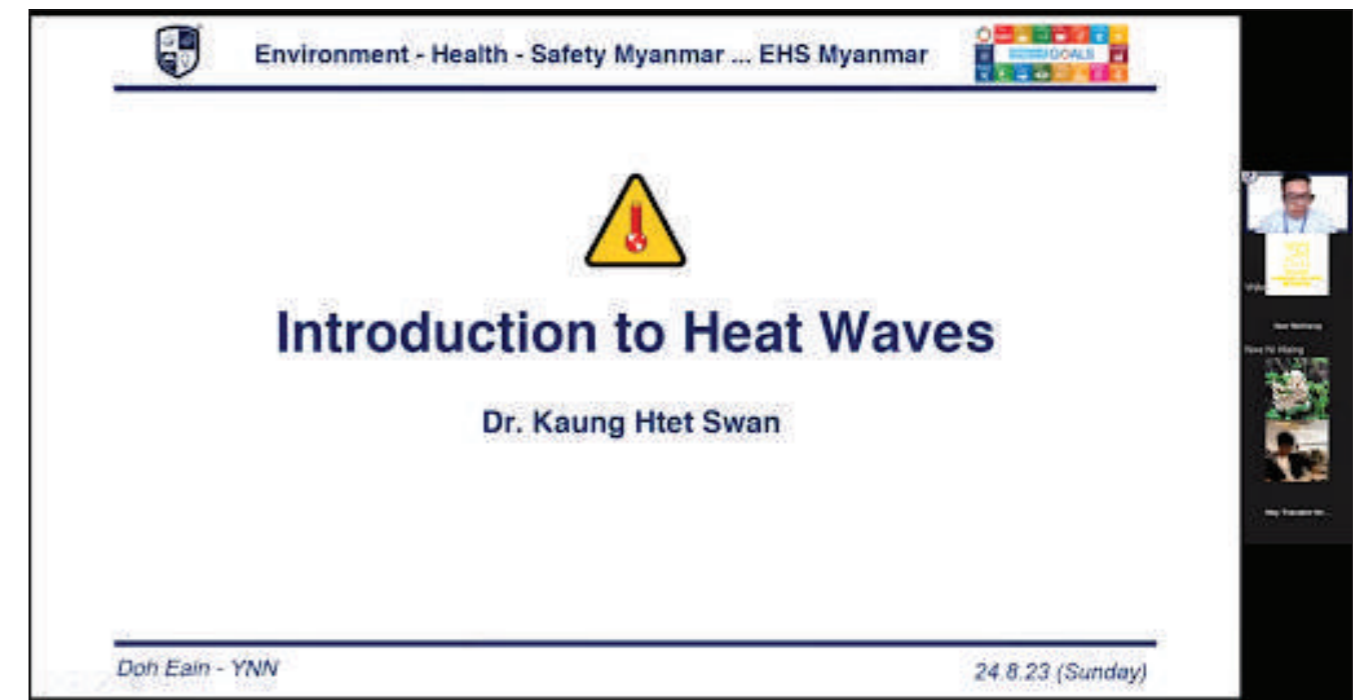
Date: 24.9.2023

Location: Zoom

Attendees: Members of 4 Climate Adaptation Champions & Interested members of the Yangon Neighborhood Network (Total 11 Participants)

Session Outlines:

This session consisted of an introductory overview of heat waves, highlighting their characteristics, root causes, and the profound impact they have on communities. It also covered preparedness and response strategies, examined predictive methods, and emphasized the importance of mitigation and adaptation measures. Participants engaged in group work to foster collaborative learning and knowledge exchange.



Source: Doh Eain

4. LEVEL 0 GENERAL ASSESSMENT

During the general assessment, short interviews were carried out with 15 households in the community. The interviews were conducted using a structured interview guide, which provided a consistent framework for gathering information.

The purpose is to collect firsthand insights and experiences from community members and incorporate their voices and perspectives, ensuring that they are actively involved and represented throughout the research process.

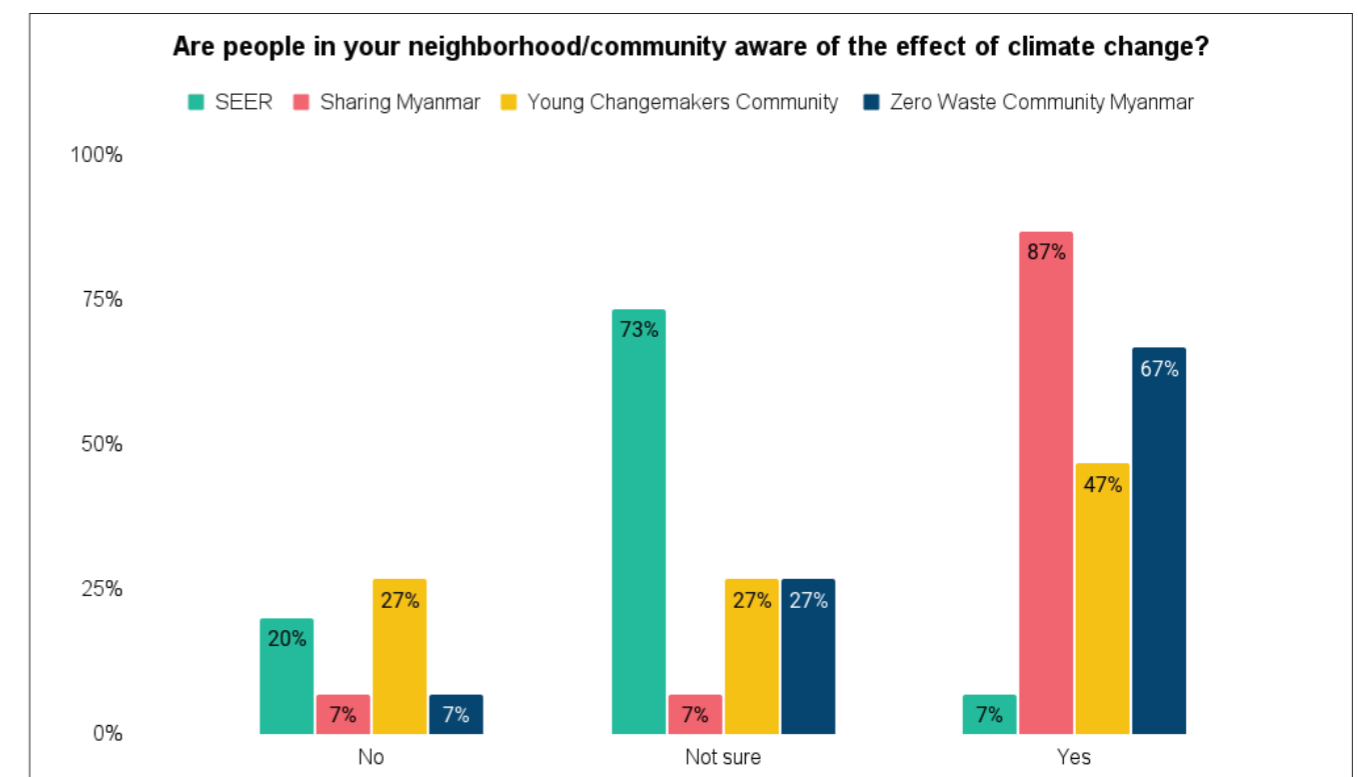
The objectives are:

1. To understand the needs and challenges regarding climate change that communities are facing, and
2. To select pressing climate change issues based on community priorities.

The questionnaire covered fundamental aspects of the community's stance on climate change, including general awareness, perceived impacts, the overall condition of community infrastructure, and challenges hindering effective adaptation.

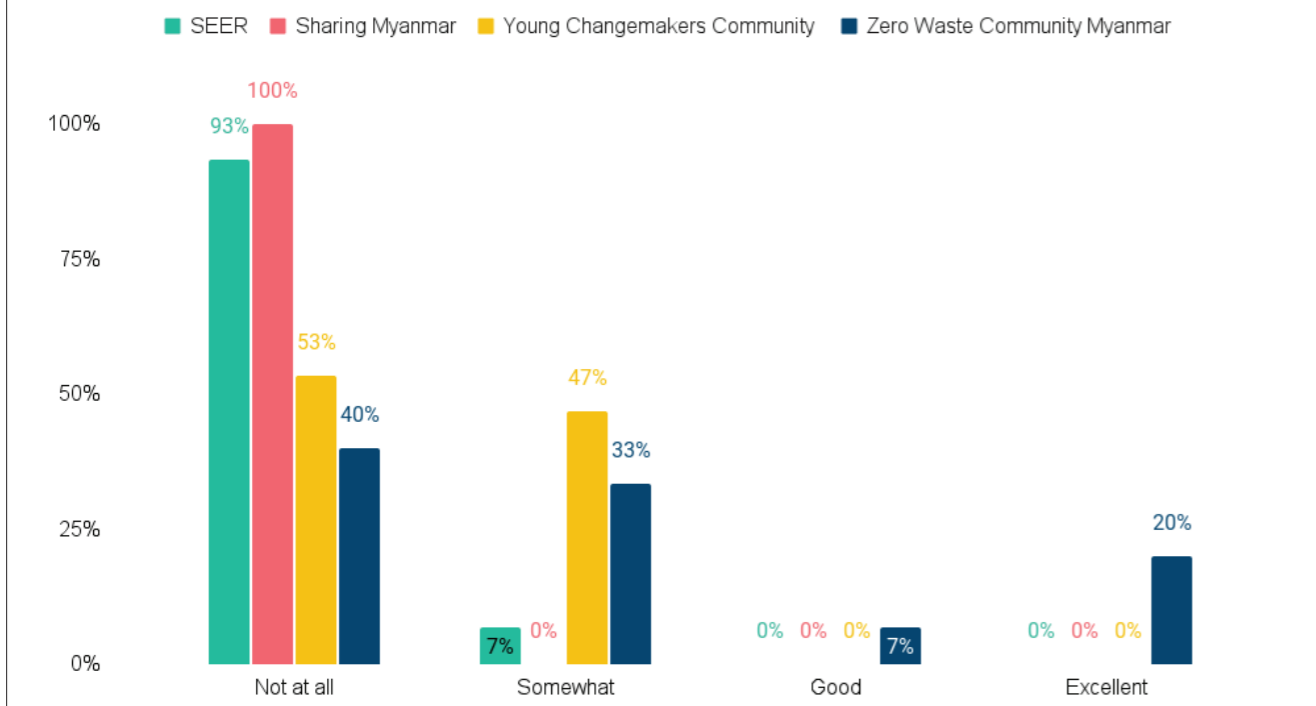
4.1. INSIGHTS FROM GENERAL ASSESSMENT

4.1.1 CLIMATE CHANGE AWARENESS



Some communities displayed a high level of awareness, while SEER's targeted community, Dagon Myothit (Seikkan), expressed that there is still a need for an increase. This disparity in awareness showed the importance of education and outreach efforts to ensure that all community members are well-informed about the challenges posed by climate change.

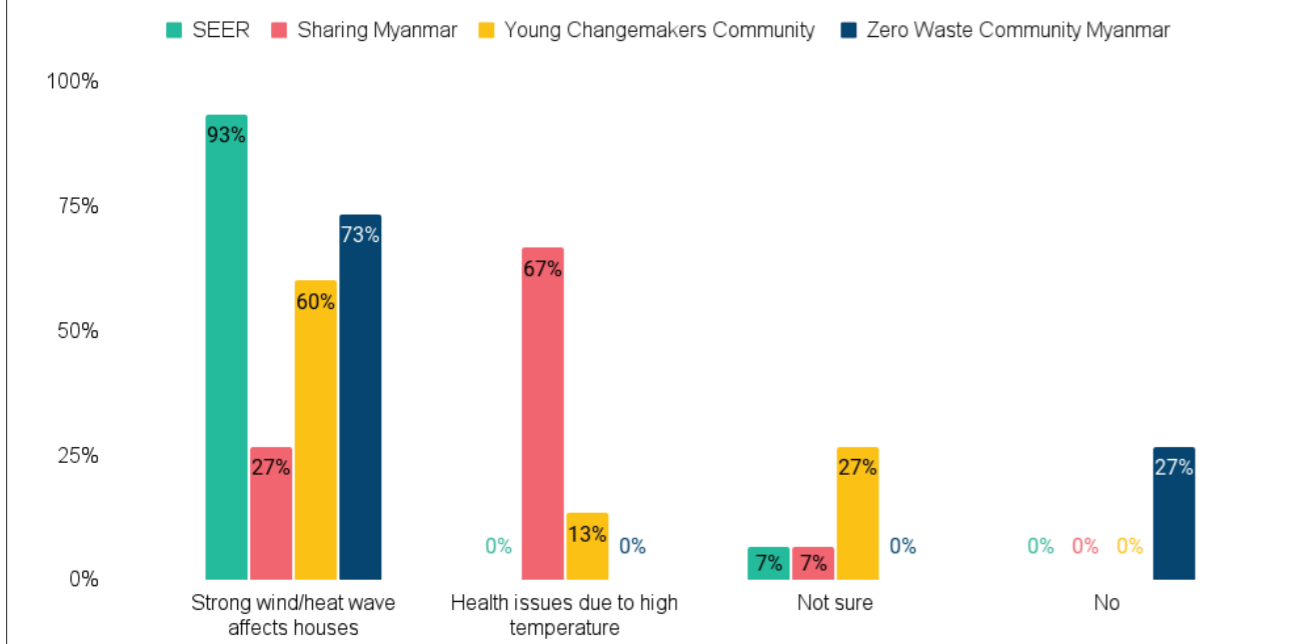
Do existing social systems support you and your community in adapting to climate change?



The uniform response across all informal settlements indicates that existing social systems provide little to no support for community adaptation to climate change, highlighting a critical and widespread issue. This feedback provides a clear direction for policymakers, community organizers, and advocates to develop targeted strategies that empower these communities to face the challenges of climate change.

4.1.2. CLIMATE CHANGE IMPACTS

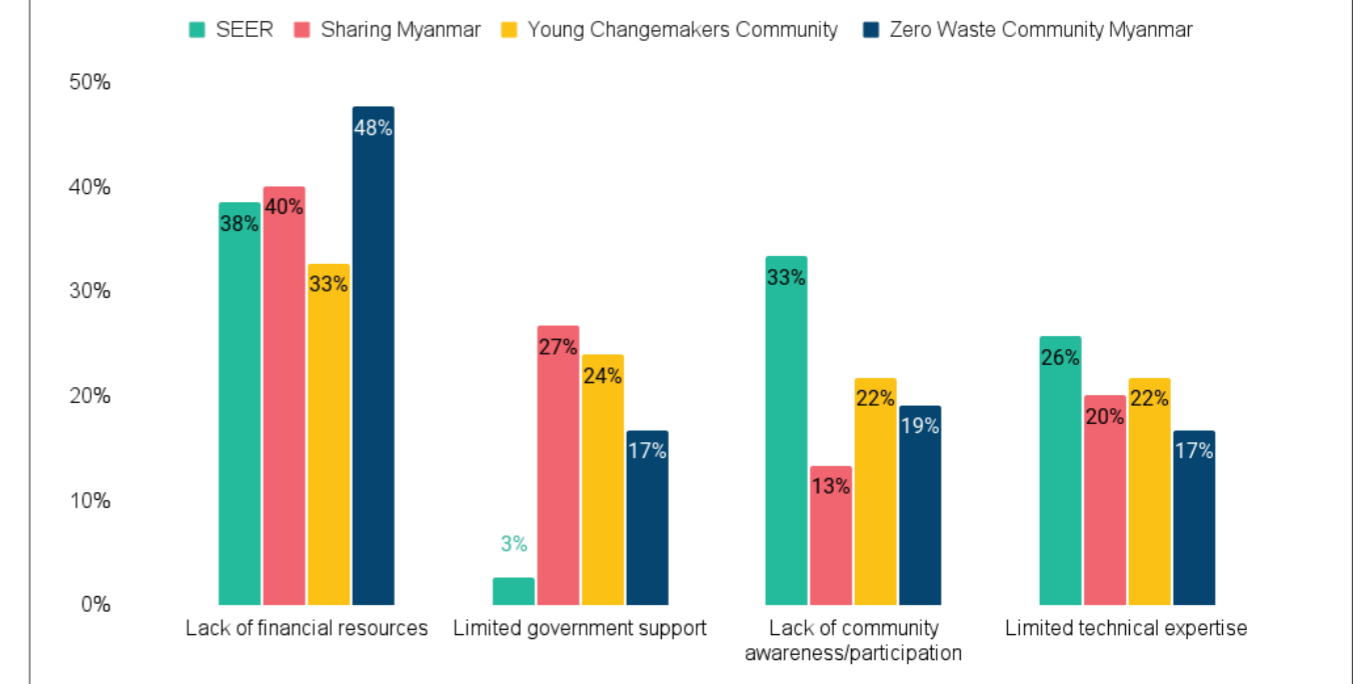
Are there any buildings or infrastructure that are already in place in your community that have been seriously affected by climate change?



The challenges posed by infrastructure damages due to strong winds and heat waves particularly on weak houses, highlight the urgent need to address climate vulnerabilities in communities. Another challenge is community health issues due to rising temperatures especially in communities with fewer shady trees. The need to solve these challenges involve investing in upgrading communities to withstand extreme weather conditions and establishing early warning systems that provide timely and accurate information about upcoming strong winds and heatwaves.

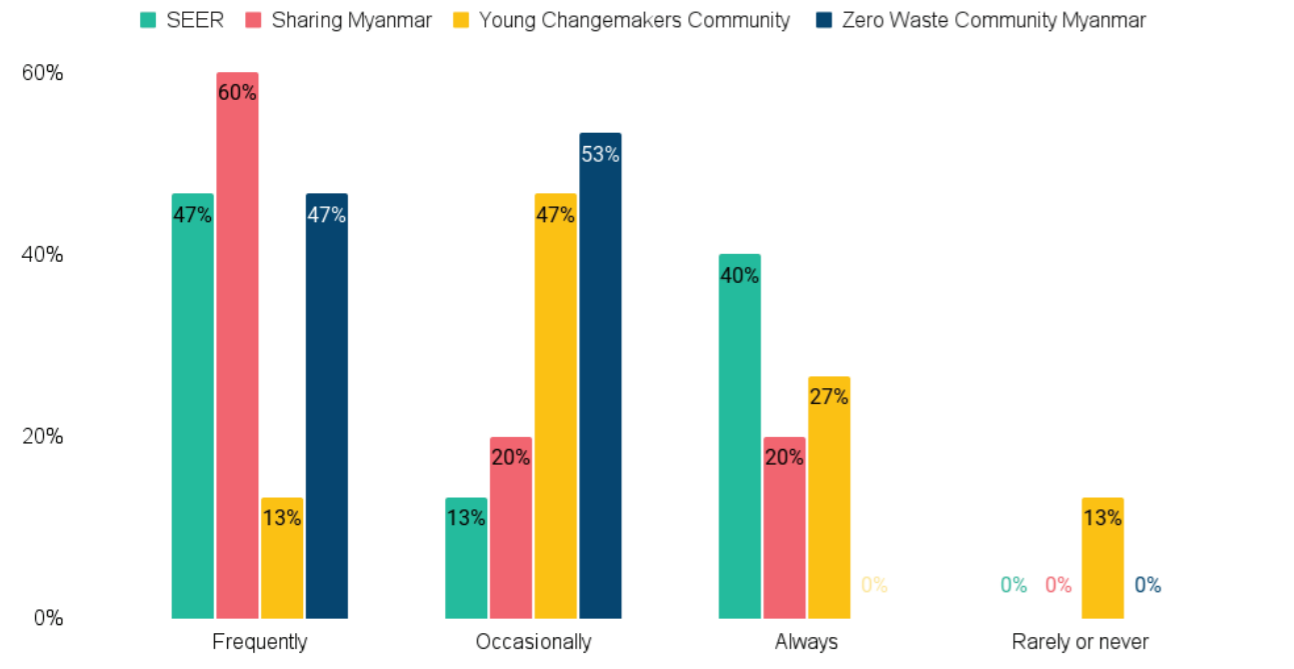
4.1.3. INADEQUATE INFRASTRUCTURE

Which elements, in your opinion, have made it more difficult to implement infrastructure upgrades and climate adaptation methods in your community?



In addressing the challenges hindering the implementation of infrastructure upgrades and climate adaptation methods in their respective communities, SEER, Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar all identify the lack of financial resources as a common and overwhelming obstacle. Additionally, concerns about limited community awareness and participation, along with restricted technical expertise, emerged as recurring themes across these groups. Sharing Myanmar and Young Changemakers Community both emphasized the impact of limited government support as an additional barrier to effective implementation. The unanimous recognition of financial constraints reflects a critical factor influencing the struggle to enhance infrastructure and climate resilience in these communities.

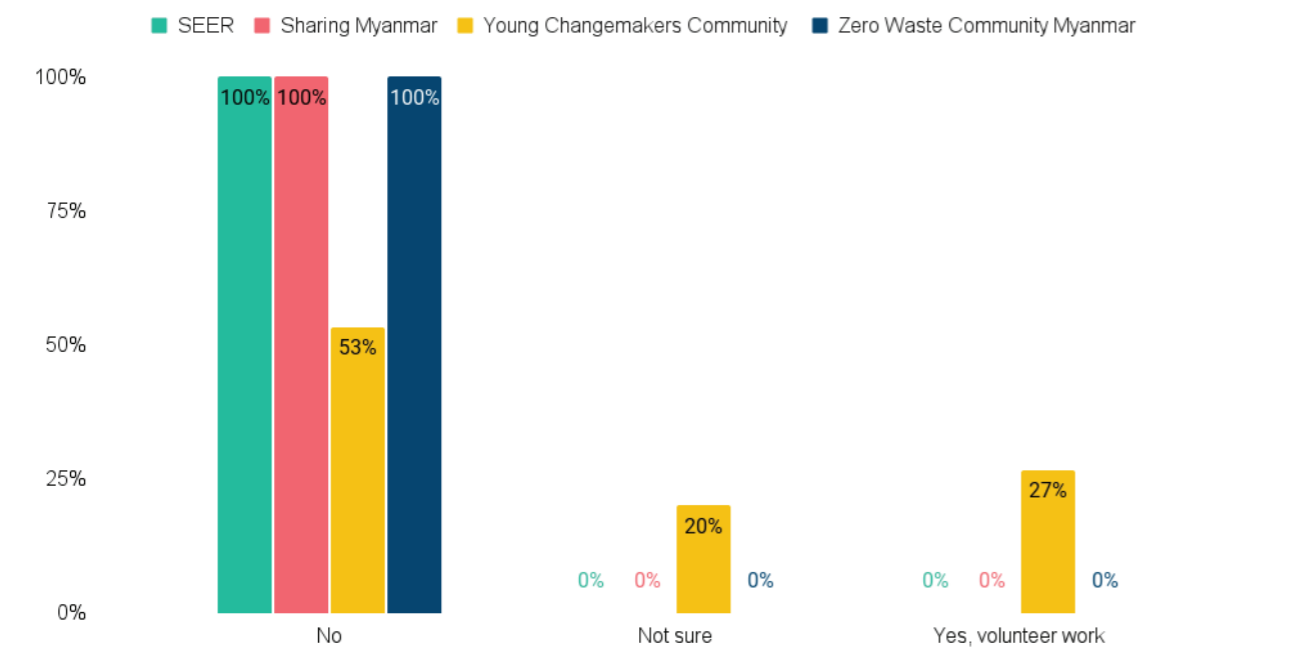
How often do extreme weather events or climate-related disasters cause distractions to or restrict your access to vital services?



This chart suggests a widespread impact of extreme weather events and climate-related disasters on the accessibility and functionality of crucial services. Because these neighborhoods are often not officially recognized, the government doesn't provide them with the help they need. This means people in these areas live in poverty and can't get good healthcare or education.

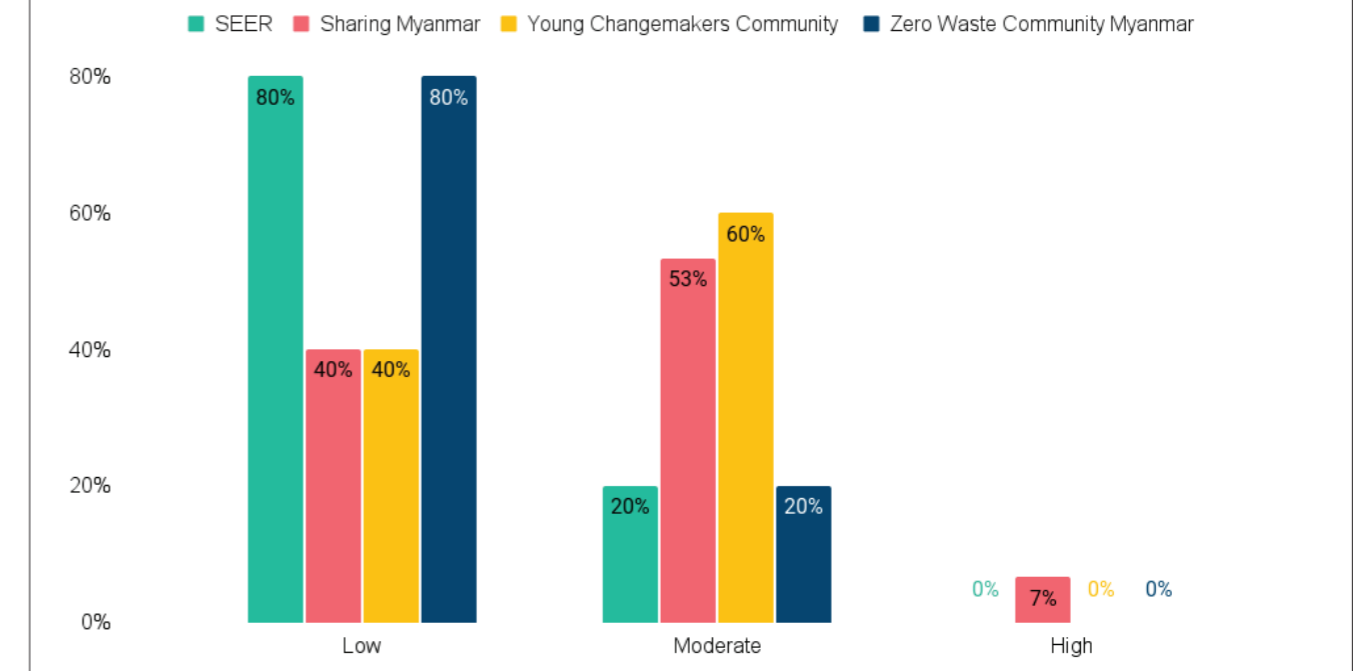
4.1.4. ADAPTATION MEASURES

Are there programs or projects in your community that are community-led and aimed at addressing the effects of climate change and enhancing infrastructure? If so, kindly give further information.



The lack of community-driven programs or projects targeting the impacts of climate change and the improvement of infrastructure highlights a significant lack of attention. Initiatives led by the communities are pivotal in nurturing local resilience and sustainability.

How would you rank the level of community involvement and involvement in decision-making processes involving infrastructure upgrades and adaptation to climate change in your township?



SEER and Zero Waste Community Myanmar express that community involvement is relatively low, estimated at 80%. In contrast, Sharing Myanmar and the Young Changemakers Community perceive the level of involvement to be moderate to high.

Overall, in informal settlement communities, addressing basic infrastructure needs is paramount to raising the living standards of residents and fostering sustainable development. Access to clean water, electricity, safe housing, and transportation networks, as well as essential services like healthcare and education facilities, are the basic foundations of a healthy and prosperous community.

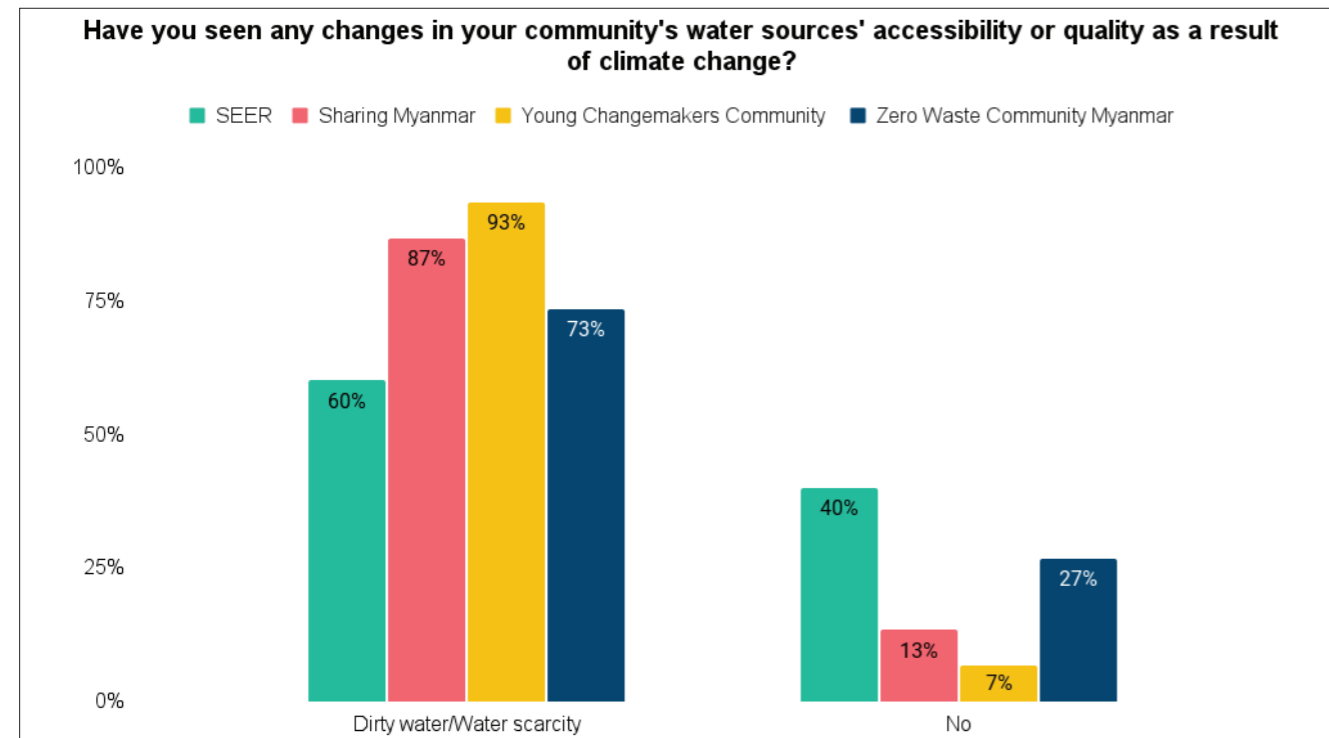
Despite various climate-related challenges faced by informal settlement communities, after conducting general assessments, 4 Climate Adaptation Champions, through a thoughtful consideration of factors such as community needs, urgency, seasonal variations, and overall impact, have selected climate issues that they will be primarily focusing on throughout as below.

| CLIMATE ADAPTATION CHAMPIONS | TOWNSHIP | WARD | FOCUS CLIMATE ISSUE |
|-------------------------------------------------------|-------------------------|----------------------------|---------------------|
| Social Empowerment with Ethical Responsibility (SEER) | Dagon Myothit (Seikkan) | Ward 93 | Flooding |
| Sharing Myanmar | Dagon Myothit (East) | Ward 108 | Water Scarcity |
| Zero Waste Community Myanmar | Hlegu | Pote Thin Nyo Village | Flooding/Livelihood |
| Young Changemakers Community | North Okkalapa | Shu Khin Thar Kan Nar Road | Water Scarcity |

Table showing champions, research areas, and focus climate issues

4.2. WATER SCARCITY IN INFORMAL SETTLEMENTS: A LOOMING CRISIS

In many unauthorized neighborhoods with no basic infrastructure, there is not enough clean water to use for the residents. These communities, often found on the outskirts of cities, face many water and environmental problems. They do not have the right infrastructure for water, which makes life very tough for the people who live there.



People in these neighborhoods typically obtain water from shared taps or nearby rivers. Unfortunately, these sources are frequently contaminated, posing a risk of illness. Compounding the issue is the lack of an adequate system for waste and sewage management, further contributing to the spread of waterborne diseases such as cholera and dysentery.



No public water supply or infrastructure in Ward 108, Dagon Myothit (East)

4.3. FLOODING IN INFORMAL SETTLEMENTS: NEGLECTED CRISIS

In many parts of Myanmar, particularly on the outskirts of cities and towns, flooding poses a significant threat. This occurs when excessive rainfall occurs, and there is inadequate drainage infrastructure. These areas frequently consist of makeshift neighborhoods or informal settlements, where residents face the daunting challenges brought about by flooding.

As highlighted above, one of the main reasons for flooding in these areas is poor drainage systems. When rainfall occurs, the absence of proper drainage infrastructure leaves no outlet for the water, resulting in accumulations in the streets and around residential structures. This not only causes damage to homes but also creates significant challenges for residents in terms of mobility, making it difficult to navigate and hindering access to schools or workplaces. Additionally, the expedited construction of houses in these areas often neglects considerations for water flow, exacerbating the existing problem. Definitely, flooding is a big problem for people living in these places.



Houses drowning in flood in Ward 93, Dagon Myothit (Seikkan)

4.4. LIVELIHOOD DIFFICULTIES IN INFORMAL SETTLEMENTS: SURVIVING THE STRUGGLE

In the rural and suburban areas of Yangon, Myanmar, climate change has brought about various challenges to people's livelihoods. The unpredictable rainfall and extreme weather events create problems for agriculture, causing crops to fail and disrupting planting seasons. The shortage of water, intensified by irregular rainfall and dry seasons, makes it hard for residents to access, leading to increased expenses. Additionally, flooding, coupled with inadequate infrastructure such as the lack of proper streets, makes it difficult for people to go to work and disrupts their daily activities. The vulnerability of informal settlements to cyclones and storms forces residents, many of whom are daily wage workers, to stay home for safety, further disrupting their daily routines and impacting their ability to earn a living. These interconnected challenges highlight the urgent need to address the complex issues faced by the residents in these vulnerable communities.



The challenging state of the streets in Pote Thin Nyo village, Hlegu during the rainy season

4.5. CHALLENGES AND REFLECTIONS FROM FOUR CASE STUDIES

Following the completion of general assessments, 4 Climate Adaptation Champions have discerned and reflected upon the challenges within their respective cases, as outlined below:

Case Study by Social Empowerment with Ethical Responsibility (SEER)

Challenges

“Addressing the myriad needs in the neighborhood proves challenging. Moreover, establishing communication with local authorities presents a distinct challenge. It was noticed that there is limited literacy among residents.”

Reflection

“Recognizing the importance of community self-awareness and self-initiative is crucial. Donations alone cannot fulfill all needs, and it was observed that challenges persist not solely due to poverty but also due to a lack of knowledge. Enhancing community cohesion stands out as a viable approach to resolving numerous problems.”

Case Study by Sharing Myanmar

Challenges

“Identifying the genuine needs of the community is challenging. The team must be prepared for potential scrutiny from law enforcement due to the current safety concerns. Achieving full voluntary participation from community households is an ongoing challenge.”

Reflection

“It is essential to put new, improved techniques into practice. Careful preparation of concise and relevant questions for community engagement is crucial. Notably, collaborative efforts and awareness workshops, involving enthusiastic youth volunteers from the local community, were observed to be effective. Leveraging the experiences shared by other champions provides valuable insights for future initiatives.”

Case Study by Young Changemakers Community

Challenges

“We are facing challenges in transportation, sustenance, and dealing with bare-handed situations. Navigating the complexities of potential disputes among beneficiaries, ensuring fairness, and maintaining social harmony are ongoing challenges. Considering the need for skilled labor for upcoming stages is a crucial aspect.”

Reflection

“We gained insights into beneficiaries' real-life situations and inner feelings. Understanding their perspectives on natural disasters was crucial, recognizing needs, and acquiring effective techniques for future initiatives.”

Case Study by Zero Waste Community Myanmar

Challenges

“There is a need to enhance collaboration among community members.”

Reflection

“The need to raise awareness regarding natural disasters is evident. We have learned about the main problem, which is also the primary concern of residents – the lack of a stable income for their livelihoods. Additionally, the village itself lacks even basic needs.”

5. LEVEL 1 FOCUS CLIMATE ISSUE

During the Focus Climate Issue stage, a comprehensive assessment using the KOBO toolbox was carried out with a diverse group of 50 individuals within the community. Similar to the general assessment approach, this assessment utilized a structured guide to systematically explore a diverse array of topics related to climate change.

The purpose is to engage and involve community members in identifying the main climate issues that affect their local environments.

The objectives are

1. To understand the in-depth needs and challenges faced by community
2. To assess community-level social vulnerability

in the context of the identified "Focus Climate Issue" by the results of Level 0_General Assessment.

The questionnaire covers detailed and multifaceted aspects of the community's climate dynamics, including specific community needs, climate change information and challenges, climate change awareness and impact, and climate change action and beliefs.

5.1. INSIGHTS FROM FOCUS CLIMATE ISSUE ASSESSMENT

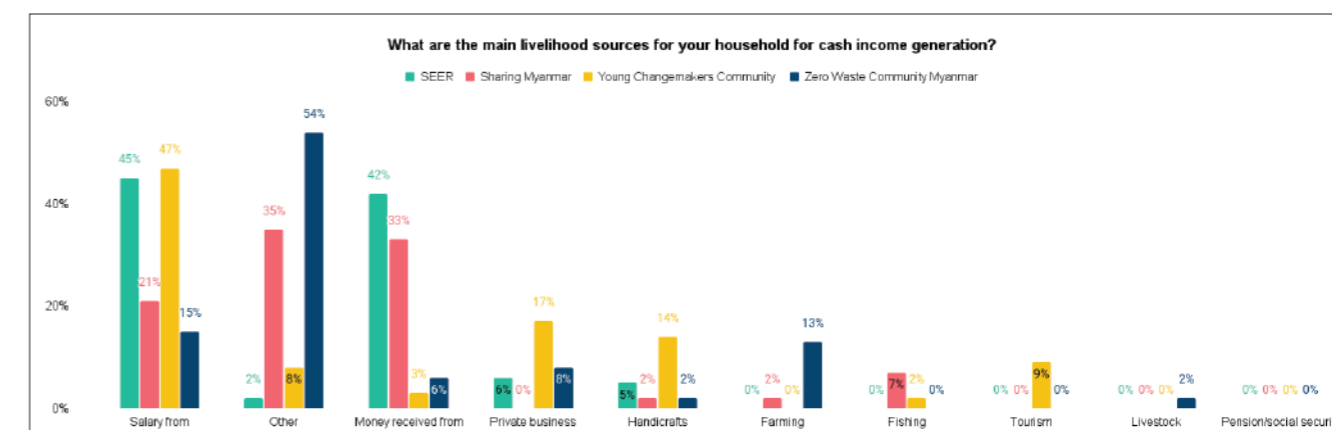
5.1.1. COMMUNITY NEEDS

For the assessment in Dagon Myothit (East) carried out by **Sharing Myanmar**, 50 participants, 25 males and 25 females, were interviewed. The largest number of participants are aged between 36 to 60, and less than half of the participants are aged 19-35.

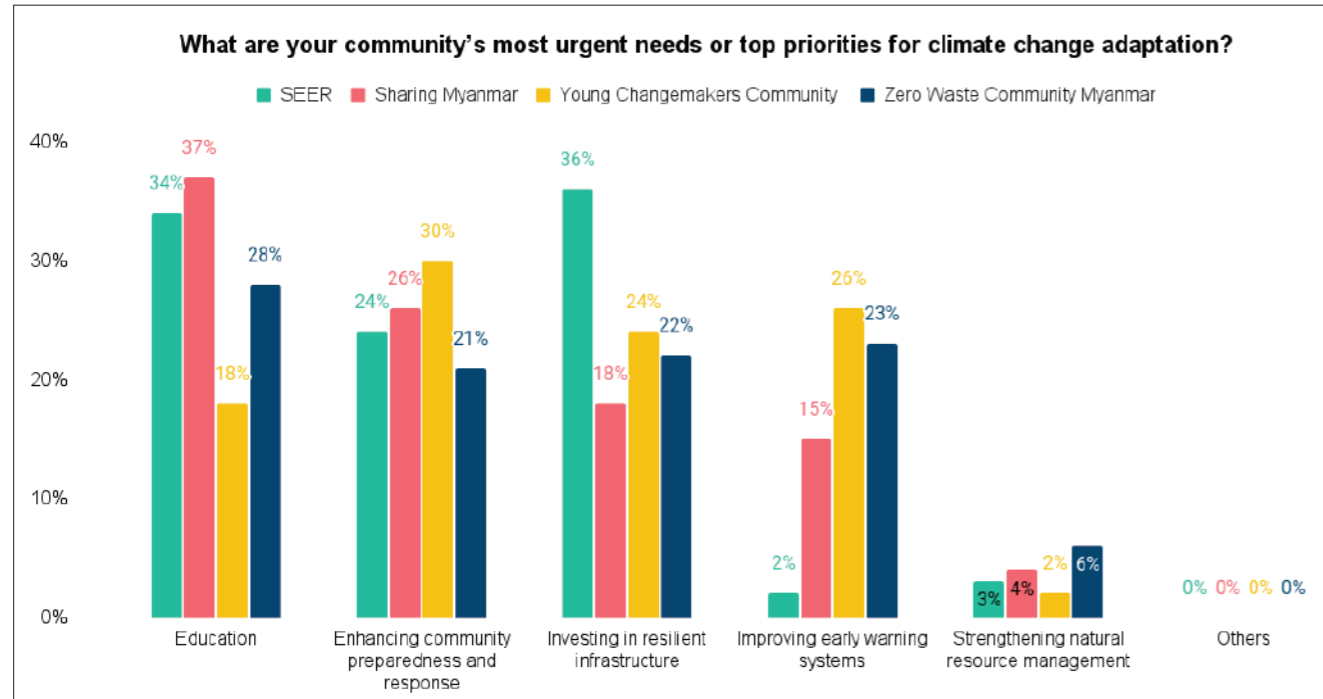
The **Young Changemakers Community** conducted their assessment in Shu Khin Thar Kannar Road, North Okkalapa. Among the total number of 50 participants, 27 were male and 23 were female. The majority of respondents fall within the age group of 19 to 35, with a gradual decrease in percentage as age increases.

SEER conducted their assessment in Dagon Myothit (Seikkan), and a total of 50 respondents were gathered, with an equal distribution of male and female participants. The largest age group is 46-60 years old, followed by the 26-35 age group and 36-45 years old.

The research area of the **Zero Waste Community Myanmar** is located in Pote Thin Nyo village, Hlegu. The number of participants was 50 and out of the total, 16 were male and 34 were female. The largest age group is 19-35 years old, followed by the 36-65 age group and 60+ years old.

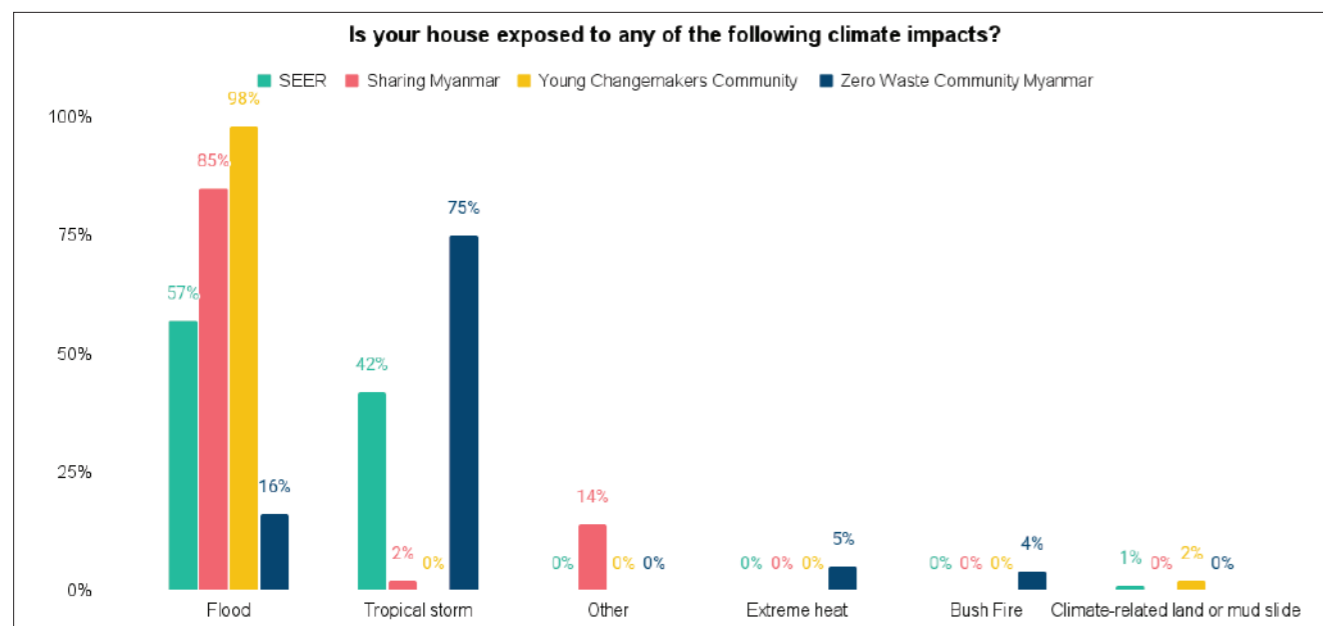


SEER discovered that the community relies on salary from employment and financial support from relatives for household cash income generation. Sharing Myanmar reported that the primary sources include money received from relatives, along with other sources and employment salaries. The assessment conducted by the Young Changemakers Community revealed that cash income is generated through employment salaries, private business ownership, handicrafts, and tourism-related activities. Zero Waste Community Myanmar identified that the community depends on income from farming, employment, vendors, and various other sources for livelihood.

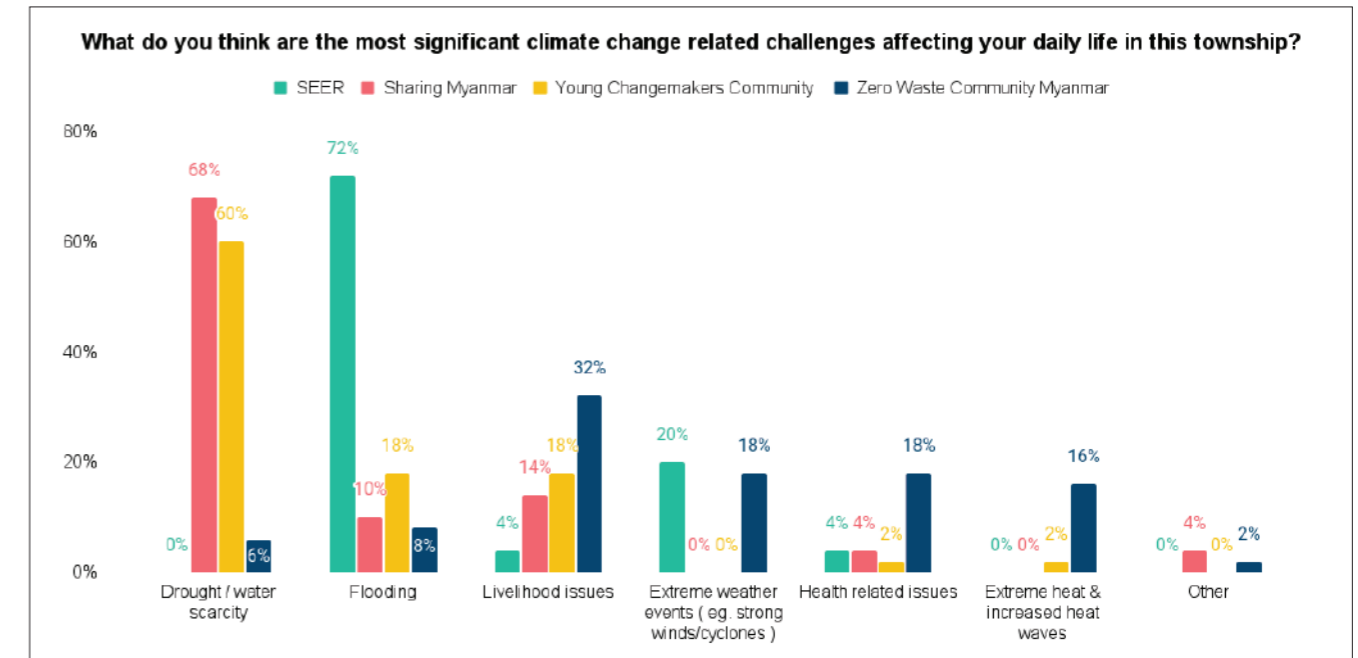


SEER's community prioritizes climate change adaptation through investments in resilient infrastructure, education initiatives, and enhanced community preparedness and response measures. Sharing Myanmar's community identifies education as the top priority, accompanied by needs in enhancing community preparedness and response, investing in resilient infrastructure, and improving early warning systems. In the Young Changemakers Community's assessment, the community emphasizes enhancing community preparedness and response as the top need, followed by improving early warning systems, investing in resilient infrastructure, and other related priorities. Zero Waste Community Myanmar highlights the equal significance of education, enhancing community preparedness and response, investing in resilient infrastructure, and improving early warning systems for their community's climate change adaptation.

5.1.2. CLIMATE CHANGE INFORMATION AND CHALLENGES

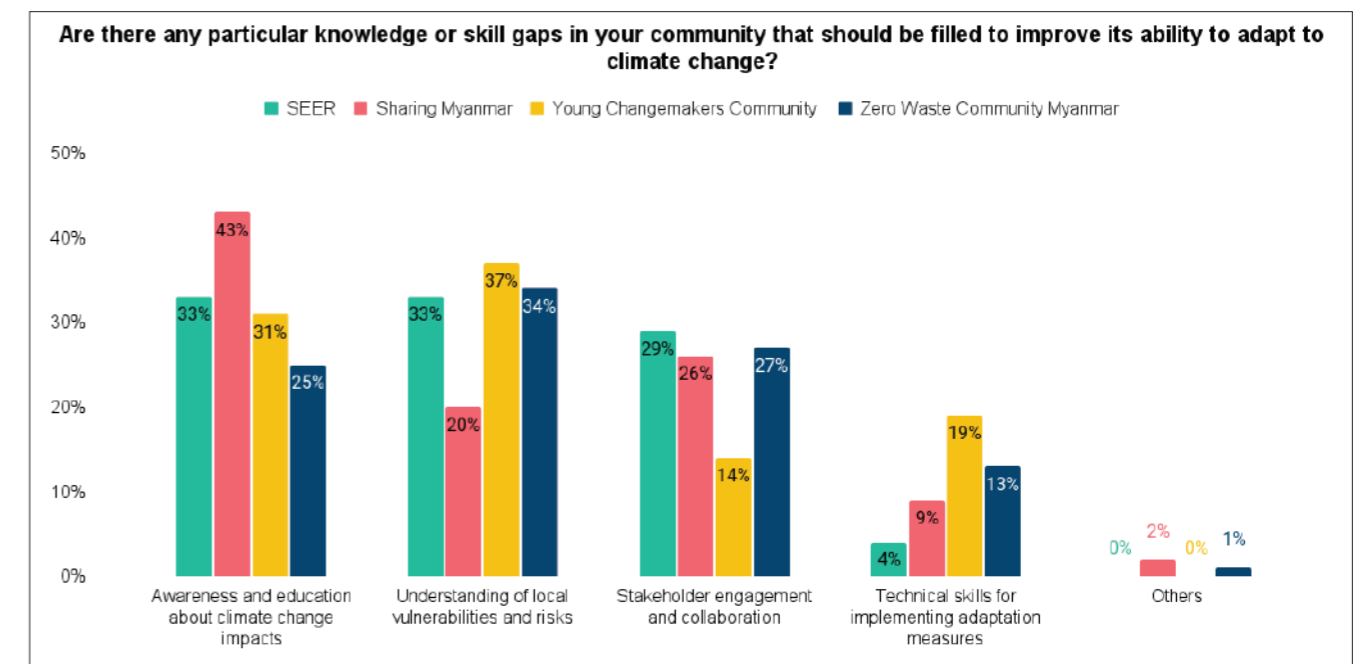


Communities in SEER, Sharing Myanmar, and Young Changemakers Community commonly identified floods as the predominant climate-related disaster affecting their houses. Additionally, both SEER and Zero Waste Community Myanmar's assessments highlighted that their communities are significantly impacted by tropical storms.

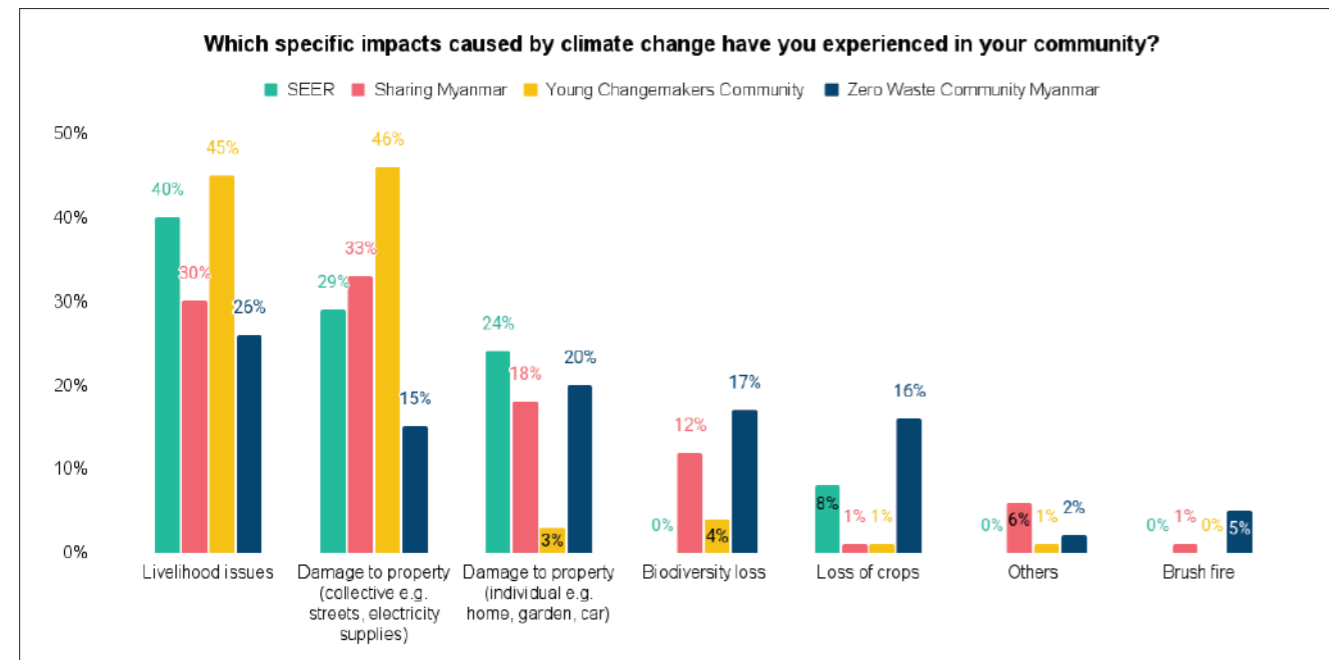


In SEER's community, flooding and extreme weather events, including strong winds and cyclones, were identified as major challenges. For Sharing Myanmar, the challenges include water scarcity, livelihood issues, and flooding. Young Changemakers Community noted water scarcity, livelihood challenges, and flooding as primary concerns. In Zero Waste Community Myanmar, challenges encompass livelihood issues, extreme weather events, health-related concerns, and heatwaves.

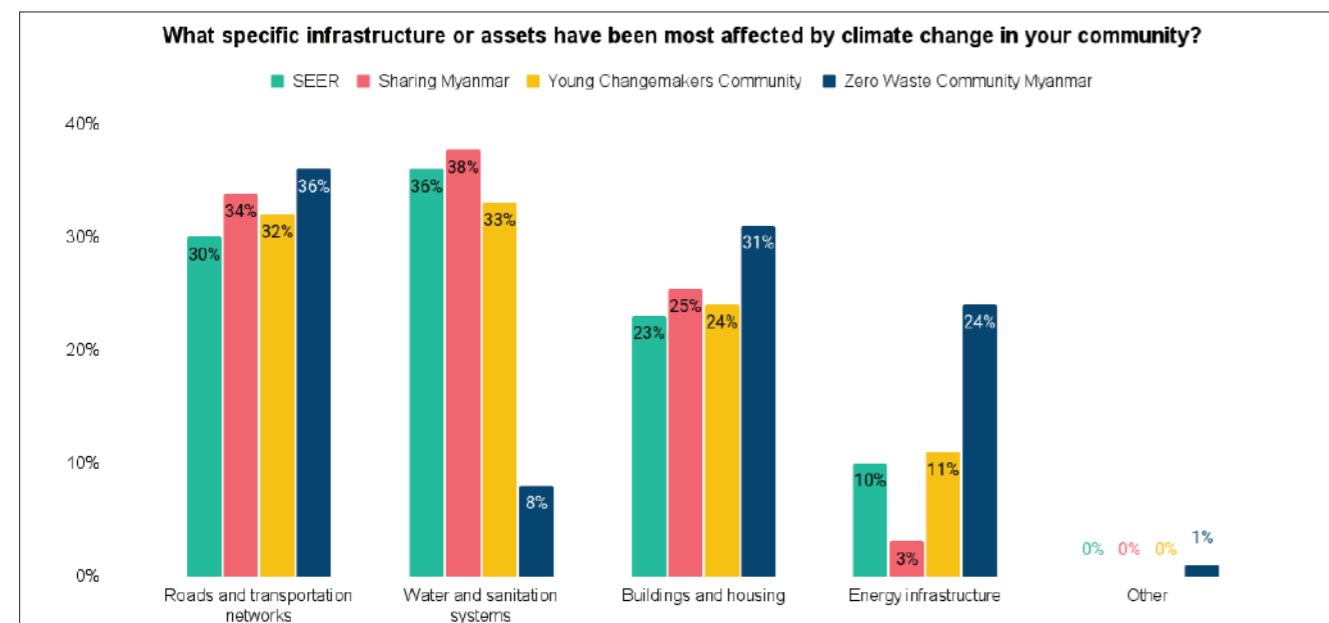
5.1.3. CLIMATE CHANGE AWARENESS AND IMPACT



The responses across all communities predominantly emphasizes the necessity for awareness and education about climate change impacts. Understanding local vulnerabilities and risks, along with stakeholder engagement and collaboration, are equally recognized as crucial, followed by the need for technical skills related to implementation of climate adaptation measures.

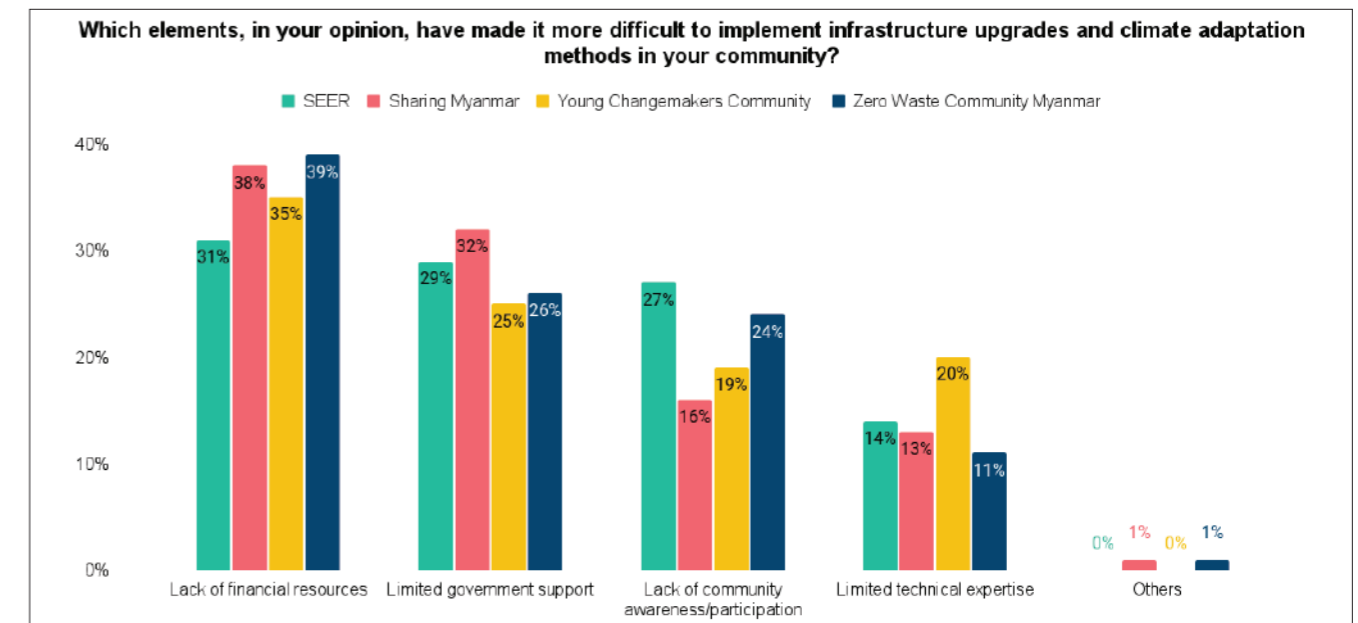


The primary impacts identified by all communities include damage to properties such as streets and electricity supplies, livelihood challenges, and damage to individual properties like homes, gardens, and cars. In some communities, minor impacts include biodiversity loss, crop loss, and incidents of bushfires.

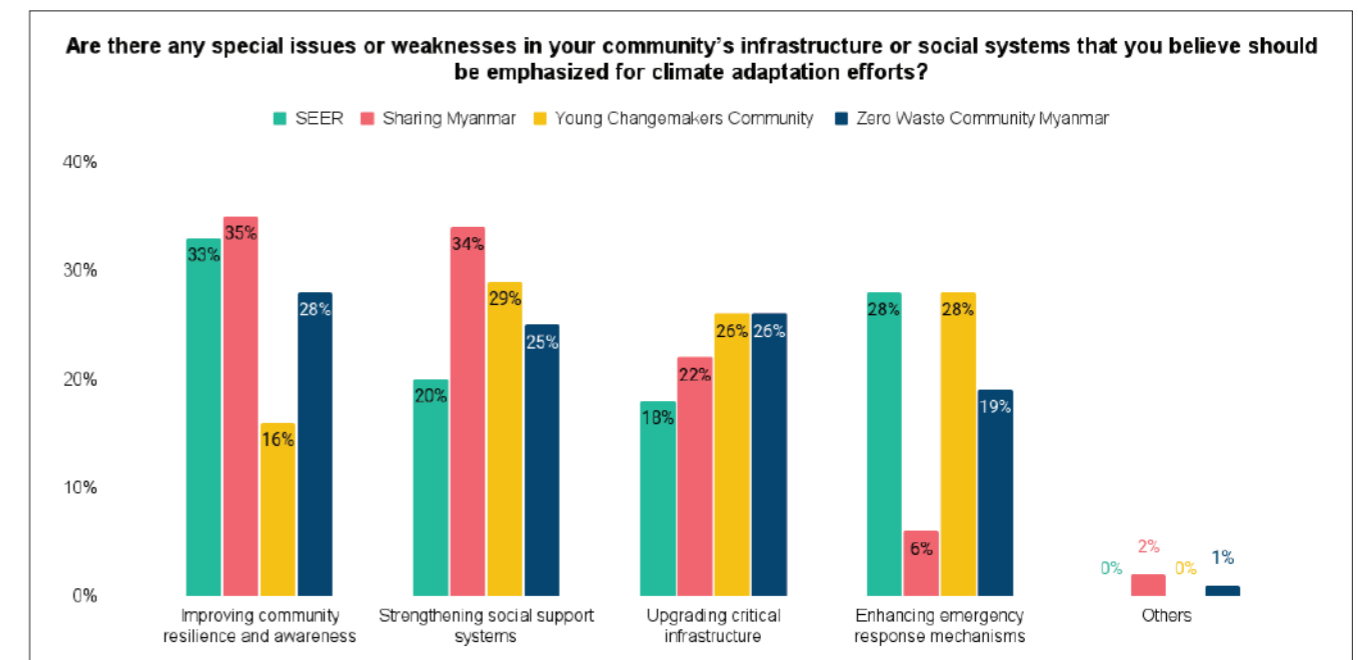


Communities in SEER, Sharing Myanmar, Young Changemakers Community, and Zero Waste Community Myanmar have consistently identified roads and transportation networks, as well as water and sanitation systems, as the primary assets significantly affected by climate change. Following closely are buildings and housing, which have also been identified as vulnerable to the changing climate. Additionally, minor losses have been reported in energy infrastructure across these communities.

5.1.4. CLIMATE CHANGE ACTION AND BELIEFS



It is evident that across all four communities, the primary challenge hindering the implementation of infrastructure upgrades and climate adaptation methods is a lack of financial resources. Following closely are limited government support and a lack of community awareness and participation, with their rankings being closely contested. Additionally, a notable concern across communities is the limitation in technical expertise, which is identified as third.



SEER's community emphasizes the need to enhance community resilience and awareness, along with the improvement of emergency response mechanisms. In Sharing Myanmar, the focus lies on improving community resilience, raising awareness, and strengthening social support systems. Young Changemakers Community's assessment of the community places a high priority on bolstering social support networks, improving emergency response systems, and upgrading crucial infrastructure. Lastly, Zero Waste Community Myanmar underscores the importance of improving community resilience and awareness, upgrading critical infrastructure, and strengthening social support systems in their climate adaptation efforts.

In **Zero Waste Community Myanmar's** community, the respondents' answers expressed their need for various types of support to adapt to climate change. They mentioned financial support, material assistance, manpower, and knowledge. There is a focus on building strong and resilient houses, along with access to basic infrastructure such as electricity, water, and transportation. The respondents also mentioned the importance of social support, raising awareness, and receiving support from related organizations. Overall, the respondents sought assistance to rebuild, improve their living conditions, and gain knowledge to adapt to changing climate conditions.

5.2. CHALLENGES AND REFLECTIONS FROM FOUR CASE STUDIES

Following the completion of Focus Group Issue assessments, 4 Climate Adaptation Champions have discerned and reflected upon the challenges within their respective cases, as outlined below:

Case study by Social Empowerment with Ethical Responsibility (SEER)

Challenges

"Given the political crisis and criminal incidents within the ward, caution is imperative during the project implementation process."

Reflection

"Due to the lack of formal education and general knowledge in the ward, it is essential to conduct training sessions related to the basic and easily understandable consequences of climate change. Given the significant support needed in the ward, careful attention must be paid when developing support initiatives to ensure they are beneficial to the community."



SEER surveying households in Ward 93, Dagon Myothit (Seikkan)

Case Study by Sharing Myanmar

Challenges

"Challenges include the need to build trust in an insecure environment. There is also a communication challenge in conveying that the efforts may not fully meet the needs and expectations of the communities. Additionally, communities express concerns about the possibility of their slums being removed due to the survey, adding a layer of apprehension. Moreover, there are concerns about the communities not fully comprehending the survey questions, posing a potential obstacle to effective data collection."

Reflection

"30 percent of the residents' income in the neighborhood is spent on water. Understanding the background information about water scarcity is crucial, as the community suffers from the consequences of not having access to clean water. There is a recognized need for health education and an urgency to raise awareness about environmental protection to generate more interest in it. With limited opportunities to improve living standards, it is essential to consider these residents as individuals genuinely in need of clean water."



Sharing Myanmar surveying households in Ward 108, Dagon Myothit (East)

Case Study by the Young Changemakers Community

Challenges

"Questions related to personal possessions like houses proved challenging for participants, who expressed discomfort and reluctance to answer such inquiries. The survey day was further complicated by rain, hindering travel and making it difficult to navigate on the side of the street alongside moving vehicles. Unfortunately, one of the volunteers slipped, resulting in a cracked phone and injuries to hands and legs."

Reflection

"Residents express a strong willingness to address water scarcity and clean water issues; however, their efforts are hindered by a lack of financial support, technical assistance, and challenges related to livelihood. The persistent water scarcity issue, exacerbated by the residents' inability to tackle it, contributes to growing anxiety within the community. Recognizing these challenges, there is a commitment to strive towards resolving the water scarcity problem, acknowledging the need for comprehensive support to overcome existing obstacles."



Young Changemakers Community surveying households in Shu Khin Thar Kanna Road, North Okkalapa

Case Study by Zero Waste Community Myanmar

Challenges

"Challenges encountered include difficulties with the survey tool, Kobo Toolbox, where issues arose with saving location and delays occurred due to phone performance problems. Additionally, the elevated nature of the questions poses a challenge for participants, as they struggle to provide well-informed answers given their education levels, ranging from primary to middle school."

Reflection

"Residents, lacking awareness of climate knowledge, do not consider adapting to the changing environment and climate as a significant priority. In the responses related to the natural environment and climate, the emphasis is placed more on livelihood inconveniences, debts, poor road conditions, and the lack of clean water. To conduct research systematically, more time should have been dedicated to practicing the questions. The process turned out to be smoother than anticipated, facilitated by the pre-existing friendly relationship between the group and the community."



Zero Waste Community Myanmar surveying households in Pote Thin Nyo village, Helgu



6. LEVEL 2 FOCUS GROUP DISCUSSIONS

During this stage, focus group discussions were conducted with 30 individuals within the community. Unlike the previous stages, climate adaptation champions, following a framework developed by Doh Eain, crafted their own set of questions tailored to address their specific focus climate issues and their targeted informal settlement communities.

The purpose is to facilitate in-depth discussions and analysis of selected focus climate issues.

The objectives are

1. to create an environment for community members to voice concerns, delve deeper into the focus climate issues, and identify root causes, and
2. to foster collaborative efforts by actively involving community members in the exploration of potential solutions.

Despite variations in detailed questions, **the questionnaire** covers various dimensions, including climate change understanding, impacts, community resources, approaches to adaptation, required support, potential collaboration, and the sustainability of adaptation measures.

6.1. INSIGHTS FROM FOCUS GROUP DISCUSSIONS IN WARD 93, DAGON MYOTHIT (SEIKKAN) BY SEER

The Focus Group Discussions developed by SEER covered a range of topics encompassing community interest in climate change education, perceptions of climate change impacts, and residents' proposed solutions. Participants discussed challenges, such as flooding and drainage issues, and shared insights on actions, initiatives, and improvements needed for a more resilient living environment.

About 50% of the respondents were aged between 25 to 45, and the rest were aged from 46 to over 65. Most have day jobs working as general laborers. Other occupations among the respondents include taxi driver, Mason craftsman, government pensioner, garbage collector, and factory worker.



SEER conducting Focus Group Discussions in Ward 93, Dagon Myothit (Seikkan)

I'VE NOTICED SIGNIFICANT CHANGES IN OUR ENVIRONMENT, FROM CHALLENGES IN FINDING FIREWOOD TO A SHORTAGE OF MEAT AND FISH, EXTREME WIND EVENTS, SHIFTS IN THE RAINY SEASON TIMING, FEWER TREES, MORE FLOODING, AND THE SELECTIVE REMOVAL OF VALUABLE TREES.

ENVIRONMENTAL CHANGES BROUGHT MORE EXPENSES, MORE SICKNESS, AND PROBLEMS FOR BUSINESSES. OUR STUFF GETS DAMAGED, AND IT'S HARDER TO GET WHAT WE NEED. WE NEED TO FIX THESE ISSUES FOR A BETTER LIFE.

the community is willing to work together to educate the residents about the importance of waste disposal and maintaining clean water sources like the lake. Collaboration with local authorities and external organizations can also support efforts to make a positive impact on the community's well-being.

What should be done as priority related to water scarcity? To what extent do you think they will be effective?



The success of the above mentioned actions on community infrastructure development relies on factors such as the community's dedication, available resources, funding, and cooperation from local authorities and residents. A joint and ongoing commitment from all stakeholders is essential for effectively and sustainably addressing water scarcity.

WE CAN SOLVE WATER ISSUES AND MAKE SURE EVERYONE HAS CLEAN WATER BY WORKING TOGETHER IN OUR NEIGHBORHOOD, TOWNSHIP-LEVEL AND NATIONAL-LEVEL. COMMUNITY RESIDENTS, LOCAL LEADERS, AND NATIONAL DECISION-MAKERS NEED TO TEAM UP FOR LASTING SOLUTIONS.

6.3. INSIGHTS FROM FOCUS GROUP DISCUSSIONS IN SHU KHIN THAR KANNA ROAD, NORTH OKKALAPA BY YOUNG CHANGEMAKERS COMMUNITY

The Focus Group Discussions developed by the Young Changemakers Community covered a range of topics, including key adaptation needs and priorities, proposed improvements, and identified challenges.

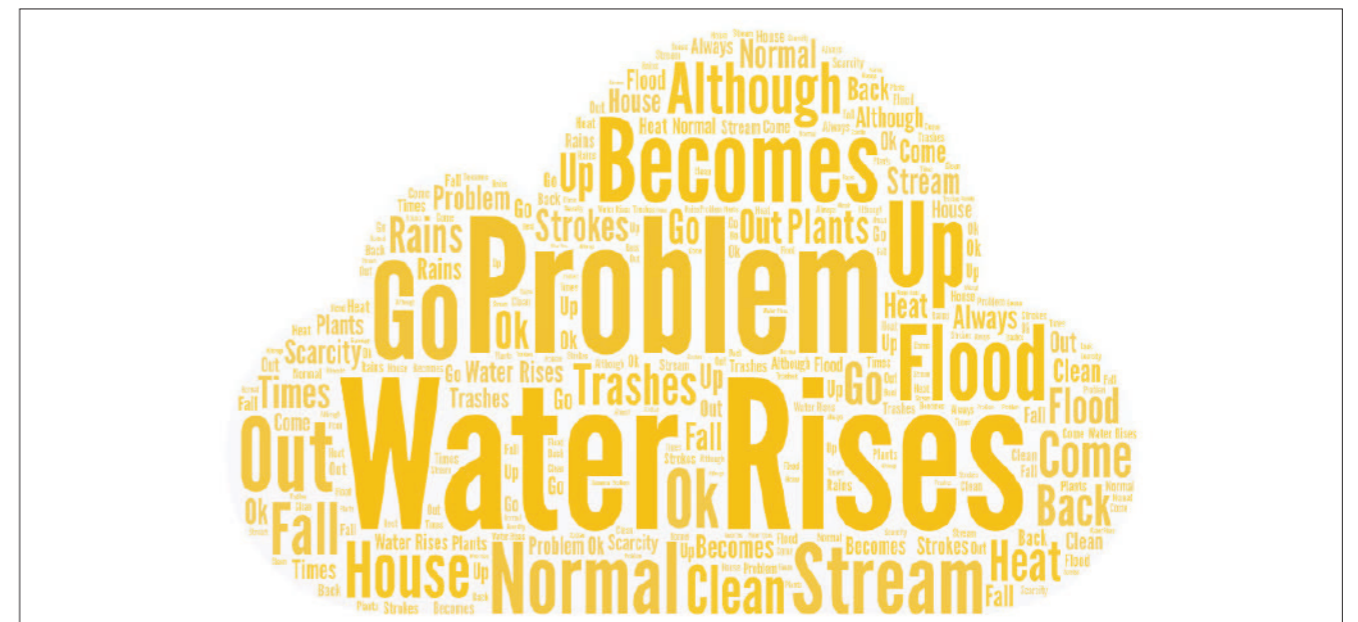
About 53% of the respondents were aged between 25 to 45, and the rest were seniors aged 46 to 65. Two-thirds of them are dependent on their families. Other occupations include general workers, masons, vendors, and ferry drivers in the community.



Young Changemakers Community conducting Focus Group Discussions in Shu Khin Thar Kanna Road, North Okkalapa

IT IS NORMAL TO FLOOD DURING THE RAINY SEASON SINCE WE RESIDE NEAR THE STREAM. DURING A HEATWAVE, IT IS OKAY SINCE THERE ARE TREES. IT'S BEEN YEARS SINCE WE'VE HAD ACCESS TO WATER. WE ARE FORTUNATE THAT ONE MONASTERY HELPS US WITH WATER. BUT NOT SUFFICIENT TO USE WHEN SHARING WITH OTHERS.

Are you sure that water scarcity is the worst of the problems faced by community due to climate change? Any other difficulties? (for example, heatwave, garbage)



During responses, participants commonly mentioned adapting to the regular occurrence of floods when stream water levels rise. When faced with rising water, the typical practice is to temporarily leave the house, clean up debris once the water recedes, and return home. Additionally, some respondents noted the presence of heatstroke prevention measures, such as plants. Regarding water scarcity, participants indicated that the situation is manageable when it rains, highlighting a persistent challenge during non-rainy periods.

The community members mentioned that there are resources and support available to help them adapt their livelihoods to climate change, such as donated wells and potential sales from planting trees and bamboo. However, accessibility to these resources seems limited, with some resorting to buying on credit. They suggested constructing resilient buildings and receiving donations as valuable aid. Collective efforts and collaboration were emphasized as crucial for a successful adaptation. Overall, there is a need for improved accessibility and coordination to ensure that all community members can benefit from these resources and effectively adapt to the challenges posed by climate change.

6.5. CHALLENGES AND REFLECTIONS FROM FOUR CASE STUDIES

Following the completion of Focus Group Discussions, 4 Climate Adaptation Champions have discerned and reflected upon the challenges within their respective cases, as outlined below:

Case Study by Social Empowerment with Ethical Responsibility

Challenges

"Given the community's limited resources, solutions must be sought that benefit community members in the most cost-effective manner possible."

Reflection

"There is a need to strategize ways to motivate the community to assume responsibility for the long-term sustainability of the solutions."

Case Study by Sharing Myanmar

Challenges

"Establishing trust with participants in FGDs was crucial, particularly addressing concerns about potential forced evictions from slums by clarifying our role as an environmental group rather than a governmental association. Creating questions independently posed a challenge, requiring additional effort from facilitators to ensure clarity and encourage participant engagement during FGDs. Time constraints made it difficult to complete FGDs within a single day. Encountering residents who initially hesitated to participate in FGDs due to fear necessitated reassurance and explanation of the questions to encourage their involvement. Residents were notified in advance that we may not fully meet all community needs and expectations. Additionally, following the FGDs, reports of gunshot cases and police inspections in the community were received from community contacts."

Reflection

"It was a valuable experience for the team to independently prepare questions. Preparing team duties and plans in advance significantly reduced anxiety when meeting with participants during FGDs. The team focused on finding solutions to provide clean water to the community, including researching effective methods and tools. Building relationships with community leaders was essential for successful implementation. Furthermore, we gleaned insights from community members, observing their resilience and determination amidst poverty."

Case Study by the Young Changemakers Community

Challenges

"Due to the difficulties in meeting basic needs, people are willing to get donations. Notably, when participants are invited to engage without adequate support, their involvement tends to be weak, as they prioritize addressing their immediate livelihood concerns."

Reflection

"Despite having established a strong relationship with the community, there are ongoing concerns about potential evictions from the slum. By adopting a friendly approach, we successfully alleviated some of the community's concerns and fostered a better relationship. We are mindful of the potential for unequal opportunities within the community and potential conflicts arising from the project. To address this, we clearly communicated the nature of the project, emphasizing our commitment to inclusivity and sustainability."

Case Study by Zero Waste Community Myanmar

Challenges

"Getting everyone on board was tough as some were unfamiliar with the content. Prioritizing problems across different places was also challenging, and limited resources made it hard to help everyone in the entire village."

Reflection

"Looking back, we learned the importance of having backup plans, especially when all 30 households joined unexpectedly. It reinforced the need to stay flexible and adapt when things don't go as planned."

7. LEVEL 3 DEVELOPING INNOVATIVE SOLUTIONS I

During this stage, each Climate Adaptation Champion is tasked with developing 3 innovative solutions tailored to the specific needs identified in their former stages. The focus of the solutions should be creative and feasible within the limited budget of \$50. This step marks a critical transition from understanding the problem to formulating practical and innovative solutions that fit the details of the surveyed environment. Each solution requires a detailed description, procedure, scale, necessary items, and a clear understanding of its impact on communities.

The purpose is for champions to develop comprehensive, effective and feasible responses to identified issues at a budget of \$50.

The objectives are

1. To identify 3 innovative solutions by referring the data and problem statement gathered from the former stages, and
2. To prototype 1 solution and monitor its status, conducting a thorough analysis of the pros and cons of the prototyped solution.

After implementing the prototyped solutions, 4 champions conducted **community feedback sessions** in their respective communities. These sessions followed a framework developed by Doh Eain and were conducted in the format that the champions deemed most effective, whether it be through Focus Group Discussions or One-on-One interviews. The framework included key components such as impact assessment, discussions on challenges and suggestions, and outlining future plans.

7.1. INNOVATIVE SOLUTIONS DEVELOPED BY SEER

Social Empowerment with Ethical Responsibility (SEER) developed 3 innovative solutions to address the burning issue of flooding in Ward 93, Dagon Myothit (Seikkan). The proposed solutions are: (1) making house entrances free from water; (2) distributing informative pamphlets; and (3) distributing big plastic bags.

| SOLUTION 1 | MAKING HOUSE ENTRANCES FREE FROM WATER |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Household level |
| Description | Floods have submerged houses, causing water to accumulate beneath and at house entrances. This disrupts daily commutes and causes physical damage. The solution involves placing sandbags at house entrances as a protective measure. |
| Procedure | Order sandbags and lay them at house entrances with the help of community members. |
| Items needed | Sandbags |
| Impact | Enhance daily mobility and safeguard children and elders from potential slips and injuries (1-5 years) |
| SOLUTION 2 | DISTRIBUTING THE INFORMATIVE PAMPHLETS |
| Type | Social base |
| Scale | Neighborhood level |
| Description | Addressing residents' reckless disposal of garbage and lack of awareness about natural disasters. Pamphlets highlighting the consequences of improper waste disposal and educating on the impact of natural disasters will be distributed. |
| Procedure | Collaborate with experts to develop an insightful pamphlet, duplicate, and circulate it throughout the community. |
| Items needed | Papers, Printing |
| Impact | Raise awareness about natural disasters and improper waste disposal (10+ years) |



Photos taken by Doh Eain during Sharing Myanmar's activities from prototyping solution

7.2.1. COMMUNITY FEEDBACK AFTER PROTOTYPE SOLUTION

The community feedback gathered by Sharing Myanmar after implementing the prototype solution, Making Greenland to Nature, provided valuable insights.

How did the implemented activity help solve water scarcity problem at your household or neighborhood?



Despite not fulfilling all community needs, the implemented measures bring joy through gifted vegetables. Plants from distributed seeds thrive, providing leaves for cooking. Regarding water scarcity, participants gained knowledge about waste and water source pollution through discussions, understanding the long-term benefits of planting.

What challenges do you face while utilizing the implemented activity?



There aren't many challenges in utilizing the implemented activity except for one, which is time duration for the plants to grow.

How benefitted is this climate adaptation activity?



As a result of the implemented activity, the community observed a positive change with a new method for growing plants and a reduction in leftover food waste, which is now utilized for plant growth.

What suggestions do you have for the implemented activity?



The community responded that activities with good intentions are beneficial. This was the first time planting in the neighborhood, and there's a concern about plants possibly dying due to the worsening flood this year. To address this, it's suggested to repeat the planting during the cold season. Emphasizing the importance of conducting such programs frequently is recommended for ongoing community benefits.

How will you maintain the implemented activity?



The implemented activity will be maintained through ongoing plant cultivation. The compost method will be shared with others, and when plants produce fruits, the seeds will be shared as well. This ensures the sustainability and spread of the activity within the community.

7.3. INNOVATIVE SOLUTIONS DEVELOPED BY YOUNG CHANGEMAKERS COMMUNITY

The Young Changemakers Community (YCC) developed 3 innovative solutions to address the burning issue of water scarcity in Shu Khin Thar Kanna Road, North Okkalapa. The proposed solutions are: (1) Providing necessary support to build a water storage pond in the future; (2) Helping the water resources be cleaner; and (3) Clean water knowledge sharing along with material support.

| SOLUTION 1 | PROVIDING NECESSARY SUPPORT TO BUILD A WATER STORAGE POND IN THE FUTURE |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Neighborhood level |
| Description | Recognizing the need for a new water storage pond and understanding budget constraints, initiates preparatory work despite limited resources, with awareness of incomplete project execution. |
| Procedure | Choose a suitable location, clean the area, procure and arrange bricks for the future construction of a water storage pond |
| Items needed | Bricks, Cement, Sand, and Setup tools |
| Impact | Ensuring water access for people without consuming time and energy (10+ years) |
| SOLUTION 2 | HELPING THE WATER SOURCES BE CLEANER |
| Type | Technical base |
| Scale | Neighborhood level |
| Description | Commitment to supporting the cleanliness of key water sources, including Joe Phyu Pond, groundwater ponds, and storage facilities. Comprehensive inspection, cleaning, installation of filters, and strategic placement of water taps for convenient access. |
| Procedure | Inspect cleanliness, clean thoroughly, install filters, and strategically place water taps |
| Items needed | Cleaning materials, Water filters, Water tabs, and Set-up tools |
| Impact | Helping people get clean water by making their sources clean (1–5 years) |
| SOLUTION 3 | CLEAN WATER KNOWLEDGE SHARING ALONG WITH MATERIAL SUPPORT |
| Type | Social base |
| Scale | Neighborhood level |
| Description | Conduct a knowledge-sharing session, focusing on clean water education, and provide necessary water storage materials |
| Procedure | Mobilize individuals with the assistance of the community leader, conduct a comprehensive knowledge-sharing session, and distribute essential water storage materials |
| Items needed | Teaching aids, Plastic buckets |
| Impact | Empowering communities through clean water practices (10+ years) |

Out of the above, the selected solution by Young Changemakers Community for prototyping is (3) Clean water knowledge sharing along with material support. The decision was based on the community's struggles with knowledge related to clean water and climate disasters.



Photos taken by Young Changemakers Community during activities from prototyping solution

7.3.1. COMMUNITY FEEDBACK AFTER PROTOTYPE SOLUTION

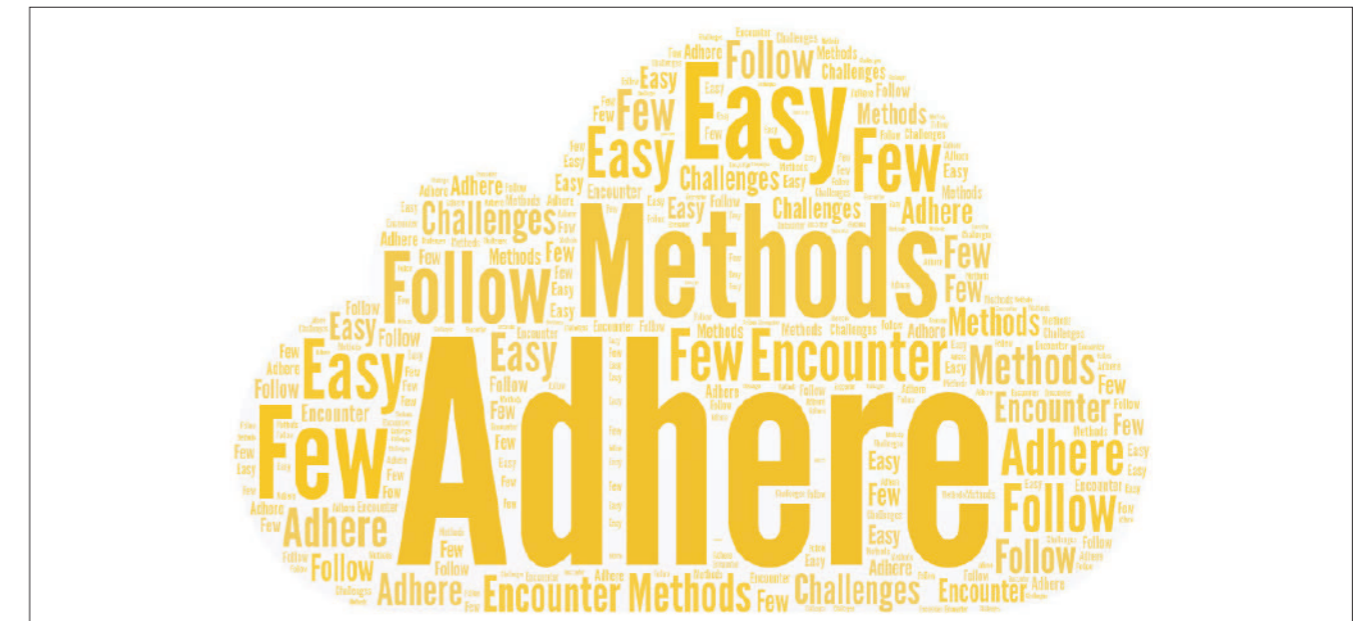
The community feedback gathered by Young Changemakers Community after implementing the prototype solution, Clean water knowledge sharing along with material support, provided valuable insights.

Due to the awareness session about access of clean water on health, in what ways has it made a difference in terms of addressing water scarcity challenges for your household or neighborhood?



Understanding the significance of clean water, along with its proper transportation and storage, has been a valuable lesson. Recognizing the link between unclean water and ailments like diarrhea emphasizes the need for a systematic approach to water usage. This knowledge has prompted a positive change in the community's daily habits, encouraging a more mindful and responsible use of water in day-to-day lives compared to previous practices.

Have you encountered any difficulties while using the knowledge gained from the awareness session about access of clean water or health?



The community adopted user-friendly methods that pose minimal challenges for them. The key lies in fostering awareness not only among the youth but extending it to community leaders and elders as well. By engaging individuals of all ages and roles, from youths to experienced community leaders, the team creates a shared responsibility for water conservation.

What suggestions or ideas do you have for improving the awareness session about access of clean water on health?



The community requested regular sessions to enhance awareness about water's significance and promote its efficient use. These sessions play a crucial role in ensuring that everyone comprehends the vital importance of water in lives. By conducting these sessions frequently, the community will have a sense of responsibility and mindfulness regarding water usage.

8. LEVEL 4 DEVELOPING INNOVATIVE SOLUTIONS II

Similar to Level 3, during this stage, each Climate Adaptation Champion is tasked with developing 3 innovative solutions tailored to the specific needs identified in their former stages. The focus of the solutions should be creative and feasible within the limited budget of \$100. This step marks a critical transition from understanding the problem to formulating practical and innovative solutions that fit the details of the surveyed environment. Each solution requires a detailed description, procedure, scale, necessary items, and a clear understanding of its impact on communities.

The purpose is for champions to develop comprehensive, effective and feasible responses to identified issues at a budget of \$100.

The objectives are

1. To identify 3 innovative solutions by referring the data and problem statement gathered from the former stages, and
2. To prototype 1 solution and monitor its status, conducting a thorough analysis of the pros and cons of the prototyped solution.

Just as in Level 3, after implementing the prototyped solutions, 4 champions conducted **community feedback sessions** in their respective communities. These sessions followed a framework developed by Doh Eain and were conducted in the format that the champions deemed most effective, whether it be through Focus Group Discussions or One-on-One interviews. The framework included key components such as impact assessment, discussions on challenges and suggestions, and outlining future plans.

8.1. INNOVATIVE SOLUTIONS DEVELOPED BY SEER

Social Empowerment with Ethical Responsibility (SEER) developed 3 innovative solutions in Dagon Myothit Seikkan. The focused burning issue in the community is flooding, therefore, the three developed solutions are (1) Street Improvement, (2) Replacement of the drainage pipe, (3) Demonstration and discussion.

| SOLUTION 1 | STREET IMPROVEMENT |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Neighborhood level |
| Description | Raising the height of the street by laying sandbags, contributing to convenient transportation despite the flood and protection from injuries to children and elders |
| Procedure | Listen to the voices of community leader and members, Choose the most needed street and calculate measures, Order materials like sand and cement bags, Implement the street improvement with the help of community leader and members |
| Items needed | Sand, Cement bags |
| Impact | Avoiding danger when traveling amidst flood (1-5 years) |
| SOLUTION 2 | REPLACEMENT OF THE DRAINAGE PIPE |
| Type | Social base |
| Scale | Neighbourhood level |
| Description | By replacing the drainage pipe with a stronger one, damages of the overpass pipe will be reduced, water flow will be improved, and waterlogging in the neighborhood will be lessened. |
| Procedure | Discuss with the community leader and members, Choose the place in which the pipe will be replaced, Replace the pipe with the help of the community leader and members |
| Items needed | Cement pipe (2ft x 12 ft) |
| Impact | Improving water flow in the neighborhood (5-10 years) |



Photos taken by Sharing Myanmar during activities from prototyping solution

8.2.1. COMMUNITY FEEDBACK AFTER PROTOTYPE SOLUTION

The community feedback gathered by Sharing Myanmar after implementing the prototype solutions, Making Greenland to Nature and Water Filter Pot Distribution, provided valuable insights.

How did the implemented activity help solve water scarcity problem at your household or neighborhood?



The water filter pots donation has greatly benefited daily life. Before, the residents had to use dark-colored lake water during the hot season, but now the filter pots make it easy to access clean and good-tasting water. No longer need to buy water, and maintaining the pots is simple. Although only 2 houses received water filter pots, they hope for distribution to all houses, especially during flooding when buying water is challenging. Additionally, the community was educated on growing plants, improving water quality and reducing the lake's smell. They recognize the positive impact of growing seaweeds in the lake on water and air quality, even if the climate benefits are not fully understood.

What challenges do you face while utilizing the implemented activity?



The community appreciates the water filter pots for their convenience. Growing plants by the lake is enjoyable, although flooding poses a challenge. Unfortunately, water rising to thigh level for around 20 days leads to plant loss, which is disheartening. Despite these challenges, the desire remains to continue growing plants together with the group. The main obstacle encountered is the natural occurrence of floods, which, though unavoidable, doesn't deter the ongoing activity.

How benefited is this climate adaptation activity?



The activity is highly beneficial. The efforts, such as improving access to drinking water and planting, are positive. While the current planting at the lake seems minimal in impact, there is a collective belief that its positive effects will become more pronounced in the future.

What suggestions do you have for the implemented activity?



Respondents highlighted that it's beneficial to receive support for unfamiliar tasks. Maintenance involves preventing filter pots from breaking, cleaning them when dirty, ensuring they're not lost, and communicating with lake fishermen to preserve plants grown there. The care and protection of these elements are crucial for current and future usage.

8.3. INNOVATIVE SOLUTIONS DEVELOPED BY YOUNG CHANGEMAKERS COMMUNITY

The Young Changemakers Community (YCC) developed 3 innovative solutions to address the burning issue of water scarcity in North Okkalapa. The proposed solutions are: (1) street improvement; (2) supporting water storage buckets; and (3) awareness raising related to water.

| SOLUTION 1 | STREET IMPROVEMENT |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Technical base |
| Scale | Neighbourhood level |
| Description | Engaging with community members to enhance the infrastructure of local streets to facilitate easier water transportation |
| Procedure | Monitor the street's condition that community members use to carry water, Buy what is needed for improvements, Improve street with assistance from community leader and members |
| Items needed | Sand, Stones, Setup equipments |
| Impact | Making water transportation easier (1-5 years) |

| SOLUTION 2 | SUPPORTING WATER STORAGE BUCKETS |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Household level |
| Description | Providing plastic buckets for households in the neighborhood for water storage |
| Procedure | Select buckets, Note down the most needed households, Distribute buckets |
| Items needed | Buckets |
| Impact | Making water storage better (1-5 years) |
| SOLUTION 3 | AWARENESS RAISING RELATED TO WATER |
| Type | Social base |
| Scale | Neighborhood level |
| Description | Sharing water related knowledge, including health perspectives, among 12-18 aged people, in the community |
| Procedure | Assess community's level of knowledge, Prepare curriculum, Select venue, Call for participants, Conduct the session, Do post-assessment |
| Items needed | Curriculum, Learning materials, Venue, Incentive like rice |
| Impact | Raising water related awareness and promoting value on water among young people (10+ years) |

Out of the above, the selected solution by Young Changemakers Community for prototyping is (2) Supporting water storage buckets. The decision is driven by the goal of aiding underprivileged families in areas lacking resources for clean water.



Photos taken during activities

Improving the donation program, like the 11-gallon bucket donation, involves enhancing the plastic quality for better durability. Additionally, increasing the number of donated buckets is crucial, as there is widespread demand among all households.

How do you envision the continued use of the donated 11-gallon-buckets?



Envisioning the continued use of the donated 11-gallon buckets involves their disciplined use. These buckets will serve various purposes, such as efficient storage, transport, and organization. Ensuring that they are consistently utilized in a disciplined manner contributes to their long-term functionality.

8.4. INNOVATIVE SOLUTIONS DEVELOPED BY ZERO WASTE COMMUNITY MYANMAR

Zero Waste Community Myanmar developed 3 innovative solutions to address the burning issue of flooding/livelihood issues in Pote Thin Nyo village. The proposed solutions are (1) Upgrading a dug water well with concrete rings, (2) Waterproof Tarpaulin Fabric, and (3) Emergency bag.

| SOLUTION 1 | UPGRADING A DUG WATER WELL WITH CONCRETE RINGS |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Neighbourhood level |
| Description | The villagers rely on dug water wells for drinking. However, during rainfall, the water gets polluted when it is raining and overflows into the well. Therefore, this solution will be upgrading the dug water well with concrete rings to prevent pollution. |
| Procedure | Discuss with community leader and members, Select location, Buy materials and get everything ready, Enhance well with concrete rings |
| Items needed | Concrete Rings, Sand, Cements, Bricks |
| Impact | Enhancing the quality of water (5-10 years) |

| SOLUTION 2 | WATERPROOF TARPAULIN FABRIC |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | Social base |
| Scale | Household level |
| Description | During the previous Focus Group Discussions (FGDs), residents expressed their desire for some form of shelter for their houses. They mentioned financial constraints preventing them from purchasing such items due to livelihood challenges. As a response, this solution plans to distribute tarpaulin fabric to low-income households to utilize as shelter. |
| Procedure | Discuss with community leader and members, Select needed households, Conduct shopping for tarpaulin fabric, Distribute the tarpaulin fabric to selected households |
| Items needed | Tarpaulin fabric |
| Impact | Empowering individuals with tarpaulin fabric to customize and utilize according to their needs (1-5 years) |
| SOLUTION 3 | EMERGENCY BAG |
| Type | Technical base |
| Scale | Household level |
| Description | Emergency preparedness is crucial. One of the most basic ways residents can be ready for local disasters is by having emergency supply kits filled with certain essential items. |
| Procedure | Discuss with community leader and members, Do shopping, Select needed families, Make bags, Distribute bags to the selected families |
| Items needed | A bag, Plastic fabric, flashlight with extra batteries, Hand sanitizer, Water filter, Cup, Spoons and bowl Whistle, File for documents, Blanket, Comb, Mirror, Match, Bandages, Plaster, Emergency Contact Numbers, Candle, and Solo Tape |
| Impact | Creating safe and secure community in times of emergency (1-5 years) |

Out of the above, the selected solution by Zero Waste Community Myanmar for prototyping is (1) upgrading a dug water well with concrete rings. The decision is based on the crucial role the well plays as a drinking source for people residing near the well and from different areas.



Photos taken by Zero Waste Community Myanmar during activities from prototyping solution

9. LEVEL 5 BRAINSTORMING SOLUTIONS COLLABORATIVELY

Conducted in person at Doh Eain's apartment, this session aimed to foster collaboration among climate adaptation champions, generating a multitude of solutions to address climate challenges within informal settlements. The session occurred twice, each time featuring two champions with different focus on climate issues, with the purpose of incorporating diverse perspectives and third-party viewpoints in the solution-generation process. Activities included presenting insights from previous research phases, collectively reviewing them, and engaging in a collaborative brainstorming session, where champions actively contributed ideas and solutions, not only for their own focus on climate issues, but also for their peers. A total of 24 solutions were generated during the sessions.

9.1. TWENTY-FOUR CLIMATE ADAPTATION SOLUTIONS GENERATED BY FOUR CLIMATE ADAPTATION CHAMPIONS AND DOH EAIN

Issues: Water Scarcity (WS)
Flooding (F)
Flooding and Livelihood (F & L)

| NO. | SOLUTION-TITLE | PURPOSE | DESCRIPTION | PROCEDURE (STEP BY STEP) | ITEMS NEEDED | ESTIMATED BUDGET, DURATION, AND IMPACT | SOLUTION SCALE AND TYPE |
|-----|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------|-------------------------------------------------------|
| 1 | Flood-Free House Entrances (F) | To make daily travel convenient and protect children and elders from slips and injuries caused by flooding at house entrances. | Flooding in the neighborhood erupts daily travel and poses risks to the safety of children and elders living in houses. Water accumulates at house entrances, creating hazards. To address this issue, sandbags will be placed at the house entrances to keep them flood-free and safe. | Order sandbags. Lay sandbags at the house entrances with the help of community members. | Sand, bags | \$50.00 1-3 days 1-5 years | Household Level Social base |
| 2 | Distributing Informative Pamphlets for Community Awareness (F) | To raise awareness about natural disasters and the negative impacts of garbage disposal in residential areas. | Due to residents' undisciplined garbage disposal and a lack of knowledge about natural disasters, this solution involves creating informative pamphlets. These pamphlets will address the issues of natural disasters and the adverse effects of improper garbage disposal, aiming to raise awareness in the community. | Create an informative pamphlet in discussion with resource persons. Copy and distribute the pamphlets throughout the neighborhood. | Papers, Printing Services | \$50.00 3-5 days 10+ years | Household Level+ Neighborhood Level Social base |

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| 3 | Vermicompost Production (F & L) | To create livelihoods, enhance local food security, and contribute to climate adaptation and mitigation. | This solution aims to initiate a local business that produces vermicompost, providing employment opportunities to local residents. It also offers access to cost-effective and efficient organic compost compared to chemical alternatives. | Conduct a needs assessment to understand the demand. Call for local participation in the vermicomposting initiative. Provide training on vermicomposting techniques, including organic waste and worms. Produce compost following the vermicomposting process. Monitor the vermicomposting process for quality control. Sell and distribute the compost to the community. Collect feedback from users to improve the process. | Compost materials (organic waste and worms) Compost accessories (bins) | \$50.00 2-3 months 10+ years | Neighborhood Level Social base + Technical base + Nature base |
| 4 | Improving Water Source Cleanliness (WS) | To improve access to clean water by ensuring the cleanliness of the water sources in the community. | Clean water access is vital for the community, primarily sourced from the monastery. This solution aims to support water source cleanliness, including Joe Phyu pond, groundwater pond, and the storage ponds. Actions will include inspecting the ponds, cleaning them, chlorinating water, installing filters where possible, and setting up water taps for easy access. | Inspect the cleanliness condition of the ponds and clean them. Chlorinate water to ensure its purity. Install water filters where applicable. Set up water taps for convenient water access. | Chlorine Water filters Water taps Setup tools | \$50.00 3-5 days 1-5 years | Neighborhood Level Social base + Technical base |
| 5 | Distributing Water Filter Pots to Improve Clean Water Access (WS) | To provide clean water and increase opportunities for water access to vulnerable households. | This solution involves distributing water filter pots to households in need, particularly those with pregnant women, children under 5, elders, sick individuals, and those who directly use lake water. | Consult with community leaders and members to identify households in need. Discuss and select households for the distribution of water filter pots. Distribute water filter pots to the chosen households. Explain the benefits of the filter pots and demonstrate their usage. Collect feedback from the recipients. | Water filter pots | \$100.00 1-3 days 1-5 years | Household Level Technical base |

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| 6. | Drainage Pipe Replacement (F) | To enhance water flow in the neighborhood and reduce waterlogging by replacing the drainage pipe with a stronger one. | This solution focuses on replacing the existing drainage pipe with a stronger one to minimize damage, improve water flow, and reduce waterlogging in the neighborhood. | Consult with community leaders and members to identify the location where the drainage pipe needs replacement. Replace the drainage pipe with the assistance of community leaders and members. Collect feedback from the community regarding the improvement. | Cement pipe (2ft x 12 ft) | \$100.00 1-3 days 5-10 years | Neighborhood Level Technical base |
| 7 | Emergency Bags for Disaster Preparedness (F & L) | To provide low-income families with essential emergency supplies to enhance their preparedness during disasters. | Disaster preparedness is crucial, especially for families in vulnerable communities. This solution involves creating emergency bags (Go bags) filled with essential items to help villagers be better prepared for local disasters and emergencies. | Purchase the necessary items for the emergency bags. Assemble the bags. Distribute the bags to low-income families in the village. Collect feedback from the recipients. Monitor and evaluate the effectiveness of the emergency bags. | A bag Plastic fabric Flashlight with extra batteries Hand sanitizer Water filter Cup, spoons, and a bowl Whistle File for documents Blanket Comb Mirror Match Bandages and plaster Emergency contact numbers Candle Solo tape | \$100.00 3-5 days 1-5 years | Household Level Technical base |

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| 8 | Lake Water Filtration (WS) | To address water scarcity, reduce expenses, improve health, reduce waste disposal in the lake, and raise awareness about using lake water. | This solution aims to filter lake water by creating a pond-like space within the lake and using nature-based filters like charcoal, stones, and coconut fibers. | Seek approval from the community leader. Negotiate with households to gain their support. Calculate expenses required for implementation. Select individuals responsible for maintaining the filters. Communicate the purpose, procedure, and tasks to the community. Encourage disciplined waste disposal practices. Collect feedback from community members regarding the benefits. Monitor and evaluate the strengths and weaknesses of the filtration system. | Technical person to set up the filtration system Necessary equipment for filtration | \$500-\$1,000 1 Month 5-10 years | Neighborhood Level Social base + Technical base + Nature base |
| 9 | Rainwater Harvesting in the Lake (WS) | To reuse the lake, obtain clean water, reduce undisciplined waste disposal into the lake, and prevent the construction of toilets near the lake. | This solution involves the construction of a plastic pond within the lake for rainwater harvesting, aiming to make efficient use of rainwater resources to address water scarcity issues. | Seek approval from the community leader. Negotiate with households to gain their support. Calculate expenses required for implementation. Select individuals responsible for maintaining the setup. Communicate the purpose, procedure, and tasks to the community. Encourage disciplined waste disposal practices. Collect feedback from community members regarding the benefits. Monitor and evaluate the strengths and weaknesses of the rainwater harvesting setup. | Technical person to set up the rainwater harvesting system Necessary equipment for rainwater harvesting | \$100-\$500 1 Month 1-5 years | Neighborhood level Technical base + Nature base |

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| 10 | Lake Water Quality Testing (WS) | To implement further steps based on the test results of the lake water quality and help households obtain clean water. | This solution involves testing the water quality of the lotus lake near the monastery and the lake near the slum. The objective is to gather data on water quality for these lakes, which will serve as the initial stage for implementing further actions to ensure clean and safe water for households using lake water. | Test the lake water quality at a laboratory. The testing of water quality is the initial stage. Based on the test results, plan and implement further steps to address water quality issues. | Laboratory services for water quality testing | \$50.00 2 Week 1-5 years | Neighborhood Level Technical base |
| 11 | Rainwater Harvesting on the Land (WS) | To help solve the water scarcity problem, reduce undisciplined waste disposal by using lake water, prevent the construction of toilets near the lake, reduce water expenses, and improve health. | This solution involves the construction of a rainwater harvesting pond with a plastic or tarpaulin liner on available land within the community, aiming to harvest rainwater efficiently, addressing water scarcity issues, and promoting responsible water use. | Seek approval from the community leader. Identify suitable land for constructing the rainwater harvesting pond. Negotiate with households to gain their support. Calculate expenses needed for implementation. Select individuals responsible for maintaining the plastic pond. Communicate the purpose, procedures, and tasks to the community. Collect feedback from community members regarding the benefits. Monitor and evaluate the strengths and weaknesses of the rainwater harvesting pond. | Technical person to set up the rainwater harvesting system Quality water-proof materials such as felts or plastics Tarpaulin Wood and bamboo for construction Necessary equipment and labor fees | \$1,000.00 1 Month 1-5 years | Neighborhood Level Technical base + Nature base |

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| 12 | Tube Water Well (WS) | To provide access to clean water, reduce water expenses, and improve health for households facing challenges in accessing clean water. | This solution involves the construction of a tube water well within the neighborhood, providing a sustainable source of clean water. | Seek approval from the community leader. Seek approval from the City Development Committee. Identify suitable land for digging the tube water well. Consider the possibility of purchasing land, if no one is willing to donate. Calculate expenses required for implementation. Develop a long-term plan for the use of underground water. Discuss the maintenance procedures with households. Set up the tube water well with the assistance of professionals. Assign tasks among group members for efficient execution. | Land for the tube water well Technical person to set up the tube well Bricks, sand, and stones for construction | \$1,500.00 1 month 10+ years | Neighborhood Level Technical base+ Nature base |
| 13 | Safe Housing and Rainwater Harvesting (WS) | To enable safe living conditions amidst climate change adaptation and promote the use of rainwater. | This solution involves the collective effort of fixing roofs and wall covers of damaged houses to ensure safe living conditions for the affected households. Additionally, rainwater tanks will be set up to store rainwater for use. | Negotiate with households to identify those in need. Calculate the expenses required for the repairs and rainwater tank installation. Discuss maintenance procedures with households to ensure long-term sustainability. Communicate the purpose, procedures, and tasks to all involved. Collect feedback from the community. | Roofs and wall covers for repairs Labor fees for construction Gutters for rainwater collection Tanks for rainwater storage | \$500-\$1,000 3 weeks 1-5 years | Household level Social base+ Technical base |

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| 14 | Public Rainwater Harvesting Tank (WS) | To use rainwater as a solution in adapting to changing climate, improve health by using clean water, promote personal hygiene within the family, value rainwater as a natural gift, and foster interest in household planting. | This solution involves setting up a public rainwater tank in the neighborhood to store rainwater. This harvested rainwater will be distributed to households, improving their access to clean water. Additionally, plants will be grown near the tank. | Seek approval from the community leader. Find suitable land for the public rainwater tank and negotiate with the community. Calculate expenses for the plan. Set up the tank with the help of professionals. Communicate the purpose and maintenance procedures with households. Assign responsibilities for maintaining the rainwater tank. Grow plants near the tank. | Professional to set up the tank, Gutters, Tank, Pipes, Filters, Necessary set-up equipment, Preparations to grow plants near the tank | \$500-\$1,000 2 Weeks 5-10 years | Neighborhood level Technical base+ Nature base |
| 15 | House Cleanup and Land Filling (F) | To showcase the benefits of self-led actions and encourage community members to address water logging problems under their houses. | This solution aims to encourage community members to clean up garbage under their houses and take self-led actions to solve water logging problems. Houses that participate and clean up will receive support to fill the land under their houses with sand or bricks. Additionally, a fence will be erected around these houses to prevent the overflow of garbage during floods. | Inform households about the initiative to address water logging problems and the rules to be followed. Provide support (sand bags, bricks, poles) to fill land under the houses of those who clean up garbage. Erect fences around houses to prevent the overflow of garbage during floods for participating households. | Sand bags Bricks Poles for fencing | Over \$1,000 1 month 5-10 years | Household level Social base |
| 16 | Earning Through Recycling (F) | To raise awareness about waste recycling, create economic opportunities, and promote the value of recycling. | This solution focuses on guiding families in the neighborhood, especially those who do not attend school, to recycle collected garbage and produce sellable products. Training will be provided by a professional, like on making brooms from water bottles and creating mats and baskets using coffee bags. Necessary equipment for production will be supplied, and connections with the local market will be established to facilitate access to raw materials. | Call for interested individuals, especially those not attending school. Provide professional training. Supply necessary equipment for production. Establish connections with the local market and suggest ways to obtain raw materials. | Trainer, Production equipments | Over \$1,000 3 months 10+ years | Household level Technical base |

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| 17 | Growing Flood-Resistant Plants along the Hill (F & L) | To reduce flooding and support income generation by planting flood-resistant plants that can be sold for profit. | This solution involves planting flood-resistant plants along the hill slope in coordination with the local community. The selection of suitable plants and planting locations will be determined through discussions with community members. These plants are not only resilient to flooding but can also be sold, providing an additional source of income for the community. | Engage in discussions with the community to select appropriate flood-resistant plants and planting locations. Purchase the selected plants. Plant the chosen flood-resistant plants at the designated locations. Monitor the growth and conditions of the plants. | Seeds, Plants, Gardening equipments | 10+ years 1-2 weeks 5-10 years | Neighborhood level Nature base + Social base |
| 18 | Early Warning System (F & L) | To provide the community with up-to-date information and preparedness when disasters strike by setting up an early warning system. | This solution involves the establishment of an early warning system in the community. The early warning system will include training sessions, the creation of a dedicated committee, and the provision of radios to ensure that community members receive timely information and are well-prepared when disasters, such as floods, occur. | Engage in discussions with the community and resource persons to plan the setup of the early warning system. Set up the early warning system, including: Providing training to community members. Creating a dedicated committee responsible for disseminating warnings. Distributing radios to the committee. Provide necessary support to ensure the effective operation of the early warning system. | Radios Necessary materials for training and communication | \$500-\$1,000 1 week 5-10 years | Neighborhood level Social base + Technical base |
| 19 | Mobile Clinic (F & L) | To provide the community with easy access to medical treatment in times of emergency through the establishment of a mobile clinic. | This solution involves the creation of a mobile clinic within the community. First aid training will be provided to interested community members, and they will be equipped with necessary materials such as first aid kits and bicycles. This mobile clinic will serve as a crucial resource for providing medical assistance in emergency situations. | Call for interested community members who are willing to participate in the mobile clinic initiative. Find a qualified trainer to provide first aid training. Conduct the first aid training sessions. Purchase the necessary materials, including first aid kits and bicycles. Provide support to the committed community members who will be part of the mobile clinic. | Trainer, First aid kit, Bicycle | \$100-\$500 1-2 months 5-10 years | Neighborhood level Social base+ Technical base |

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| 20 | Local Business Initiation (F & L) | To support the livelihood of community members by providing training and necessary support to initiate a local bamboo business. | This solution involves training community members to produce goods like brooms and sticks from bamboo. Necessary support, such as providing equipment and connecting with the local market, will be offered to help establish and sustain the local bamboo business. | Call for interested households in the community who are willing to participate in the local bamboo business initiative. Provide training to community members on the production of bamboo-based goods. Establish connections with the local market for selling the products. | Raw materials | Over \$1,000 2 months 5-10 years | Household level + Neighborhood level Technical base + Nature base |
| 21 | Stone Water Tank Construction (WS) | To ensure sufficient water access and save energy for water transportation by constructing a stone water storage tank for water sourced from a tube well. | This solution involves the construction of a stone water storage tank in the community. The tank will be used to store water from a tube well, ensuring a reliable and convenient water source for the residents. | Discuss the plan with the community leader and members to gain their input and support. Identify a suitable location for building the stone water storage tank. Purchase the necessary materials required for constructing the tank. Build the stone water storage tank at the chosen location. Assign local individuals to take responsibility for the maintenance and sustainability of the tank. | Stone tank, Pipes | \$100-\$500 2 weeks 10+ years | Neighborhood level Technical base |

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| 22 | Water Awareness (WS) | To raise awareness about water-related issues and promote responsible water usage by conducting an awareness-raising session and displaying informative posters in areas where people frequently gather. | Awareness-raising sessions will be organized to educate residents about the importance of water conservation and responsible usage. Additionally, informative posters will be displayed in community gathering areas to reinforce the key messages. | Research and gather relevant information to be included in the awareness-raising session and posters. Create engaging and informative posters and develop a curriculum for the awareness session. Identify a suitable venue for conducting the awareness session and select locations for displaying the posters. Conduct the awareness-raising session, ensuring active participation from community members. Display the posters in the chosen community gathering places. | Posters, Content, Trainer, Venue | \$100-\$500 1 month 1-5 years | Neighborhood level Social base |
| 23 | Growing Flood-Resistant Plants Along the Stream Bank (F) | To mitigate flooding and support community livelihoods by planting flood-resistant plants, such as sugarcane, along stream banks. | This solution involves planting flood-resistant plants in areas prone to flooding. The chosen plants, like sugarcane, not only help reduce the risk of flooding but also serve as a source of income for the community when harvested and sold. | Select flood-resistant plant species suitable for the local environment. Identify and secure suitable locations along stream banks or flood-prone areas for planting. Plant the selected flood-resistant plants in the designated areas. Continuously monitor the growth and conditions of the planted plants. | Flood-resistant plants, Planting materials and equipment | \$100-\$500 2 weeks 5-10 years | Neighborhood level Nature base+ Social base |
| 24 | Flood Measurement Infrastructure (F) | To measure and monitor water levels in the stream to enhance preparedness and response to rising floodwaters. | This solution involves setting up a water level measurement meter in the stream. By measuring water levels regularly, the community can better prepare for and respond to rising floodwaters, reducing the impact of floods on their living conditions. | Identify an appropriate location along the stream for setting up the water level measurement meter. Purchase the necessary materials and equipment for setting up the meter. Install the water level measurement meter at the chosen location. | Water level measurement meter Materials and equipment for installation | \$500-\$1,000 2 weeks 10+ years | Neighborhood level Technical base |

This collaborative session facilitated a comprehensive exploration of potential solutions, drawing upon the wealth of information gathered through prior research. Diverse perspectives within the Climate Adaptation Champions contributed to the formulation of well-informed and innovative solutions as written above, all of which are detailed in the solution toolkit with a tailored version for each.

Photos Taken During Sessions

During the 1st session, attendees included Social Empowerment with Ethical Responsibility (SEER), Sharing Myanmar, and the Doh Eain project team. Below are the accompanying photos:



During the 2nd session, attendees included Young Changemakers Community, Zero Waste Community Myanmar, and the Doh Eain project team. Below are the accompanying photo:



10. DEVELOPING FINAL PROTOTYPING SOLUTION

During this stage, each Climate Adaptation Champion is tasked with developing a singular, innovative solution tailored to the specific needs identified in their former stages within the limited budget of \$850, following the established format as usual, which includes a detailed description, procedure, scale, necessary items, and a clear understanding of its impact on communities. Diverging from the approach in levels 3 and 4, the emphasis on this level is on developing a single, high-impact solution that serves as a culmination of the iterative process.

The purpose is for champions to develop a comprehensive, effective and feasible response to identified issues at a budget of \$850.

The objective are

1. To identify a single, high impact solution by referring the data and problem statement gathered from the former stages, and
2. To prototype the identified and monitor its status, conducting a thorough analysis of the pros and cons of the prototyped solution.

Likewise in Level 3 and 4, after implementing the prototyped solutions, 4 champions conducted **community feedback sessions** in their respective communities. These sessions followed a framework developed by Doh Eain and were conducted in the format that the champions deemed most effective, whether it be through Focus Group Discussions or One-on-One interviews. The framework included key components such as impact assessment, discussions on challenges and suggestions, and outlining future plans.

10.1. FINAL PROTOTYPING SOLUTION DEVELOPED BY SEER

Considering the effects of waste dumping and improper waste management on informal settlement communities and flooding, Social Empowerment with Ethical Responsibility (SEER) developed the final solution to address the burning issue of flooding in Dagon Myothit (Seikkan) as below;

| Final Solution Title | Reducing flooding through garbage purchase, drainage improvement, and street enhancement |
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| Type | Social base + Technical base |
| Solution scale | Household level + Neighborhood level |
| Description | The neighborhood faces pollution, poor water flow, and environmental damage due to undisciplined garbage disposal and waterlogging under houses. To address these issues, this solution involves garbage collection through financial incentive and disposal, along with drainage improvement and street enhancement. |
| Procedure | <ul style="list-style-type: none"> • Host a meeting and establish a committee for implementation. • Announce information about activities within the ward. • Set locations for distributing bags to those willing to participate in the garbage purchase activity. • Define the purchasing schedule and price. • Provide instructions on disciplined garbage disposal and designated disposal locations. • Identify needed locations regarding drainage, buy necessary items, and install water outlet pipes. • Identify damaged streets, buy sand and sandbags, and lay them on damaged street floors. • Assign households to monitor and discourage undisciplined garbage disposal in the neighborhood. • Aim for long-term collaboration by connecting the committee with potential partners for cleanups and awareness sessions. |
| Items needed | Cart Rental, Bags, Funds for Garbage Purchase Activity, Water outlet pipes, Sand & Sandbags, Setup equipments |
| Impact | Promoting neighborhood cleanliness, improving water flow, and enhancing travels (1- 5 years) |

Numerous challenges arose during the process, particularly with people disputing ownership of the trash for incentive. However, collaborative efforts among the community leaders and members resolved this issue. Collecting trash proved to be physically demanding, and the polluted water caused discomfort. Conducting these activities during the rainy season added complexity, as the participating households had to contend with the rain and concerns about potential illnesses. Overcoming the habit of easily disposing of trash posed another significant challenge.

What would you suggest for future activities? (regarding climate adaptation)



The resident's suggestion is to expand the street and replace the current sand-paved surface with brick. Additionally, there is a strong desire for roofing to cover houses. Given more opportunities, extending similar paving to additional streets is favored.

Tell us what is needed in your neighborhood to adapt to the changing climate? (at least one)



Enhanced collaboration is essential. Street repairs were frequent in the past, but the quality has significantly improved because the right technique and financial resources ensure satisfactory outcomes. Improving water flow is crucial. When constructing houses, prioritizing distance from drainage is vital. Adapting to climate change requires strategies to prevent worsening current conditions.



Photos taken by SEER during Community Feedback Session

10.2. FINAL PROTOTYPING SOLUTION BY SHARING MYANMAR

Considering the need of immediate action to address access to clean water, Sharing Myanmar developed the final solution to address the burning issue of water scarcity in Dagon Myothit (East) as below;

| Final Solution Title | From Clean Water to Healthy Days - Water Filtration and Floating Garden |
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| Type | Technical base + Nature base |
| Scale | Household level + Neighborhood level |
| Description | This solution aims to tackle water scarcity in households by implementing a prototype to filter lake water using nature-based filter tanks, i.e., biosand filter and pre-filter. Additionally, it involves creating a floating garden in the lake with recycled materials. |
| Procedure | <ul style="list-style-type: none"> Gain approval from the community leader. Negotiate household participation. Calculate filter tank and floating garden costs. Communicate purpose and procedures to all. Collaboratively agree on maintenance. Test the lake water quality. Set up filter tanks. Conduct awareness sessions on clean water and filter tanks. Setup floating garden. Monitor the impact |
| Items needed | Technical person for filter tank setup, Necessary setup items for filter tanks, Lake water quality test, Items needed for floating gardens (plants, tires, bamboo sheets, poles, disposed plastic cups, and baskets), Compost soil |
| Impact | Reducing water expenses, improving health, and providing food source (5-10 years) |

11. RECOMMENDATIONS AND WAY FORWARD

Following a comprehensive series of in-depth assessments and prototype solution implementations, some key learnings have emerged. These include limited awareness, low-income status, infrastructure gaps, and a need for further support. Many communities are not fully aware of the challenges posed by climate change and the resulting consequences, hindering effective adaptation. Furthermore, informal settlement areas, home to low-income communities, face heightened difficulties in addressing climate issues due to economic constraints. In addition, the absence of proper infrastructure and support exacerbates their vulnerability to climate impacts. Despite the introduction of prototype solutions, these communities express a persistent need for ongoing support, emphasizing the importance of collaborative efforts to address their vulnerabilities.

Recommendations

Given the issues of water scarcity and flooding, it is important to go beyond mere recognition and extend efforts to address a wider spectrum of climate issues affecting these vulnerable communities, where comprehensive strategies involving community assessments, active community participation, and the prototyping of solutions are vital.

To address income challenges faced by communities, it is recommended to establish and support economic empowerment programs, providing residents with the tools and resources needed to enhance their financial resilience in the face of climate-related impacts.

Prioritizing the development of infrastructure within informal settlements, encompassing housing conditions, streets, and water facilities, is essential. This investment is crucial for bolstering overall climate resilience and ensuring that communities are better equipped to withstand the adverse effects of changing environmental conditions.

Implementing awareness campaigns in informal settlement areas is imperative to educate residents about the challenges and consequences of climate change, fostering informed decision-making and community engagement.

Way forward

The next step to move forward after this action research is to convince local governments, NGOs, and community leaders to work together to actually put the suggested strategies into action.

In order to move beyond recognition and create comprehensive strategies, task groups must first be created that include community members in the decision-making process. At the same time, economic empowerment programs need to work together with key stakeholders, including local businesses and financial institutions, in order to be properly brought up and maintained. For infrastructure development in informal settlements to happen, the government and urban planners need to work together. Prioritizing projects, such as making living conditions better, will help the community as a whole become more resilient. Finally, awareness efforts can't work without the help of local teachers, community leaders, and communication experts. Utilizing various channels, these efforts should engage residents, encouraging them to share information and actively participate.

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