Konservasi
Alam Nusantara
Untuk Indonesia Lestari

R.A.S.A.

Rancang Aksi Sosial dan Alam

(Designing Social and Environmental Actions)

BEHAVIOURAL INTERVENTIONS HANDBOOK

FOR CLIMATE ADAPTATION
IN SMALL ISLANDS

Muhammad Ilman
Director, Indonesia Ocean Program
Yayasan Konservasi Alam Nusantara

Every shifting coastline, failed harvest, or drying well tells a human story of adaptation. As the impacts of climate change accelerate across Indonesia's vulnerable coasts and islands, our response must reach beyond infrastructure and policy. It must reach into behavior, belief, and the deep-seated bonds that shape how communities live with their changing environment.

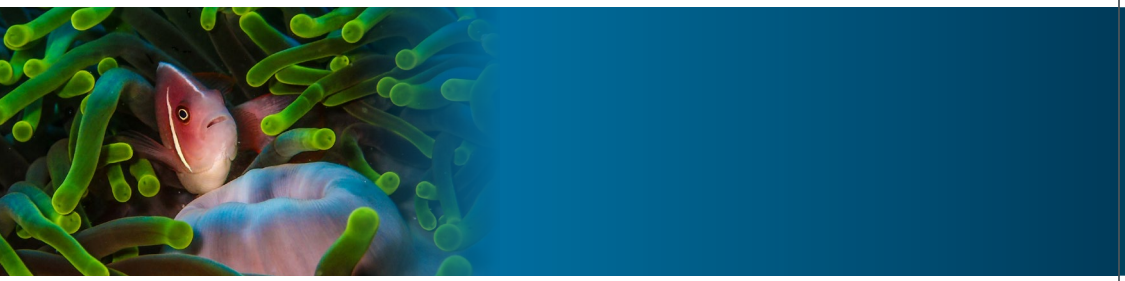
This guideline was born from that realization. Developed through immersive fieldwork in Wakatobi and Sabu—two island communities on the frontlines of climate change—it combines rigorous behavioral science with lived community experiences.

We did not just observe; we listened and co-learn. We asked not only what people do, but why they do it. What truly motivates change, what reinforces resilience, and what stands in the way.

The result is not a one-size-fits-all solution. Instead, this is a practical guide for implementers, NGOs, researchers, and policymakers seeking to build from within—drawing on cultural values, social norms, and local insights to design more effective and lasting climate adaptation strategies.

At Yayasan Konservasi Alam Nusantara (YKAN), we believe that resilience grows stronger when it is rooted in the identity of the people it serves. That is why we approach adaptation not simply as a matter of protecting nature, but as a process of empowering communities to thrive with nature. This guideline aligns with that mission—bridging science and society, tradition and innovation, global frameworks and local wisdom.

We invite you to use this book not just as a manual, but as an invitation: to think differently, to act collaboratively, and to adapt in ways that honor the people and places we serve. May it inspire new approaches, thoughtful reflection, and most importantly—adaptive actions that endure.



Lead researcher – handbook writer: Yulia Sugandi

Research Team Members:
- YKAN: Mariski Nirwan, I Gusti Ngurah Paulus Widya, Isnaini V. Uswanas, Ilfianti, Melan Rihi Pake, La Ode Arifudin, Herman K
- Sabu Raijua: Mario Arnesto, Nguru Kolo, Yohanis Darius Subang, Yeheskiel H. Kawongko, Noland Nggadi
- Wakatobi: Nurmayanti, Yeniwati, Dita Septiani, Kamal, Masrika, Edi Harto, Kunuddin, Malik

We sincerely appreciate the YKAN field staff in Wakatobi and Sabu Raijua, as well as the individuals who took part in the P-FGDs and in-depth interviews. We are especially thankful to the community members who generously welcomed the immersion team into their homes to share their heartfelt stories and experiences.

Designer: Adhitya Dharma, Denny Kosasih
Translator: Jaya Translasi

01 Introduction

Purpose & Use of Handbook

This guide aims to strengthen the resilience of coastal communities residing on small islands through the development of behavioral interventions tailored for climate adaptation.

This guide is intended for NGOs, researchers, and stakeholders who wish to develop bottom-up program designs rooted in the emic (insider) perspectives and experiences of impacted communities, utilizing a Behavioral Insights framework as a basis for evidence-driven decision-making.

How to Utilize the Handbook

This handbook for behavioral interventions is mainly focused on climate adaptation and incorporates "FENCED," a pragmatic approach to tackling complex issues **through systems thinking**. Therefore, this guide functions not merely as a technical handbook (how to), but also as a resource for individual and group learning that promotes thoughtful reflection.

The handbook is employed collaboratively to create **integrated knowledge**.

Assemble a transdisciplinary team that includes a research lead with expertise in **ethnography** and/or **immersion research** humanistic approaches, and participatory action research, along with a group of facilitators and researchers who have a gender-balanced makeup and are primarily part of **the local island community**.

This guide features examples derived from reflexive & immersion notes gathered by the team during the Behavioral Insights study for climate adaptation in Sabu Raijua, NTT & Wakatobi, Southeast Sulawesi. At each phase, **reflective notes** are included as prompting questions to enhance thinking, methodologies, and practices.

The handbook comes with an **associated toolbox** that features the I-Catch module (see Annex) for assembling the Vulnerability Assessment (VA) that should be conducted prior to using this handbook, as well as an immersion excel form for recording immersive research data (this LINK). Both tools are optional.

The research lead positions themselves as a **mentor and collaborator** who organizes briefings prior to fieldwork, interprets data, conducts analysis through Behavioral Insights lens, and ensures narrative consistency.

Handbook User Journey

Vulnerability Assessment
prior to using this handbook

Sensing the System
Analyzing the VA report through an anthropogenic lens

Analysis
Identify the levers of behavioral systems

Fieldwork
Contextual System Mapping Via P-FGDs, immersion & depth Interviews

Prototyping
Behavioral Intervention through art & creativity

Essential components of this handbook: Behavioral Insights, Ethnography, Immersion, Systems Thinking, Reflexivity

What ethnographic research is

- Spectrum from hypothesis-free, exploratory research, targeted requirements, to inform the design of a service
- Investigates worldviews, socio-cultural structures and the practices that shape behaviors. It's not just finding out what people think, listening to what they say or watching what they do
- A commitment to being there with people in their worlds

What ethnographic research produces

- Ethnography is not just descriptive fieldwork. It's not the story that matters for policymaking. The value is in what makes the story make sense.
- An analysis of a social world within which people exist within and have relationships with others including organizations, governments and places.

Using ethnography for designing interventions

- The value of ethnographic research is how it creates (re)framings of a social world and helps an organization understand what it exists for.
- The opportunity is for government to address the complexity of society by understanding people better in the context of their lives, and then changing the focus of policy responses, especially when things are changing.

Policy Lab (2015), Ethnography in policymaking: Barriers and opportunities
https://openpolicy.blog.gov.uk/2015/03/27/ethnography-in-policymaking/

"FENCED" Six principles for addressing complex challenges systems thinking

Frame the challenge as something that is collectively owned.

Establish a convening group that id diverse & represents multiple perspectives & interests.

Nudge inner and outer work: mindset, beliefs, motivations & values as well as the outwardly appearing components of the system.

Centre an appreciation of complexity: simplistic, linear approaches are unlikely to work; buils in experimentation, rapid learning & adaptation.

Embrace conflict and connection, chaos & order; holding multiple views simultaneously.

Develop innovative solutions that can be tested and scaled; "best practices" may not work in every unique context.

Akanimo, A. & Magner, C., Reos Partners (2024), "FENCED": Practical approaches to addressing complex challenges through systems thinking
https://reospartners.com/blog/systems-thinking-practical-approaches

Reflexivity

A significant reflection from the researcher illustrates the debunking process, wherein immersion fosters humanization and dismantles preconceived notions, as exemplified by the following quote:

"Upon learning that my future residence was bapak's house, I had initial concerns based on previous rumors regarding his conduct. Nonetheless, I proceeded into his home, where my apprehensions dissipated upon receiving a warm welcome and engaging in conversation. Over three days and two nights, my prior judgment of bapak transformed into a recognition of his role as a devoted husband and father, despite evident hardships."

The immersion process fosters intellectual reflection, sparking new ideas, as demonstrated by a member of the research team:

"While classical economics emphasizes profit maximization with minimal investment, my lecturer framed it as 'minimum sacrifice, maximum profit,' which we recognized as efficient resource use. However, witnessing my father's contrasting principles, which prioritize community needs over profit, shifted my perspective. His approach, sharing resources and allowing flexible payments, highlights a socially conscious business model that made me rethink my pride in classical economics."

Examples of individual reflections from the immersion team

The profound cognitive involvement in the research journey also sparked personal introspections that yielded valuable insights, motivating this researcher to minimize bias and summon the bravery to be vulnerable:

"We seek to learn through community guidance and engage in daily routines with the homeowner, advocating for living without a stranger to fully immerse ourselves without preconceived notions; embracing vulnerabiluty has taught me that openness fosters shared insights, enhancing my joy and sense of belonging."

The exploration of contextual changes raises issues regarding ecological changes and sustainable futures, as noted by a researcher emphasizing the erosion of indigenous knowledge in the Eilogo community, which fosters essential questions about safeguarding narratives and cultural practices crucial for environmental care and community identity:

"In coffee and Sopi drinking gatherings, conversations about nature tend to lack interest. If knowledge resides within stories, and those stories are no longer shared, do we possess the time to write? Do we document what is nearly forgotten? Has the culture of writing captured the entirety/portion/ moments of life's narrative along with its underlying philosophy? Have we truly had the time?"

Why Are Behavioral Insights Relevant to Conservation?

The integration of Behavioural Insights in conservation highlights the importance of **humans as key players** within a rights-based context, especially amidst the concerning decline in biodiversity affecting both ecosystems & human rights.

01

02

A human rights-based approach to conservation is deemed **the only ethical & effective method** for protecting Earth's biodiversity.

Implementing a rights-based & human-centred strategy is **imperative in Indonesia**, where Indigenous Peoples & Local Communities (IPLCs) are frequently overlooked in conservation & marginalized.

03

04

IPLCs hold considerable **potential in conservation** efforts in Indonesia, evidenced by examples such as the Tempirai community, Sago hamlet & Baduy community, which protect vital ecosystems & resources.

Involving IPLCs in conservation **transcends mere biodiversity preservation**; it fosters the connection between humanity & the natural environment.

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Behavioral Insights, aligned with broader conservation goals, reveals human behaviors impacting nature, **highlighting the roots causes of biodiversity loss**, especially nature disconnection & dominance issues.

This approach stresses the importance of **equitable social & environmental relationships** to address inequalities in power & wealth & the prevalence of short-term materialism.

07

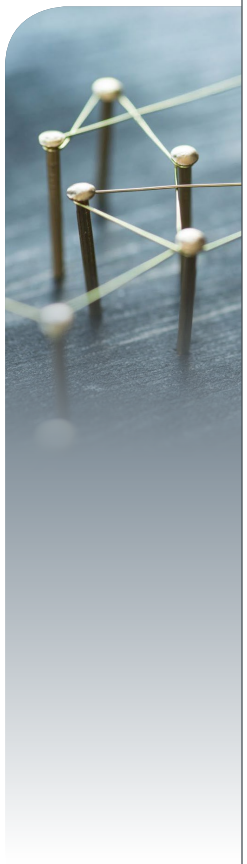
UNEP (2024), Core Human Rights Principles for Private Conservation Organizations and Funders
https://www.unep.org/resources/publication/core-human-rights-principles-private-conservation-organizations-and-funders

IPBES (2024), Thematic Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity
https://doi.org/10.5281/zenodo.11382230

Wiratno (2024), Evolusi Pengelolaan Taman Nasional: Perubahan Paradigma dan Praktik Pengelolaan TN Gunung Leuser, TN Bukit Duabelas, dan TN Lore Lindu, Yayasan Pustaka Obor Indonesia
Adhuri, D.S. et.al. (2025) Merampas Laut, Merampas Hidup Nelayan: Coastal & Marine Grabbing in Indonesia & the Philippines, Palmerah Syndicate
https://drive.google.com/file/d/1PqbRDz-YVU8O4JaPvEzWM9kSMHMhSO3z/view

Behavioral Insights for Transformative Change

- **Identifying system challenges** is crucial for finding solutions, as not all behavioral interventions fit every context. For example, in the Leuser ecosystem, providing farmers with barbed wire for tiger-proof enclosures addressed economic barriers rather than behavioral ones, suggesting collaboration with local governments is key. Conversely, in coastal communities facing structural barriers like marine grabbing, a similarly scaled solution is required.
- **Responses should match the complexity** of the Climate Crisis, using adaptive and systemic strategies for effective solutions, making behavioral interventions essential for driving systemic change. Examining human behavior & political economics is crucial for effective interventions and socio-ecological changes necessary to combat climate change, safeguard biodiversity & promote equity, as outlined in the Kunming–Montreal Protocol Global Biodiversity Framework, which highlights the interconnectedness of individual actions & systemic reforms.
- Behavioral Insights for transformative change underscores the significance of pinpointing critical 'pressure points' that undermine production & consumption systems. This requires designing scalable interventions, early engagement with policy instruments & understanding complex systems. Insufficient insight into stakeholders can lead to intervention failures. Merging behavioral interventions with systems analysis creates **a unified strategy for sustainable change**.



BIT (2022), Do Behavioural Insights work for tigers?
https://www.bi.team/blogs/do-behavioural-insights-work-for-tigers/

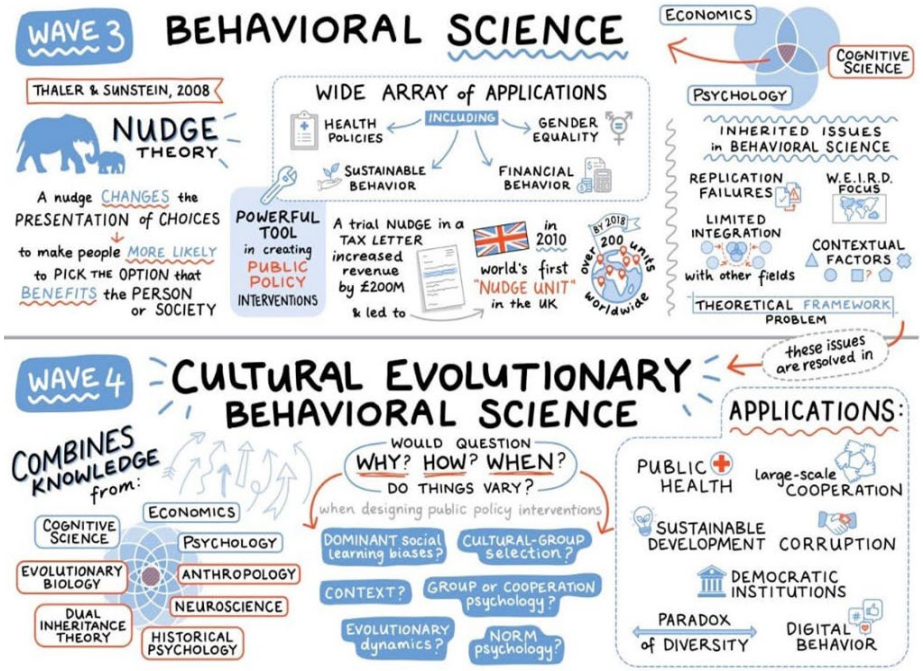
Rare & The Behavioural Insights Team 2019), Behavior Change For Nature: A Behavioral Science Toolkit for Practitioners. Arlington, VA: Rare
https://www.bi.team/wp-content/uploads/2019/04/2019-BIT-Rare-Behavior-Change-for-Nature-digital.pdf

Read, D.J. & Selinske, M.J. (2024), Achieving transformational change through the consilience of behavioural science & radical alternatives, Sustainability Science 19:1491–1502
https://link.springer.com/article/10.1007/s11625-024-01482-w

European Commission: Joint Research Centre (2025), Unlocking the full potential of behavioural insights for policy: From influencing the individual to shaping the system, Publications Office of the European Union
https://publications.jrc.ec.europa.eu/repository/handle/JRC138028

Cultural Evolutionary Behavioural Science

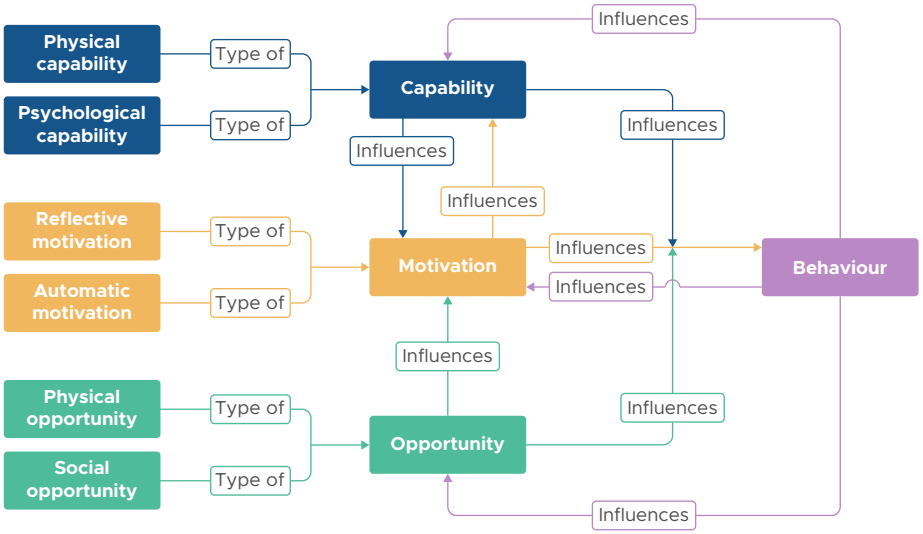
Combination between Behavioural Insights & Immersion Research



- Including not just empirically discovered cognitive biases, social norms & preferences, but the origins, variation and dynamics of these.
- **Addressing contextual gap** including how context matters, inequity, replication, social learning biases, cross cultural generalization & patched solutions.
- Policy needs to account **interplay of socio ecological factors**, endogenous cultural change & dynamics, and complexities over multiple levels.
- **Unpacking underlying/root causes** for the attitudes, preferences, beliefs, ideologies & subsequent behaviours.

The COM-B Model of Behaviour

This handbook incorporates the COM-B model of behavior into the methodology, integrating determinant variables within the research instruments.



The COM-B model is essential for determining necessary changes for effective behavior interventions, highlighting **the interplay of capability, opportunity & motivation** as dynamic factors influencing behavior through positive & negative feedback loops.

Capability is an attribute of a person that together with opportunity makes a behaviour possible or facilitates it.

Opportunity is an attribute of an environmental system that together with capability makes a behaviour possible or facilitates it.

Motivation is an aggregate of mental processes that energise and direct behaviour.

Behaviour is individual human activity that involves co-ordinated contraction of striated muscles controlled by the brain.

Physical capability is capability that involves a person's physique, and musculoskeletal functioning (e.g. balance and dexterity).

Psychological capability is capability that involves a person's mental functioning (e.g. understanding and memory).

Reflective motivation is motivation that involves conscious thought processes (e.g. plans and evaluations).

Automatic motivation is motivation that involves habitual, instinctive, drive-related, and affective processes (e.g. desires and habits).

Physical opportunity is opportunity that involves inanimate parts of the environmental system and time (e.g. financial and material resources).

Social opportunity is opportunity that involves other people and organisations (e.g. culture and social norms).

West, R. & Michie, S (2020), A Brief Introduction to the COM-B Model of Behaviour and the PRIME Theory of Motivation,
https://doi.org/10.32388/WW04E6.3

Research Methodology

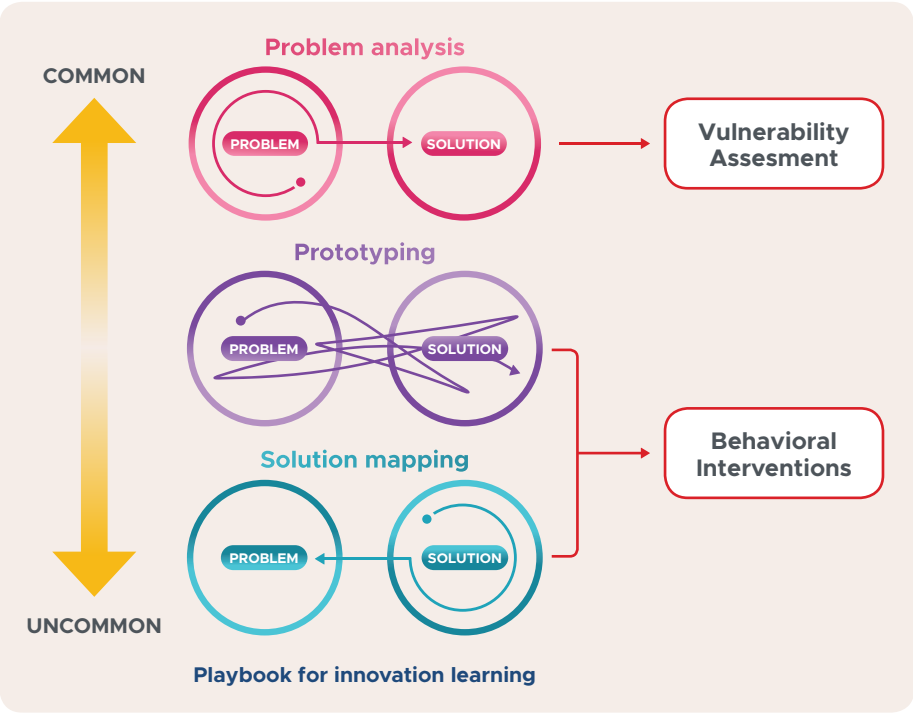
Methods	Participatory Group Discussions (P-FGDs)	Immersion & Participatory Sessions	In-Depth Interviews
Participants	Community members including PWDs, women and youth, village level government	Community members in their respective living/working environment	Authorities, Service Providers & Community Leaders
Tools	Participatory tools (Venn diagram, solutions mapping canvas, aspiration tree,)	Deep listening, direct observation, visual media (river of life & participatory mapping), Areas of Conversation (AoC)	Interview guideline
Output	Thin data on systems resilience including grassroots innovation/local solutions	Thick and warm data on complexity of the context (emic perspectives)	Thin data on structural and environmental measures (etic perspectives)

02 Sensing the System

Three approaches to problem solving

This handbook leverages YKAN's Vulnerability Assessment (VA) to prioritize strategies for climate adaptation while involving coastal communities. It is important to note that while the VA highlights Ecosystem-based Adaptation (EbA) to strengthen local economies, it overlooks essential components such as vulnerable populations and ecological perspectives, which are crucial for comprehending social exclusion. Acknowledging these elements is vital for developing inclusive action plans that reflect the intricate dynamics between communities and their environments.

Therefore, this guide emphasizes that a risk mitigation framework centered on communities boosts resilience by weaving together **interconnected bio-cultural components**, while transformative change necessitates the evolution of perspectives and practices.



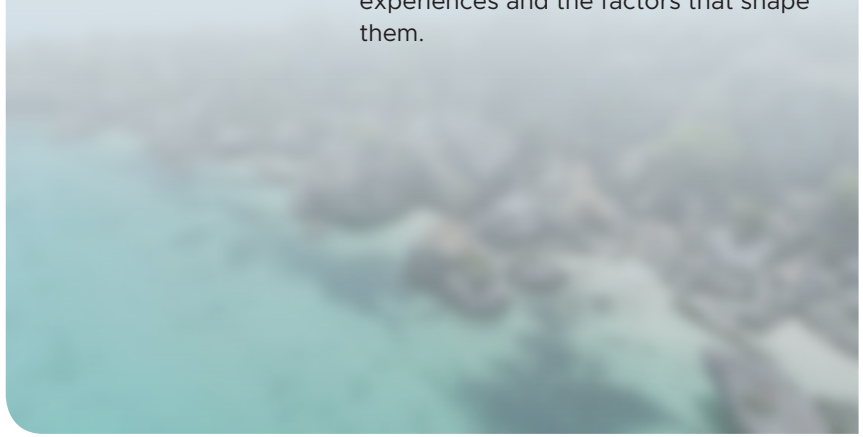
UNDRR (2024), What makes people vulnerable?
https://www.preventionweb.net/understanding-disaster-risk/component-risk/vulnerability

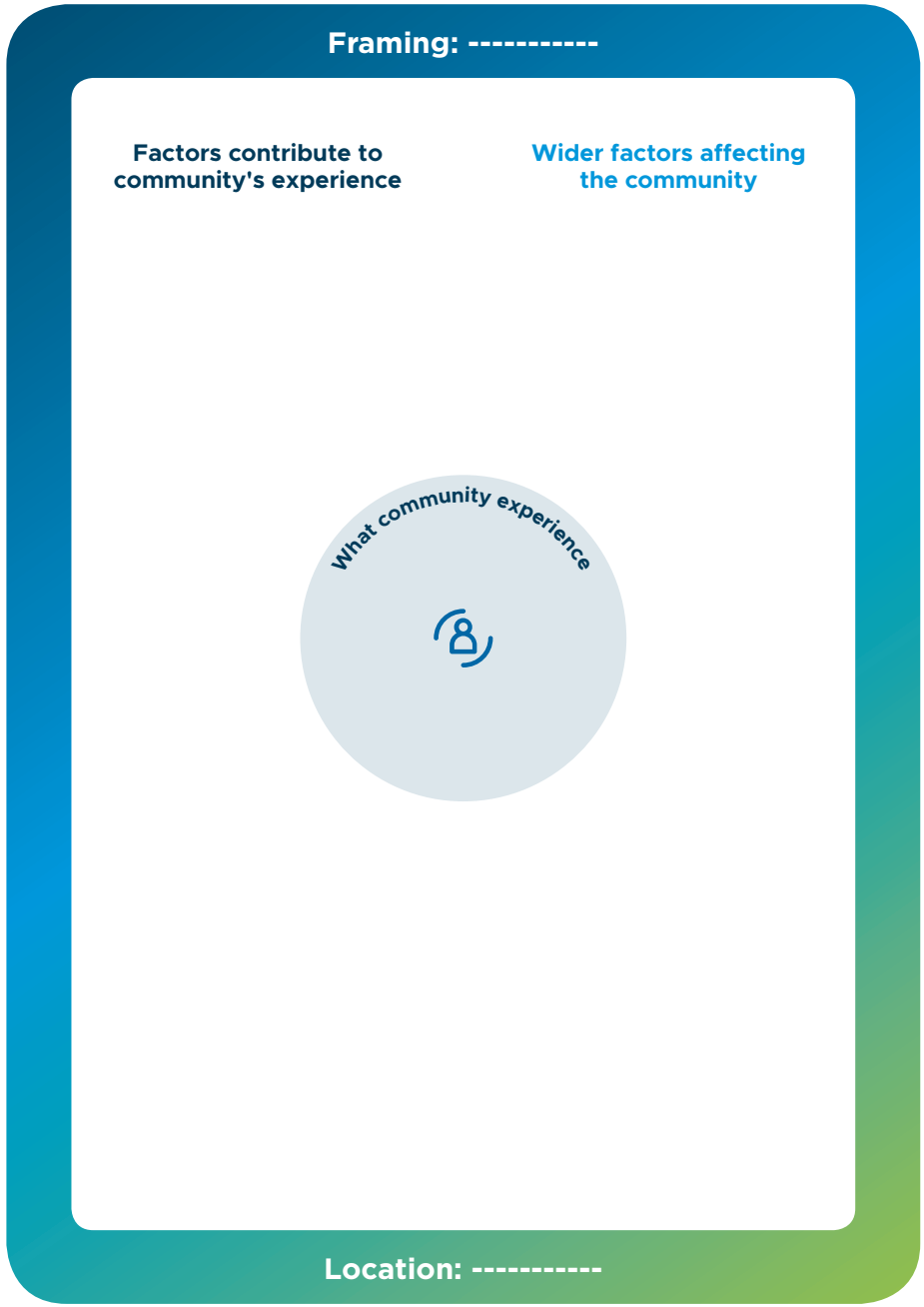
2a. VA Report in Anthropogenic Lens

Objective:
Understand system resilience from a human-centered perspective guided by VA reports.

Reflection note:
What are the measurement indicators for Behavioral Change Design (BCD) in improving community experience?

- Identify the human-induced factors in the issue presented in the VA.
- Choose one issue with human-induced factors that significantly affects the local community, which will serve as the focus for the SBC case study.
- Elaborate on the experiences that the community faces because of this case.
- Outline the elements that contribute to the community's experience.
- Discuss the broader factors impacting the community's access, dangers, and opportunities.
- Frame the case study through the lens of systemic impact analysis, considering the community's experiences and the factors that shape them.





Example of systems mapping derived from the VA report

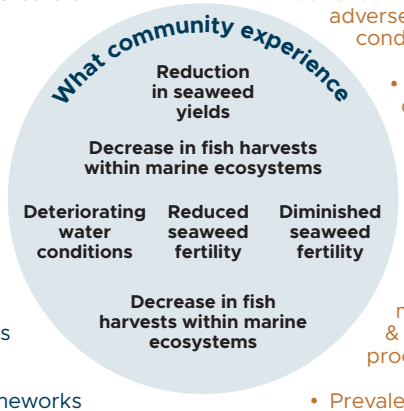
Degradation of Coastal and Marine Ecosystem Quality

Factors contribute to community's experience

- Littering
- Insufficient environmental awareness
- Insufficient public knowledge of waste management practices
- Lack of knowledge regarding the cultivation & care of seaweed
- Employment of pesticides, herbicides & synthetic fertilizers in agricultural practices
- Residents employing hazardous materials for fishing activities
- Absence of regulatory frameworks & penalties for waste management practices
- Insufficient availability of waste disposal bins
- Kaledupa Island additionally receives refuse shipments from other regions during the east wind season

Wider factors affecting the community

- Inadequate connectivity with external stakeholders beyond the village
- Impaired access in critical circumstances, including patient evacuations
- Insufficient infrastructural resilience in the face of adverse weather conditions
- Environmental contamination resulting from waste & sediment transported from the mainland
- Disruption of marine fertility & developmental processes
- Prevalence of waste accumulation in marine ecosystems
- Sanitation personnel are limited to operational duties within village territories, neglecting coastal regions
- Misalignment between adat laws, village regulations and inter-village agreements



Location: Balasuna Village, Wakatobi

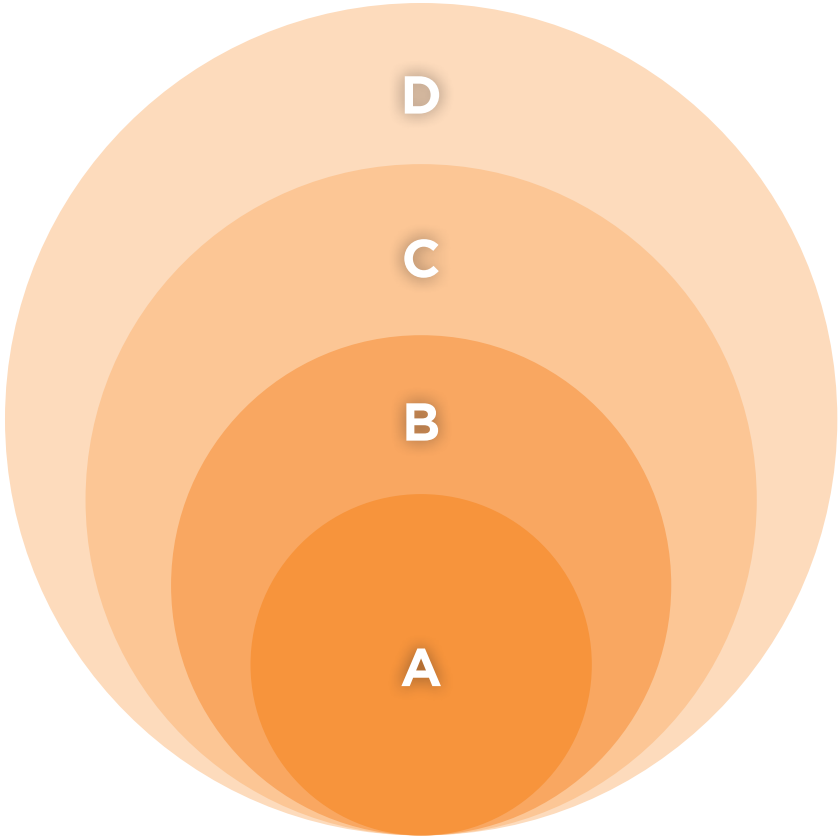
2b. Contextual System Mapping

Objective:
Analyzing actor mapping, aspirations, supporting/opposing characters, and solutions from diverse stakeholders in selected study locations through insiders' perspectives using Participatory Focus Group Discussions (P-FGDs).

Reflection note:
What are the results of power dynamics observed during P-FGDs?

- Identify the participant demographics by considering age, gender, ethnicity (indigenous/non-indigenous), disability status, and socioeconomic status.
- During the panel session, outline the goals of the behavioral intervention, detail the immersion process scheduled for the following day, introduce the immersion team, and seek consent from potential hosts.
- Perform actor mapping to gain insight into the roles individuals play concerning the issue and pinpoint which behaviors closely associated with it have the most profound impact.
- Utilizing an aspiration tree, identify the potential short-term and long-term advantages expected to arise from the SBC, while also recognizing the traits that promote or obstruct the achievement of the desired SBC.
- Carry out solutions mapping to comprehend the measures residents have implemented to mitigate the adverse effects of the issue.

Mapping Actors in the System



Which individuals or groups are contributing to the development of the issue?

Note: Put individuals who directly influence the issue's development in circle A, with circles B to D representing progressively less direct contributions.

What are they doing or not doing?

On a scale of 1 to 3, which behaviors that are directly linked to the issue have the most significant effect?

Aspiration Tree

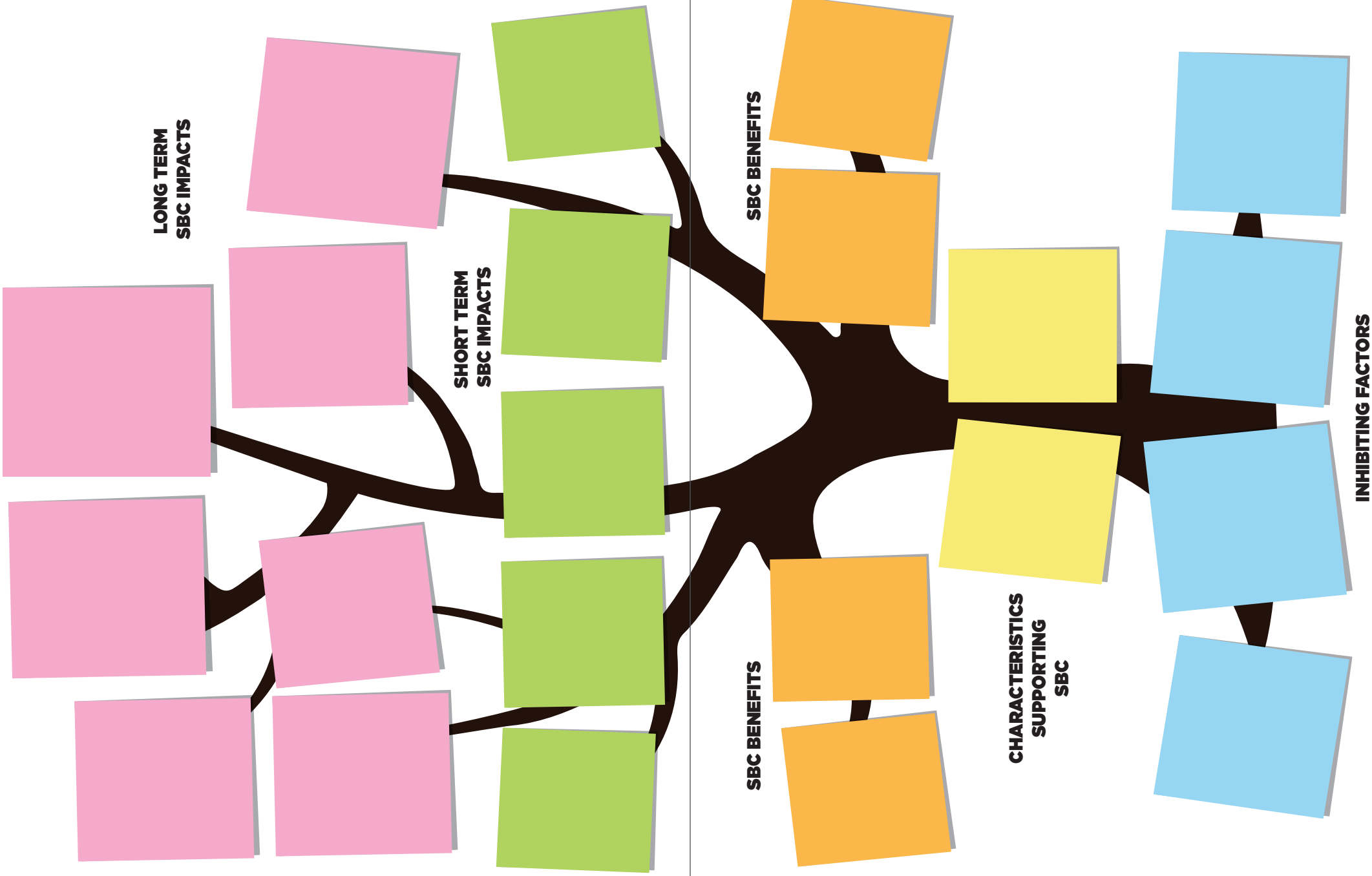
What effects are anticipated from the SBC in the long run?

What impacts are anticipated because of the SBC over the duration of a year?

What potential benefits are anticipated to emerge from the SBC throughout the upcoming three years?

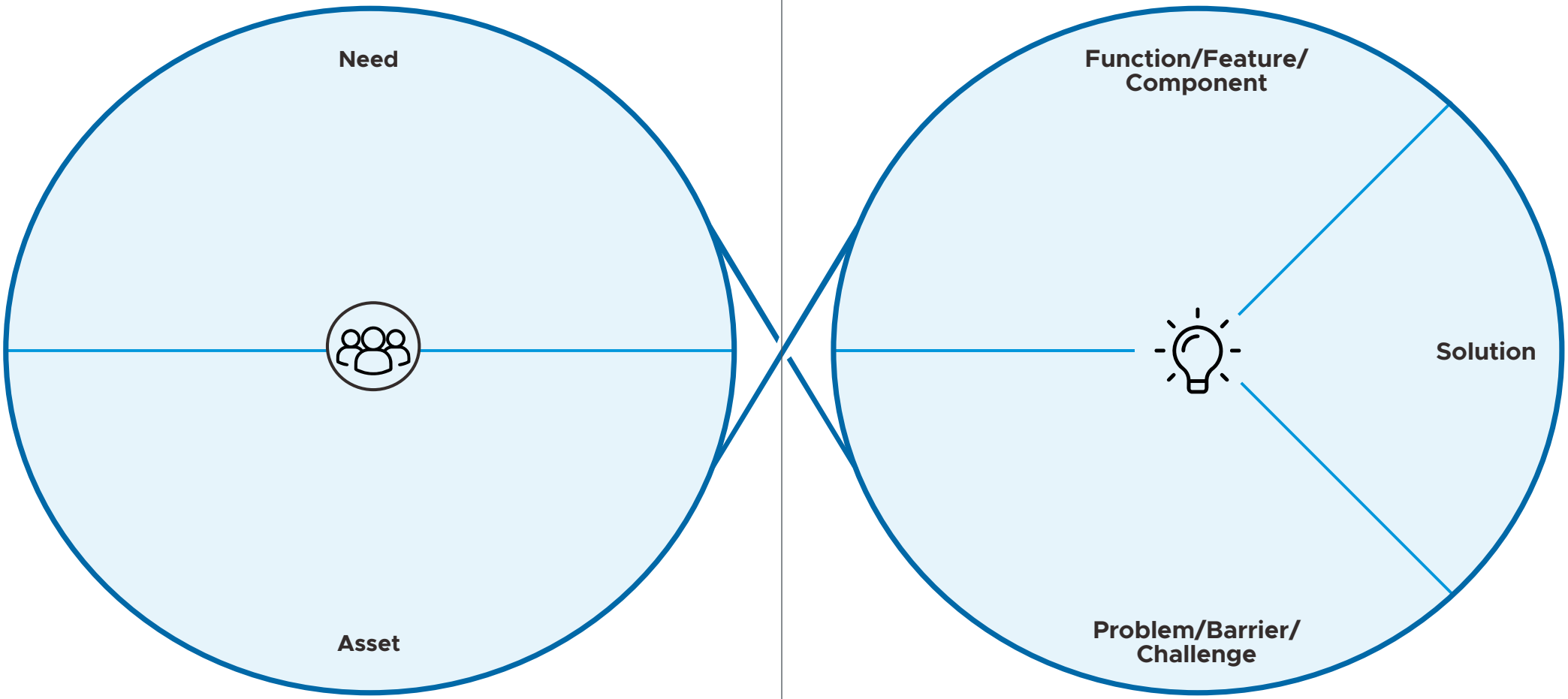
What qualities or characteristics facilitate the attainment of the desired SBC?

What qualities or characteristics hinder the achievement of the desired SBC?


LONG TERM SBC IMPACTS
SHORT TERM SBC IMPACTS
SBC BENEFITS
SBC BENEFITS
CHARACTERISTICS SUPPORTING SBC
INHIBITING FACTORS

Solutions Mapping

What actions have the residents taken to alleviate the negative impacts of the problem?



Taepoer, R.A., et.al. (2023), Solution Mapping Tools: Identifying a Bottom-Up Approach to Social Innovation, Jurnal Sosioteknologi, FSRD ITB , Volume 22, No.2
https://doi.org/10.5614/sostek.itbj.2023.22.2.8

Solutions Mapping Canvas

Name of the Solutions	☐ **Objects** ☐ **Social Systems**	**Date**	**Location**	**Learner**

Users
Who are these solutions intended for?

Name (Community) _____

Contact _____

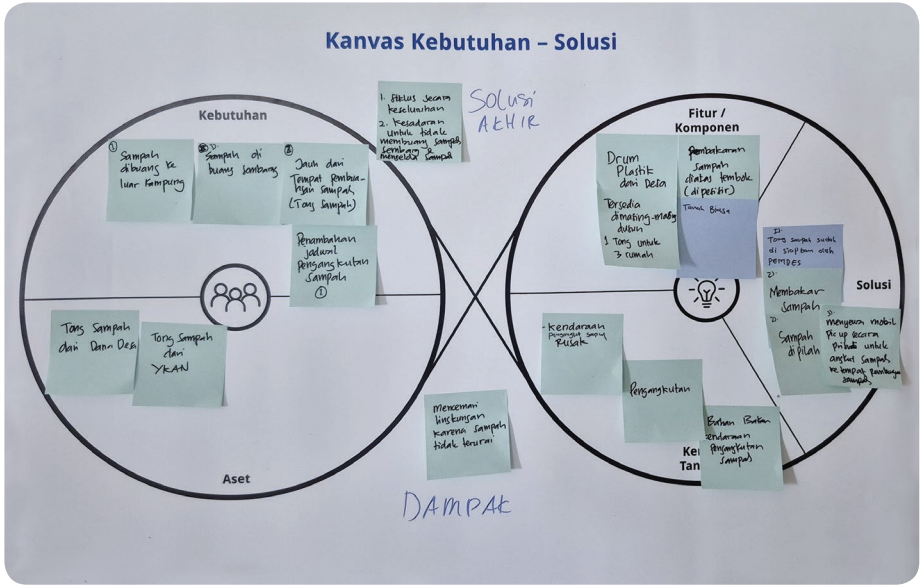
☐ **Creator**
☐ **User**

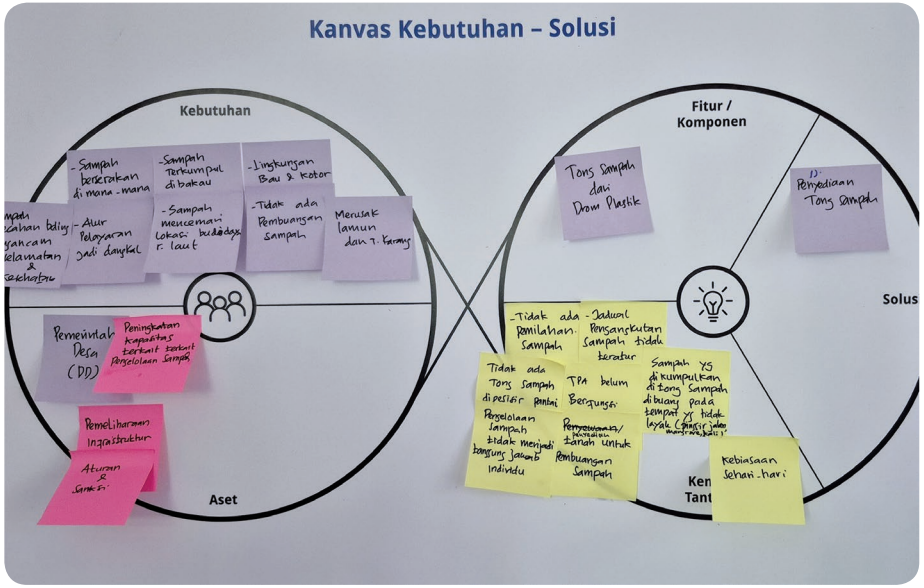
Pictures/Photos/Sketches
Put pictures, photos, or sketches of the solutions

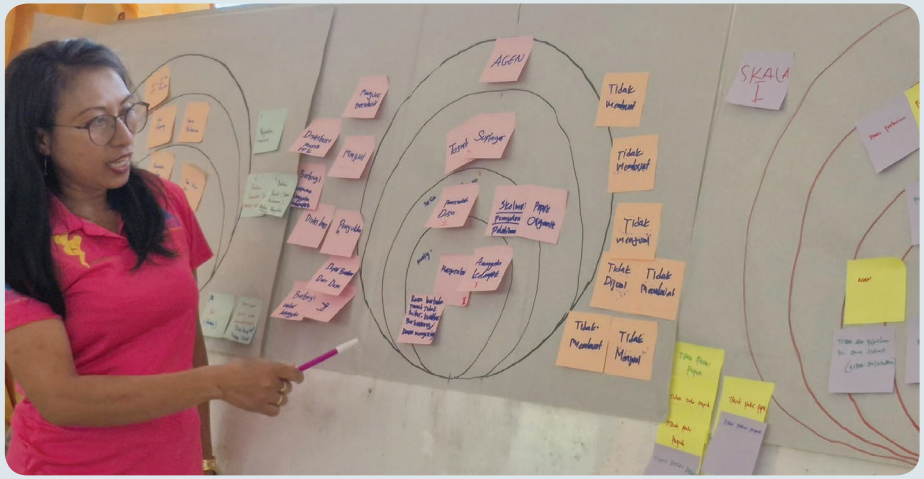
Description (Material, How it Works, Usage)
What are the solutions about? What problems have been solved? How does it work? How is it used?

Benefits	**Problems and Challenges**	**Opportunities**
What can be learnt from these solutions	What problems, difficulties, or challenges were encountered?	What are the opportunities that can be developed?

Two examples of solutions mapping conducted in partnership by diverse stakeholders in the community, including local authorities and residents

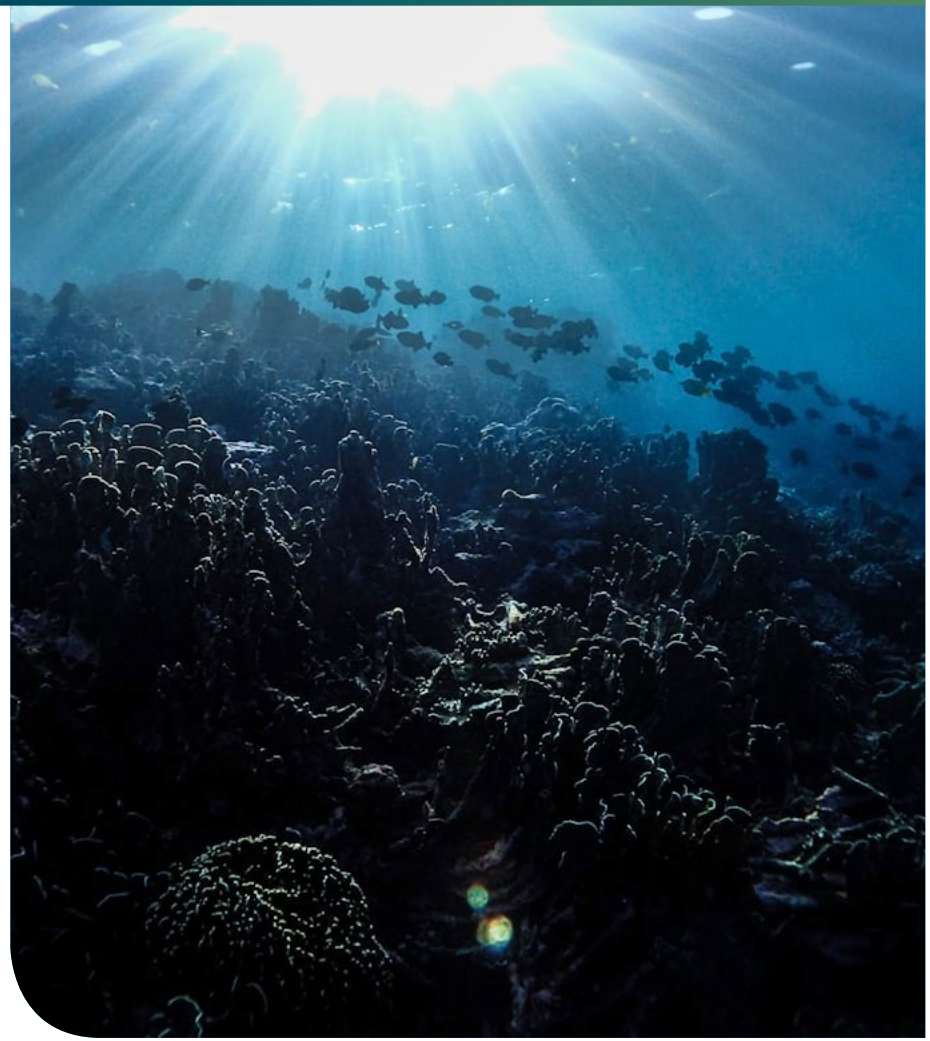






The P-FGDs take place in small groups led by local facilitators. Following the discussions, the outcomes are then shared in a panel format by representatives from the P-FGDs participants.

03 Immersion



IMMERSION METHOD:

what
how
why
when

Immersion means deep mental involvement and is done by opening oneself to understand and feel the in-depth context by applying experiential learning and informal conversations.

Do No Harm Approach:
Prioritize the wellbeing and safety of the people we immerse with, and rely on relationships based on trust and respect.

Skills required:
Deep listening, empathy, reflective practice, ethnography & systems thinking.

Research tools:
Areas of Conversation (AoC) to guide informal conversations, observation, shadowing & participatory visuals.

Archive & documentation:
Basic info & narratives of study participants based on Areas of Conversation (AoC), box story, photo catalogue, visual media (participatory session), reflection note.

Key Principles of Immersion Research

Sugandi, Y., et.al. (2021) Knowing What We Don't Know: Immersion Method for Inclusive Urban Infrastructure Policy, UNDP Accelerator Labs
https://www.undp.org/acceleratorlabs/blog/knowing-what-we-dont-know-immersion-method-inclusive-urban-infrastructure-policy

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https://doi.org/10.1177/1470785320980631

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https://practicalactionpublishing.com/book/257/can-we-know-better

Anticipated type of data generated from immersion method:

Warm Data

Warm Data is described simply as:

Information that is alive

Warm Data is the relational information that describes the many parts of a system.

For example, to understand a family, one must understand not only the family members but also the relationships between them, the context they reside in, the ecosystem that shapes them and that is, in turn, shaped by them—that is, the warm data.

Warm Data helps groups understand their life contexts and the complexities of experiences, improving responses to complexity and

fostering compassion in emergencies.

https://www.warmdata.life/

Bateson, N. (2023), Combining, Triarchy Press
https://www.triarchypress.net/combining.html

Data mismatch in ID cards

One mother from Balasuna shares her struggles with KTP status,

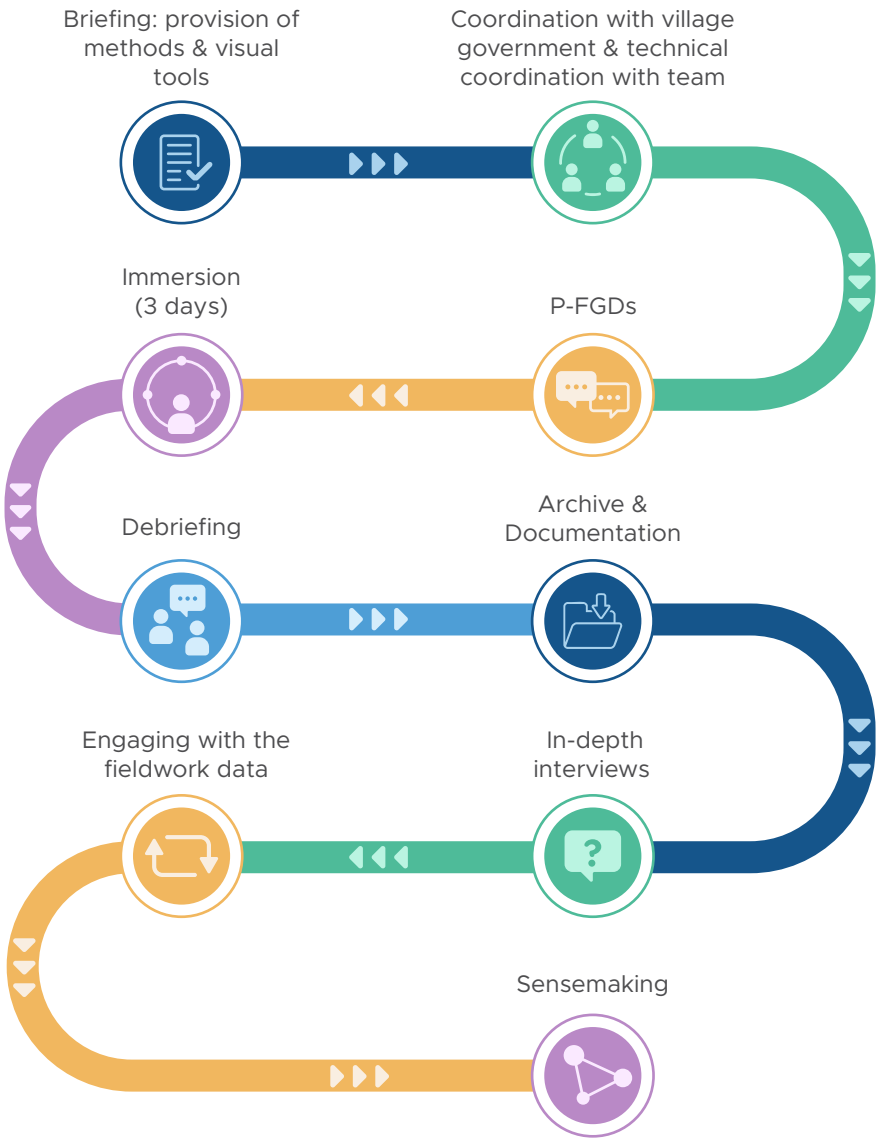
> *I frequently gather data on the statistical census of Wakatobi Regency. I have also served as a temporary employee at the UPTD for fisheries on Kaledupa Island, although I am currently designated as a P3K candidate. Nonetheless, my occupation column on my KTP still indicates honorary employee status, since when the E-KTP files were processed, I recorded my occupation as honorary employee at a time when I was indeed a temporary worker. I did not alter my KTP status as I wished to avoid the administrative burden that would necessitate traveling to Wangi-wangi Island.*

The woman's husband, while filling out the E-KTP format, claimed to be a fisherman instead of a cassava farmer and copra processor, believing this would improve his chances of securing capital for fishing supplies (immersion note, Balasuna).

What we understood from the narrative:

Cold data, such as demographic information from Identity Cards, is contextually limited, whereas immersive data experiences unveil the rich complexities of personal narratives linked to socio-economic factors and geography, emphasizing the nuanced interplay between identity and opportunity.

Fieldwork Agenda



Prior to conducting the field research, a technical briefing covering research methodology, methods, and tools was held openly, involving the National Park Management Section (SPTN), local organizations and facilitators, YKAN staff, and members of the immersion team.

The immersion team engaged in a thorough discussion aimed at interpreting the field data and triangulating the information during a sense-making session that took place following the field research.

3a. Immersion

Objective:

- **Understand and feel the context deeply**
- **Understanding the uniqueness of each context in depth**
- **Diving into diversity in a context**

Reflection note:
In what ways is bias mitigation achieved throughout immersion?

- The process of immersion is conducted over a period of 3-5 days, during which participants reside in the household of a local resident, thereby engaging in the rhythm of daily activities through methods such as participant observation and informal conversation.
- Immersion occurs without relying on audio recordings or direct note-taking, allowing researchers to engage in deep listening and thoughtful dialogue.
- The informal dialogues that transpire during the immersion phase are organized by the Area of Conversation (AoC), which, in the framework of BCD, incorporates variables associated with Behavioral Insights as well as contextual analysis.
- These variables are also manifested in the employment of participatory methodologies during immersion, specifically through the utilization of participatory mapping and the river of life technique.

Areas of Conversation (AoC)
[selected Social Behaviour Change/SBC]

Chatting, Observing, Listening

Context
- Socio-cultural background: gender, age, indigenous/non indigenous, disability status
- Economic, educational & livelihood circumstances
- Family composition: total number of family members along with their age & gender
- Living environment: household, neighbours, friends & residential location

Internal Supporting System
- Knowledge
- Access to information
- Personal values/norms/beliefs/experiences that shape the understanding
- Coping mechanisms/solutions

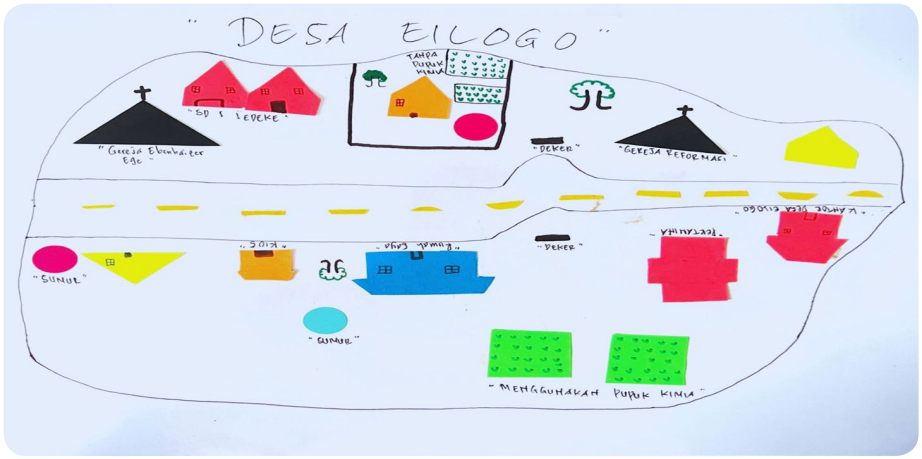
External Supporting System
- Norms, values, and perceptions within the community (including stigma)
- Local rules/agreements/laws
- The type of support received & its impact
- Reciprocity received from other parties (emotional, financial, informational, etc.) that raises/reduces motivation

Pattern of Relationships
- Autonomy in the decision-making process
- The process of making decisions within the family, community & village setting
- Media fostering connections with the social & natural surroundings
- Community crisis management

Personal Experience
- Narrative: **3W 1H**, frequency & impact
- Challenges and ease: procedures/administration/ costs/others
- Reflection about mitigation: solution-needs, consequences, impact & long term viability

Aspirations
- Expectations : What needs to change? What can be improved?
- Future plans to participate & encourage others in the desired change
- Those who are trusted to voice the aspirations

Participatory Village Mapping



What are the conditions related to biophysical factors and infrastructure in the village? Which sites contribute positively or negatively to the relevant issues?

The study's participants are actively engaged in conversations in *goje-goje* while drawing a map of the Wakalingkuma hamlet.

Participatory mapping fosters discussion & provides valuable insights for further exploration, enhanced by site visits and photos. Here are two case studies that exemplify biophysical factors & infrastructure, together with the socio-cultural contexts that contribute to system resilience.

What is understood from the two opposing examples:

The first example shows that lack of interconnectedness causes isolated views and actions, evident in waste management strategies that discourage reducing bottled water use while ignoring ecological links, leading to a disjointed approach to environmental issues.

Alternatively, the second example reveals that informal gathering places increase interconnectedness, as alternative media evolves into an inclusive hub for multifaceted interactions that nurture information sharing and enhance community relationships.

First Example


1


2

3

Individuals dispose of waste by burning or burying it at home and in locations like behind bridges and rivers. Collective disposal sites include Toroho, Balasuna, previously a mangrove area (Image 1). Villages rent landfills where waste is burned, and larger items are dumped, filling the mangrove area (Image 2). The government has built Final Disposal Site (TPA) facilities, but they are not yet functioning as intended (Image 3).

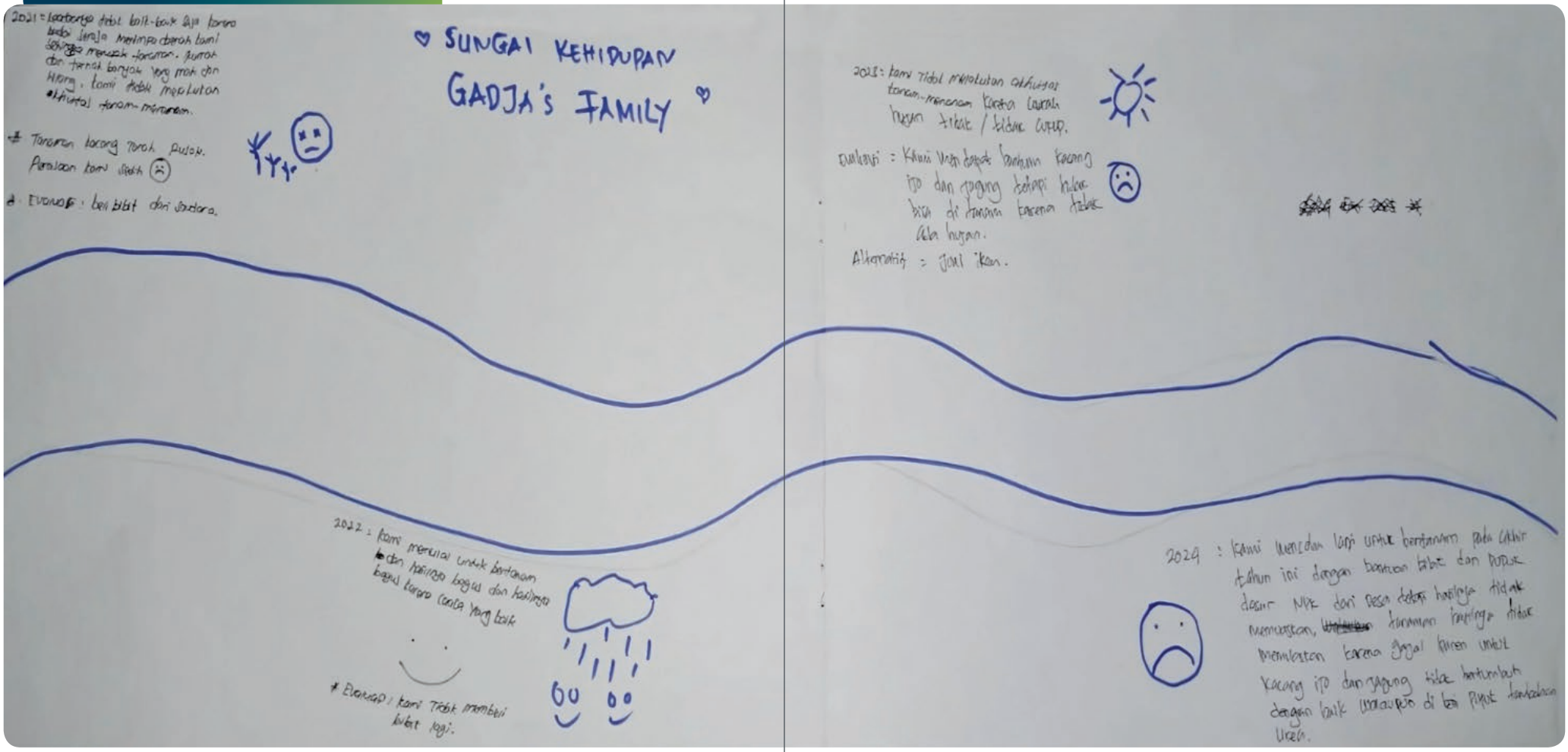
Second Example


1


2

Tamarind trees provide shade and seating for families and community gatherings in Eilogo. Informal coffee meetups have evolved into a vibrant hub for trading, lending, job sharing, construction outsourcing, discussions, and gossip. This area blends social and economic interactions (Image 1). *Goje-goje*, a hall under a stilt house in Balasuna, is a spot for relaxation, play, shade from the sun, shared meals, and conversations on various subjects including health, personal issues, family, work, and gossip. The sharing of insights regarding village issues in this locale is more prevalent than in formal village gatherings (Image 2).

River of Life



What personal narrative reflects a pivotal moment affecting the issue?

What?

- What actions were taken?
- What emotions were experienced?
- How did the actions evoke those feelings?

So what?

- What effect did the actions have?
- Are there different actions that could elicit the desired emotions?

Example of 'river of life' application & its narrative

What is understood from this 'river of life' and its narrative:

The Gadja family's narrative from Eilogo village exemplifies their adaptive strategies for agriculture amid increasing environmental challenges and resource scarcity from 2021 to 2025. Their reliance on external support for fertilizers, coupled with a lack of organic farming knowledge, underscores the intricate relationship between agricultural practices, environmental conditions & socioeconomic factors affecting their sustenance.

We keep trying to plant again

In the year 2021, our region was struck by an incredibly severe storm that not only caused extensive damage to our local area but also resulted in significant losses for us, which ultimately led us to make the difficult decision to refrain from planting any crops. The discouragement we felt was palpable after witnessing the devastation of our peanut plants, prompting us to reach out to our family members in search of seeds to use for future planting endeavours (sad emoticon).

Moving into the year 2022, we decided to give planting another shot, and this time we were met with encouraging results, largely thanks to the favourable weather conditions we experienced, which also meant that we did not need to purchase any seeds for our crops (happy emoticon).

As we entered the year 2023, we unfortunately found ourselves halting our planting activities once again due to a notable lack of rain; even though we were fortunate enough to receive some assistance in the form of mung beans and corn, we ultimately faced the harsh reality that we were unable to plant them. During this challenging time, my father had to take on the responsibility of selling fish in order to support us, which was disheartening, especially considering the bright sun shining above us that only served as a stark contrast to our struggles (a picture of the sun and a sad emoticon).

From the year 2024 onward up until the present day, we made another attempt to start planting again towards the end of the year by utilizing seeds and fertilizer that we obtained from the village, but unfortunately, the outcomes were disappointing, marked by poor yields of green beans and corn, even after our investment in purchasing additional Urea fertilizer in hopes of improving our harvest. (Immersion note, Eilogo)

3b. Debriefing

Objective:

- **Sharing of insights and experiences (observed, listened, practiced, experienced) throughout immersion**
- **Recognizing and delving into the intricacies of data**

Reflection note:

How can one safeguard the integrity of data derived from the accounts articulated by the research team?

- Select a secure and pleasant environment for sharing.
- Debriefing is conducted collectively (with up to 5 researchers).
- Each researcher contributes their experiences pertaining to the Area of Conversation (AoC). Should any part of the narrative include elements that require deeper investigation as thick data, request the relevant researcher to elaborate on it in the box story.
- Cross-reference the data among researchers.

Example of Box Story

What is understood from this box story:

A close examination of the *musrenbang* process reveals a lack of transparency and limited community involvement. This highlights the growing apathy among residents towards decisions affecting their lives. Community members note that meetings often exclude genuine input, as the village government has predetermined activities. This governance style discourages engagement, leading individuals to feel their participation is pointless. The observations in this box story align with other related community information.

The Paradox of *Musrenbang*

I attended the *Musrenbang* forum, which serves as a vital platform for gathering and articulating community aspirations and needs. Upon entering the hall, I was struck by the sheer number of people present, as it was densely packed with individuals, some of whom had taken the initiative to set up makeshift tents and find shelter beneath the expansive canopies of trees. The atmosphere was charged with anticipation as attendees listened with rapt attention to the address delivered by the Regent, whose words were intended to inspire and encourage community involvement.

A careful observation of the crowd revealed that a significant majority, specifically over 80%, were officials hailing from various levels of government and local village administrations. This group was comprised of notable figures such as village heads, leaders from the BPD, and a diverse array of civil servants who play crucial roles in local governance. In contrast, the representation of community leaders constituted around 20% of the participants, highlighting a notable distinction in attendance demographics. It was encouraging to note that gender representation appeared to be quite balanced, as there were numerous active and engaged women participating in the forum.

However, it was somewhat concerning that there was a lack of clear information regarding the attendance of the Jingitiuw community group, leaving us uncertain about their involvement in the discussions.

Following the Regent's instructions and opening remarks, the head of Bappeda took the stage to elaborate on the various upcoming programs that are intended to benefit the community. During the forum, the primary issues that emerged and were brought to the forefront of discussions revolved around the pressing need for road repairs and the facilitation of land certificates for local residents.

Notably, it was interesting to observe that issues related to livestock were not brought up in the discussions, which could imply a possible oversight or a realignment of community priorities. The subsequent Q&A session appeared to be more of a validation of earlier points rather than an interactive discussion, where attendees could openly articulate their views and participate in constructive dialogue. (Immersion note, Eilogo)

3c. Archive & Documentation

Objective:

- **The process of systematically documenting and structuring data throughout the immersion experience, specifically in the form of narratives, photographs, and videos (if applicable).**

Reflection note:

How can one craft compelling narratives that serve research purposes effectively?

- Complete the immersion excel document (see Annex) along with the subsequent subfolders in their entirety, specifically the summary, conversation list, basic narrative, box story, photo catalog, visual media, and reflection notes.
- Organize all textual data, images, and visual media within the designated folders.

The following are three examples of compilations of archives and documentation, specifically basic narratives and photo catalogues which are assembled into a series of analyses related to learning capacity.

What is understood from the three compilations of basic narratives & photo catalogues:

These three series emphasize highlight self-directed reflective learners as positive deviants, noting that despite knowledge sharing gaps in Eilogo and Balasuna, some individuals exhibit an explorer-like learning capability shaped by factors such as parental influence, self-confidence, and risk awareness, ultimately fostering resilience through an inquisitive and growth-oriented mindset. While seeking exploration or self-directed learning often remains a solitary pursuit, it has yet to be integrated into a broader collaborative structure that fosters shared growth and learning.

First Compilation

Marten is building a garden fence with his disabled son to keep goats away from their plants (top image). In his garden, which he cultivated with his son around their home, you can find longans, cassava, pumpkins, and more. There are palm fronds set aside for the garden fence and a yellow water tank (bottom image). Water from Pamsimas flows in the afternoons during the rainy season, but in the dry season, they must buy water for 150,000 rupiah per tank.

The One Health Advocate

Marten works as a contract laborer in the sub-district, but he has a profound love for agriculture, having helped his parents with their farming since he was young. Currently, his disabled son, Juakim, enjoys assisting him with farming activities. Before heading to the office, he cares for him and helps his wife with household responsibilities. After returning from work, he spends time tending to the plants around his home. As a dryland farmer, he grows corn, cassava, wax gourd, longan, banana, papaya, and various hardwood trees. He uses the corn harvested from his garden to feed the chickens, while the other crops fulfill the family's nutritional needs. Despite attending training sessions organized by the Sabu Raijua Regency Agriculture Service on using chemical and organic fertilizers, his long-standing experience in farming alongside his parents has led him to forgo fertilizers entirely.

Consequently, he has achieved impressive yields, which has encouraged him to continue planting without any fertilizers. Marten is convinced of the consequences tied to the systemic impacts of chemical dependency in agriculture. He firmly believes that the health of humans, the soil, and all living creatures, both on land and in the sea, are interconnected, stating, *"I've realized that chemical fertilizers need yearly boosts to keep the soil healthy; without them, plants struggle. In contrast, organic fertilizers are safe for the soil and can be used continuously. Plus, chemical runoff harms our land and oceans, hurting fish and seaweed populations. Stop using chemicals. it's a healthier choice for everyone since chemicals in our food Let's ditch the chemicals for a healthier ecosystem and better harvests!"* (Immersion note, Eilogo)

Second Compilation

Toni waters organic bioboost fertilizers in the morning. This is a weekly activity (top image). He makes a stock of compost/solid organic fertilizers himself. Some fertilizers come from the agricultural service. These will be used for vegetable gardens, not rice fields (bottom image). Local residents face water supply challenges for rice fields. Water is sourced from the Mare Apunoa reservoir and dug wells. Dug wells often lack sufficient water in dry seasons, while the reservoir supports two annual plantings. However, poor distribution planning and blocked channels hinder water flow, impacting rice field availability.

The Digital Explorer

Toni is a rice farmer and holds several positions, including BPD member, PAUD manager, buffalo breeder, electronics technician, sound and lighting rental operator, and builder/welder. Given that his customary land is conveniently situated near a water source, he opted to cultivate rice fields after his seaweed crop failed due to disease. He obtained seeds from the previous harvest and, while he produces his own organic fertilizer, he also received Urea fertilizer and pesticides through village assistance. The harvested rice is stored for up to two years as food reserves in homes.

From 2012 to 2022, he continued to use chemical fertilizers like NPK, Urea, and SP36. Despite lacking formal training, he learned about farming through self-directed learning and exploration via digital platforms such as social media and YouTube. By nurturing confidence in his abilities, Toni's varied roles, from farmer to electronics technician, never lessen his enthusiasm for exploring new experiences. "*I take pleasure in gaining new insights; I believe that if others can accomplish it, then I too should be able to do so,*" he said about what motivates him to excel in all the tasks and skills he possesses. This digital exploration has provided him with valuable insights about fertilizers, plant fertility, and soil and water management. Since 2023, he has altered his fertilizer usage, applying chemical fertilizers only for the first week and then switching to organic fertilizers. (Immersion note, Eilogo)

Third Compilation

The mangrove trees that La Baco has cultivated and cared for are situated directly behind their family residence (top image). This family began their journey as net fishermen with no prior knowledge of fishing cycles or net-making, but learned through experience and advice from local fishermen. Eventually, after initially hiring a net maker, the mother successfully taught herself to knit nets by observing neighbours and seeking feedback (bottom image).

The Conservationist

La Baco is a person with disabilities whose primary occupation is net fishing in Balasuna. Whenever a wooden vessel arrives carrying goods from Bau-Bau or departs from Kaledupa, he also takes on the role of a dock worker. To support the family's needs, his wife sells gasoline in very small quantities. This family resides in a coastal region where they initially constructed a house on stilts directly over the sea, lacking a bathroom or toilet. Once they saved enough money, they built a concrete structure above the water and established a house approximately 12 x 8 meters in size, which is now certified.

The location of La Baco's family in Balasuna is in an exposed area vulnerable to the east monsoon winds, posing a significant risk of disaster. Aware of this vulnerability, he proactively worked to preserve several existing mangrove trees while also planting additional ones to protect their home from the harsh east monsoon winds. This survival strategy was shaped by their experiences and observations during their time living in a stilt house. During that time, their residence remained shielded from the east monsoon winds due to the surrounding dense mangrove trees. (Immersion note, Balasuna)

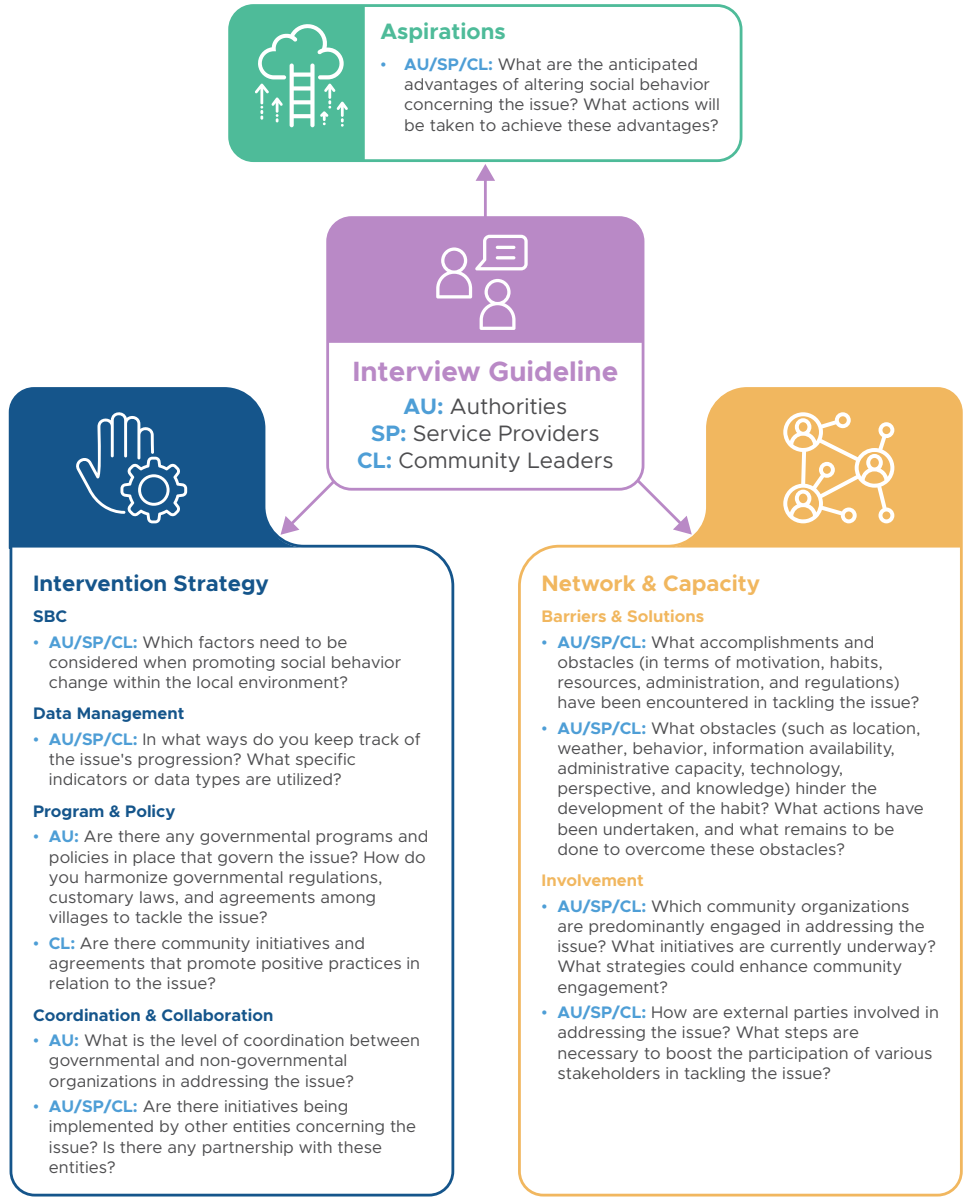
3d. In-Depth Interviews

Objective:

- **Understanding intervention strategies, networks and capacities as well as aspirations of authorities, service providers and community leaders.**

- Identify the variables and trends that emerge from the P-FGDs and immersion studies.
- Examine the significance of the interview framework and the roster of interviewees in relation to the patterns observed in the gathered data.
- Allocate the interview responsibilities among the research team members.

Reflection note:
In what ways can in-depth interviews address gaps in contextual data?



3e. Engaging with Fieldwork Data

Objective:

- **Recognize emerging challenges and outline trends based on the comprehensive field data.**

Reflection note:
Has data immersion made it easier to understand the unknown?

- Examine the complete data collected, beginning with P-FGDs, immersion sessions, and in-depth interviews.
- Spot deficiencies in the socio-ecological framework.
- Develop a matrix or interactive visual tool to grasp these deficiencies.

3f. Sensemaking

Objective:

- **Interpreting the information that has been collected.**

Reflection note:
Has the process of sensemaking generated a unified narrative that encapsulates the intricacies of socio-ecological interactions?

- The research team works together to finalize the matrix developed during the immersion into fieldwork data (3e).
- Identifying prospective levers of the behavioral systems, aiming to uncover critical factors that could significantly influence outcomes and drive meaningful changes.

Illustration of Matrices generated from Engaging with Fieldwork Data (3e) to further understand the relationships between socio-ecological components. The factors within the matrix shift according to the insights that arise from fieldwork data.

CONSUMPTION PATTERN

Status and Type

Researcher_1
Mr. Marten's Family:
- Rice
- Chicken
- Papaya
- Noodles
- Eggs
- Corn
- Bananas
- Wheat flour
- Pumpkin
- Sugar, Coffee
- Tea, Sugar
- Gasoline
- Ink
- Air

Researcher_2
- Coffee and sugar
- Cooking oil
- Metal sheet/Zinc (for roofing)
- Corn
- Cigarettes
- Beans and eggs
- Rice
- Anchovy
- Mackerel
- Peanut sauce
- Nyale (polychaete sea worms) and bonteng (sour, cucumber-like vegetable)
- Vegetables
- Animal feed
- Pig
- 2 motorbikes
- Gasoline

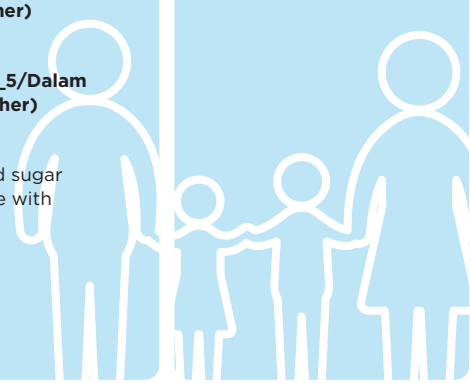
Researcher_3
- Rice
- Corn
- Green beans
- Instant noodles
- Cigarettes
- Coffee
- Sugar
- Gasoline

Researcher_4
- Rice
- Corn
- Green beans
- Vegetables
- Boiled peanuts
- Children's college and boarding fees
- Gasoline
- Coffee and sugar
- Phone data and electricity bills
- Buying a motorcycle for kid in college and phone for kid highschool

Researcher_5/Dalam rumah (Father)
- Cigarettes

Researcher_5/Dalam rumah (Mother)
- Betel
- Rice
- Coffee and sugar
- Motorcycle with gasoline

Researcher_6
- Mother:
  - Betel (9 sticks for 10,000)
  - Areca nut (1 bunch for IDR 10,000)
  - Tobacco (1 ball for IDR 10,000)
  - Rice
  - Sugar
  - Coffee
  - Soap
  - Cooking oil
- Father:
  - Cigarettes
  - Gasoline
  - Chicken feed from the store
  - Betting capital
  - Hair oil



CONSUMPTION PATTERN

Materials Needed and Sources

Researcher_1
Consumption sources:
- Rice (purchased)
- Chicken (given by relatives)
- Papaya (planted)
- Noodles (purchased)
- Eggs (purchased)
- Corn (planted)
- Bananas (planted/ purchased)
- Flour (purchased)
- Pumpkin (purchased)
- Sugar, coffee, tea, and cane sugar (purchased) from the market or
- Gasoline (gas station)
- Ink (store)
- Water (purchased)

Researcher_3
- Rice ➔ employee benefits (incentive)

Buy at the store:
- Corn
- Cigarettes
- Green beans
- Coffee
- Instant noodles
- Sugar
- Gasoline

Researcher_5/Dalam rumah
- Rice (every day)
- Coffee every day (Father and Mother)
- Water, salt, rice cooker, electricity
- Water, coffee, sugar (Bought at the shop)
- Gasoline (Bought at Pertamina)

Father
- Father: Cigarettes/ lighters (Bought at the shop)
- Mother: Betel nut, tobacco and lime (Bought at the shop)

Researcher_2
Consumption Sources:
Bought at the store:
- Betel nut
- Lime

Bought at the store + garden:
- Empty clear broth containing basil, shallots, spring onions, traditional salt, masako (MSG)

Products sold:
- Chicken in sauce/fish tail, turmeric, basil
- Red fish head (boiled with vinegar)

Bought by Mr. Gino:
- Corn due to crop failure

Bought from Mr. Lopes:
- Pig feed (watercress) from his home garden/Mr. Lopes' garden
- Young papaya

Bought at the store:
- BAMET

Bought
- Rice + green beans (served with plain rice)
- Corn depends on the availability, occurs half a year
- Red fish and mackerel depending on availability and fish sales

Researcher_6
- Chicken Feed (bought at the store)
- Hair Oil

Bought at the store/kiosk:
- Rice
- Coffee
- Sugar
- Soap
- Cooking Oil
- Betel Nut
- Areca Nut
- Cigarettes
- Gasoline
- Obtained from Nature:
- Lime
- Nyale (polychaete sea worms)
- Palmsugar
- Vinegar

Researcher_4
- Coffee and sugar (purchased)
- Electricity and data (purchased)
- Rice (own stock)
- Corn (garden produce)
- Green beans (garden produce)
- Vegetables (garden produce)
- Peanuts (buy boiled)

CONSUMPTION PATTERN

Intensity

Researcher_1
Store all essentials at home, including food, side dishes, gallon jugs, photocopiers, water, and more.

Researcher_2
- Rice and peanuts are a must-eat dish
- Rice is purchased
- Green beans are stored
- Gasoline
- Corn > 2 times per day
- Kerosene > 2 times purchased in 2 days
- Egg consumption > once a day
- Fish > every day
- Coffee > every day
- Betel nut > every day
- Water > stored in a water tank (every day)
- Chicken feed with corn (every day)
- Bananas for pigs (every day)

Researcher_3
Gebi
- Rice (?)
- Corn ➔ at certain times
- Mung beans ➔ at certain times
- Instant noodles ➔ at certain times
- Cigarettes ➔ every day
- Coffee ➔ every day
- Sugar ➔ every day
- Coffee ➔ every day
- Gasoline ➔ depending on usage (3 liters/ week)

Researcher_5/Dalam rumah
Every day, take children to school/village office/other activities

Researcher_4
- Coffee + sugar -> buy and consume
- Electricity credit + data -> buy and consume
- Rice -> every day
- Corn -> 3-4 times a week
- Green beans -> 4-6 times a week

Intensity
- Rice = 1-3 months
- Coffee = per month
- Sugar = 1 month
- Soap = 1 month
- Cooking oil = 1 month
- Gasoline = 1-2 weeks
- Chicken feed = 1-2 weeks

Notes

Researcher_1
Consumption depends on needs. If vegetables are not available, side dishes such as rice and coffee/sugar/tea are consumed daily and purchased once a week (once a week or more).

Consumption notes:
- Gasoline used for commuting to the office
- Ink for photocopying materials
- Water for refilling gallon jugs

Researcher_2
Things that don't require money:
- Chili peppers
- Young papaya
- Milkfish
- Nyale

Require Money to buy:
- Gasoline
- Corn
- Kerosene
- Betel nut and cigarettes
- Tobacco
- Fish
- Masako
- Metal sheet/seng (for roofing)

Researcher_5/Dalam rumah
- Vegetables
- Tofu and Tempeh
- Eggs
- Fish
- Noodles
- These ingredients are not consumed every day, depending on when people come to sell them.

Researcher_4
- Coffee and sugar purchased once every 1-2 weeks, consumed daily
- Electricity bill and data purchased once every 1-2 days, consumed daily

AGRICULTURE CYCLE

Status, Type of Plant, Location and Area of Garden

Location of Hamlet 4, Eilogo Village: Land area approximately 50 x 50 m (Rice field). (Researcher_4)

Petani/Tetangga/Dona:
- Jenis tanaman: Jagung
- Lokasi: Pekarangan rumah
- Luas lahan: +/- 50 m (MU)

Farmers/Neighbors (Mr. Lopes):
- Crop Types: Water spinach, chili peppers, corn, water pumpkin, and mung beans
- Location: Home garden
- Land area approximately 3–4 m^2

(Researcher_3)

Residence of stay: Status: Teacher and Head of Hamlet 1, Kilogo
- NN/Neighbor:
  - Mung beans
  - Location: Far from home
  - Garden size: NN

(Researcher_5)

Farmers & Ranchers:
- Corn, white vegetables, and water spinach
- Broiler chickens and horses
- Gardens: Corn +/- 50 x 60, Vegetables > 10 x 10 (fenced)

(Researcher_6)

- Marten T. Ratu Wie:
  - Types of crops: Corn, cassava, longan, wax gourd, papaya, banana, wangngi tree
- Land area: 15 x 15 m = 300 m^2 of corn
- Land area around the house planted with other crops: 20 x 20 = 400 m^2
- Status: District contract employee, in the sub-district

Fatimah Lahab:
Early childhood education teacher in Eilogo village, district contract
(Researcher_1)

- Farmer: Mung beans and corn near the beach (need to go inside again, one hectare uphill)
- Farmer: chilli, basil, spinach, papaya, palm saplings, next to Mr. Nyoman's house (2.5x2.5m)
- Farmer: behind the house (Kanni Rai area) – 2.5x2.5m
- Horticulture farmer: corn, chili, kale, house yard 10x10 m

(Researcher_2)

Access to Water,

- Access to water from reservoirs to rice fields
- Access to water from dug wells to homes and rice fields
- Access to seeds from previous harvests

Water Access:
- From wells during the dry season
- Purchased water during the dry season;
- Refill drinking water gallons (all seasons)

(Researcher_5)

Water Access:
- Household needs +/- 100 meters from the house to the well
- Water access for crops

(Researcher_5)

(Researcher_2) 300 meters from home, request from relatives and the village/agricultural office. (Researcher_2) 10 meters from home, request from relatives, manure, NPK fertilizer, urea fertilizer (Researcher_2) Oma/grandma 100 meters, (Researcher_5) (Researcher_2) Mr. Lopes 50 meters (Researcher_5)

Eilogo Water Access:
- Pamsimas (Opens in the afternoon)
- Purchase a tank (Rp. 150,000)

Seed Access:
- From design assistance
- No fertilizer used

(Researcher_1)

Neighbor/Grandmother
- Access to water for mung bean plants (rainwater)
- Seedlings received assistance from the village

(Researcher_5)

Access to Seeds,

- Access to fertilizer from village aid and purchase it on own (e.g., Bioboost organic fertilizer or SP36)

(Researcher_4)

- Private well/spring (depth +/- 12 meters)
- Seeds from the village government
- Herbicides and fertilizer (urea) from the village government

(Researcher_6)

Eilogo Water Access:
- Pamsimas (Opens in the afternoon)
- Purchase a tank (Rp.150,000)

Seedling Access:
- From design assistance
- No fertilizer used

(Researcher_5)

Mr Lopes:
- Access to organic fertilizer from her own livestock
- Type of fertilizer: organic from goat and chicken manure

(Researcher_3)

Dona:
- Access to seeds: Buy them yourself
- Access to fertilizer: From neighbors

Mr. Gebi
- Type of fertilizer: Chicken manure

(Researcher_3)

Non-Farmers/Gebi:
Water access = +/- 300 meters from home (well)
(Researcher_3)

Plant Maintenance, Yield and Utilization

- Maintenance: Very frequent at the beginning of planting
- Yield: Domestic consumption & for neighbors
- Marketing: None

(Researcher_3)

Vegetables usually planted during hot season
(Researcher_6)

Neigbor/Grandma:
- Harvested during the rainy season, so they don't have to be watered.
- They don't spoil because the green beans don't change.
- If the beans have fruit, they're only for personal consumption.

(Researcher_5)

- Fertilization
- Corn yield for chicken feed
- Vegetable yield for consumption

(Researcher_6)

Mr Lopes:
Shared with neighbors (Mr. Nyoman & Mr. Geby)

Oma/Grandma
Shared with family (Mr. Nyoman)
(Researcher_5)

Plant Maintenance:
- Corn in a nearby open field is monitored daily.
- Longan, pumpkin, banana, willow, and papaya are fenced around the house.

Fertilizer Use:
- No fertilizer is used.

(Researcher_1)

Dona:
- Plant maintenance during planting every week
- Produce for food reserves and household use
- No marketing

(Researcher_4)

Utilization of plants for personal and chicken food, as well as other plants for food only.
(Researcher_1)

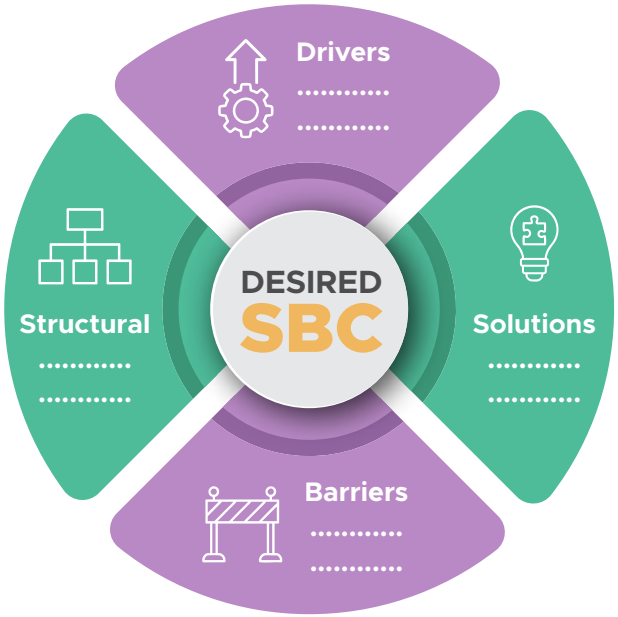
Corn and mung bean gardens require rainwater, which is stored at home. The yard uses manure from goat manure.

Chilli plant bearing fruit, the plants are turned into chili sauce and vegetables (Researcher_2)

- Routine plant maintenance by controlling water distribution to the rice fields.
- Regular fertilization every 7 days, early planting using urea and then spraying organic fertilizer regularly to maintain fruit/grain health, limiting the application to every 7 days before harvest.
- Spraying with pesticides as well.
- The rice harvest can be stored for 1 year as a food reserve at home for up to 2 years.

(Researcher_4)

The potential levers of behavioral systems [1]



The potential levers of behavioral systems [2]

Illustration of the outcomes of the immersion team's discussion regarding the possible drivers of behavioral systems.

DRIVERS

Local Staple Consumption Pattern	Adaptive Agricultural Patterns
Availability of Seeds	Commodification of Cultural Activities

Irrigation (Water Channel System)
- Reservoirs --> Wetlands (Rice Fields)
- Wells --> Dry Land (Gardens)

BARRIERS

There is no customary land management system yet	Clearing of endemic palm trees (Lontar palm) for the salt industry
There is local potential that is not being utilized, for example (livestock)	Practical Political Interests
Commodification of Cultural Activities	The imbalance between economic and environmental justice
Social assistance/ support that do not include social behavior change (SBC)	BG • Unpredictable rainfall • Seed availability • Crossbreeding models and pre-determined village and hamlet development planning meetings (Musrenbang)

Social Capital (Gotong Royong)

Knowledge Sources (IT), Kn Exchange, Kn Transfer

Educational Autonomy – Human Capital Development (HCD)

Education System that overlooks the contextuality

Unorganized and not systematic Data System

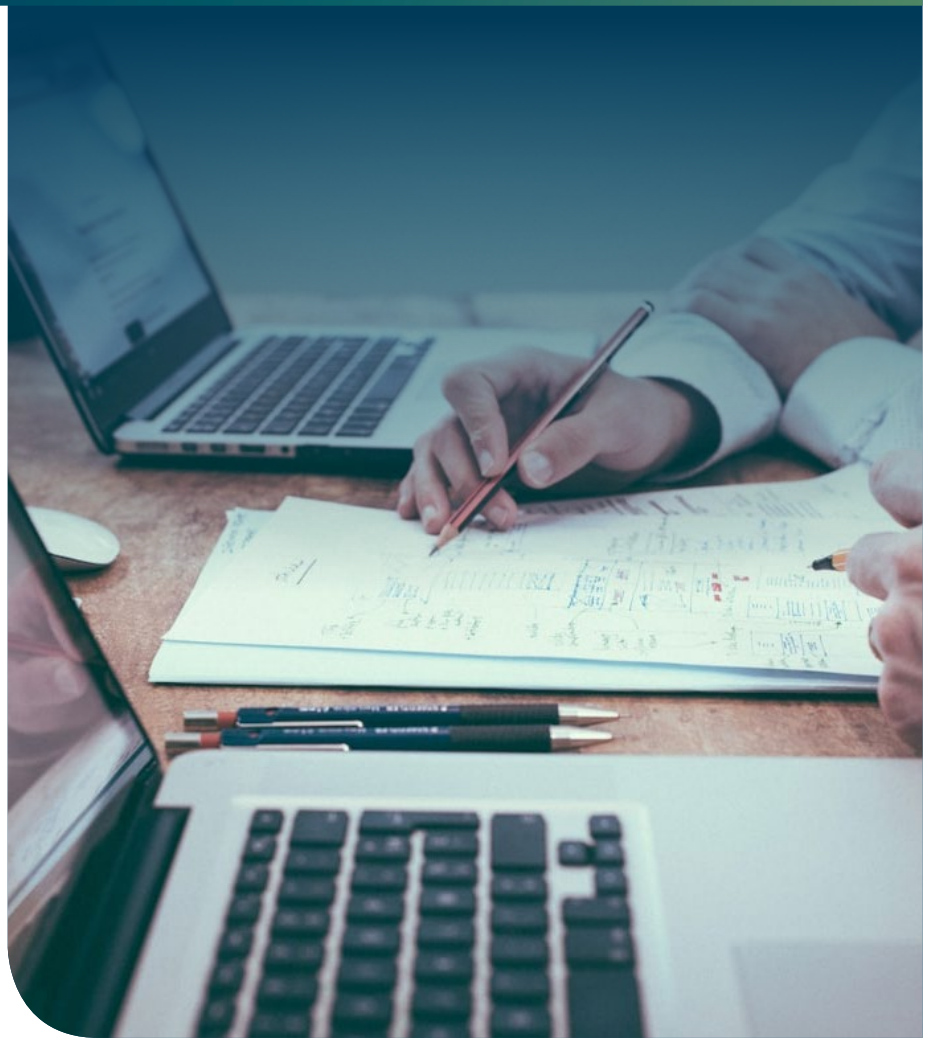
BG
- Support from non-governmental organizations carried out with a positive approach to problems, initiatives, and impacts
- Village Government and Regional Government institutions related to the agriculture, plantation, and fisheries sectors
- Intensive/protection from government
- Agricultural and fisheries advocates
- Legal umbrella for indigenous communities

STRUCTURAL

Policy interventions	Recognizing endemic plants and their practices in accordance with local values
Gotong royong /Cooperation (Construction of the Leaf House)	Local design that aligns with local values
Local food processing and preservation techniques	Intervention from external parties (government, NGOs, etc.) such as training in making organic fertilizer, fertilizer seeds, tractors, etc.

SOLUTIONS

04 Analysis



Analysis

Objective:

- **Analyzing actor mapping, aspirations, supporting/opposing characters, and solutions from diverse stakeholders in selected study locations through insiders' perspectives using Participatory Focus Group Discussions (P-FGDs).**

Reflection note:

How can one create a prototype for a Behavioral Intervention that is based on the levers of behavioral systems using the art and creativity approach?

- The analysis elucidates the interconnected dynamics among capabilities, motivations, and opportunities within a systemic framework influencing behavior, structured into four components:
  - **Landscape change**, which examines the reciprocal relationship between environmental modifications and community well-being strategies;
  - **Learning capacity**, reflecting the adaptive capacity in response to landscape alterations;
  - **Connection**, which denotes the integrative forces uniting system elements;
  - **Disconnection**, highlighting disruptions that fragment or impair systemic components.
- Identify the levers of behavioral systems. These behavior levers not only identify barriers to progress but also explore society's latent potential to promote organic and sustainable social behavior change, which can be adopted by all community members, and they can be used alone or in combination for greater effectiveness.

Annexes

bit.ly/Modull-CATCH

bit.ly/ImersiExel

Behavior change is at the heart of climate resilience. This guide offers a fresh, grounded approach to designing climate adaptation through a behavioral lens—drawing from immersive research in Wakatobi and Sabu, and shaped by cultural insight, scientific theory, and community dialogue.

Designed for practitioners, policymakers, researchers, and change-makers, it provides practical tools to spark transformation from within—where adaptation becomes not just what we do, but who we are.

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