Designing Local Framework for Integrated Water Management

Channeling people, science and water challenging Transdisciplinary Approach case study Sulawesi, Indonesia

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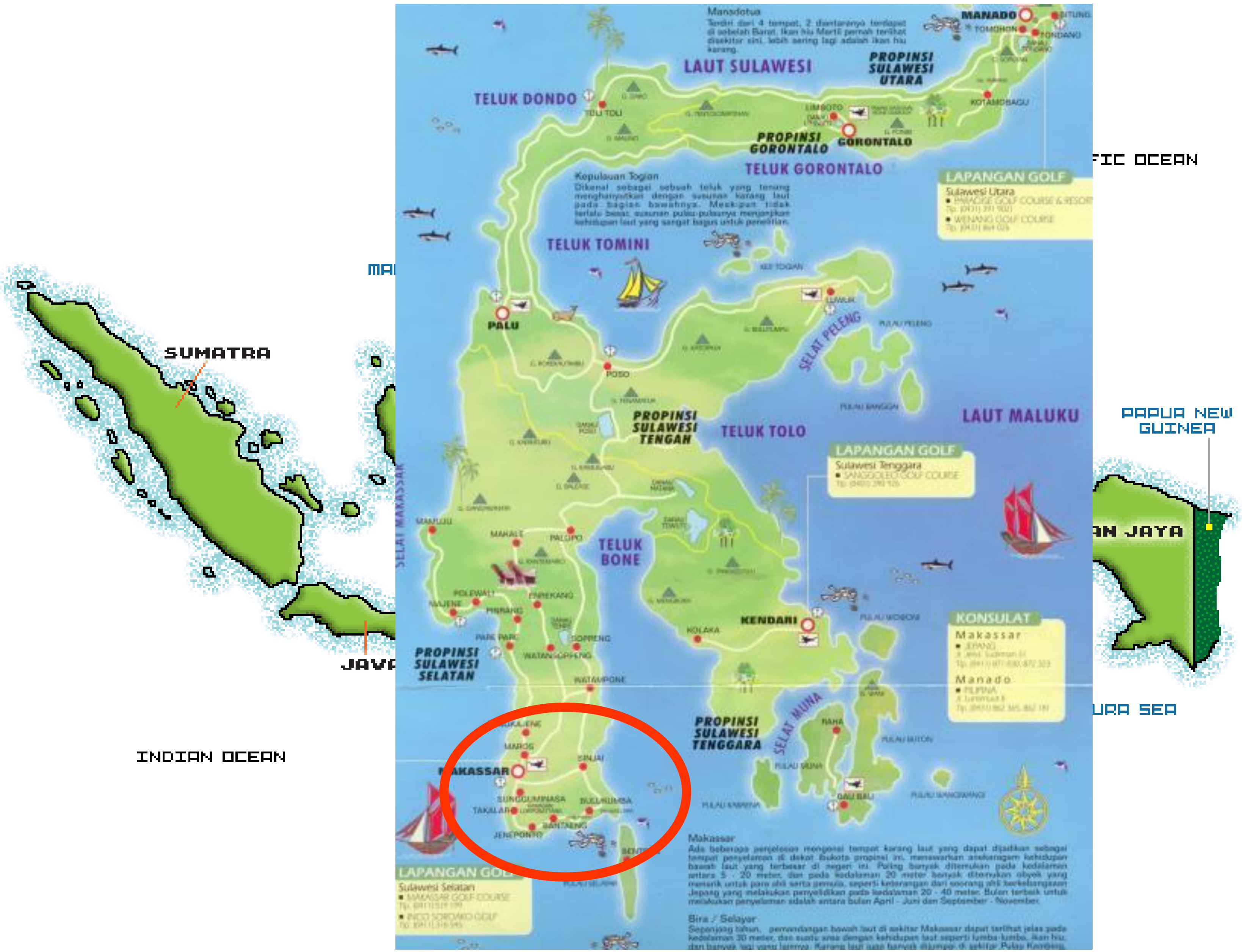
SUMATRA
JAVA
INDIAN OCEAN
PAPUA NEW GUINEA
LAUT SULAWESI
TELUK DONDO
PROPINSI SULAWESI UTARA
MANADO
PROPINSI GORONTALO
GORONTALO
TELUK GORONTALO
TELUK TOMINI
PALU
POSO
PROPINSI SULAWESI TENGAH
TELUK TOLO
LAUT MALUKU
LAPANGAN GOLF
TELUK BONE
KENDARI
PROPINSI SULAWESI TENGGARA
PROPINSI SULAWESI SELATAN
SELAT MAKASSAR
KONSULAT
MAKASSAR


Scale 1 : 1 000 000
km
10 20 30 40 50
South Sulawesi
miles
10 20 30
Watansoppeng
Cabbenge
Mampu Caves
Barru
Coppo Mabolae 1253m
Cangadi
Pekkae
Takalala
Taccipi
Macope
Ralla
Watampone
Lalebata
Segeri
Bulu Marukurulu 1335m
Matango
Ponreng
Bontobonto
KEPULAUAN SPERMONDE
Labakkang
Lejang
Tumampua
Toceppa
Pangkajene
Camba
Padangtangalu
Talawe
Kasuarang
Bantimurung
Maros
Mandai
Bantimurung Reserve
Waterfall, Caves
UJUNG PANDANG
(Makassar)
Biringkanaya
Wajo
Bulu Bualo 1504m
Fort Rotterdam &
Ballalompoa Museum
Sungguminasa
Bontobotoa
Bontoleba
Galesong
Tamalaeng
Takalar
Cilalang
Mangadu
Alla
Mt. Lompobatang Reserve
Malakaji
Pullaweng
Bantaeng
Bissapu Waterfall
Panaikang
Tolo
Bulukumba
Ponre
Sinjai
Samataring
Bulupodo
Lappadata
Manipi
Bikeru
Amesangeng
Tanette
Kassi
Bojo
Balange
KEPULAUAN SEMBILAN
Kadai
Bulubulu
Palattae
Camming
Hilahila
Tanahberu
Tanuntung
Gowa
Takalar
kilometers

Sulawesi Project Site

Jeneberang Watershed

23,400 ha
60,000 HHs
300,000 people

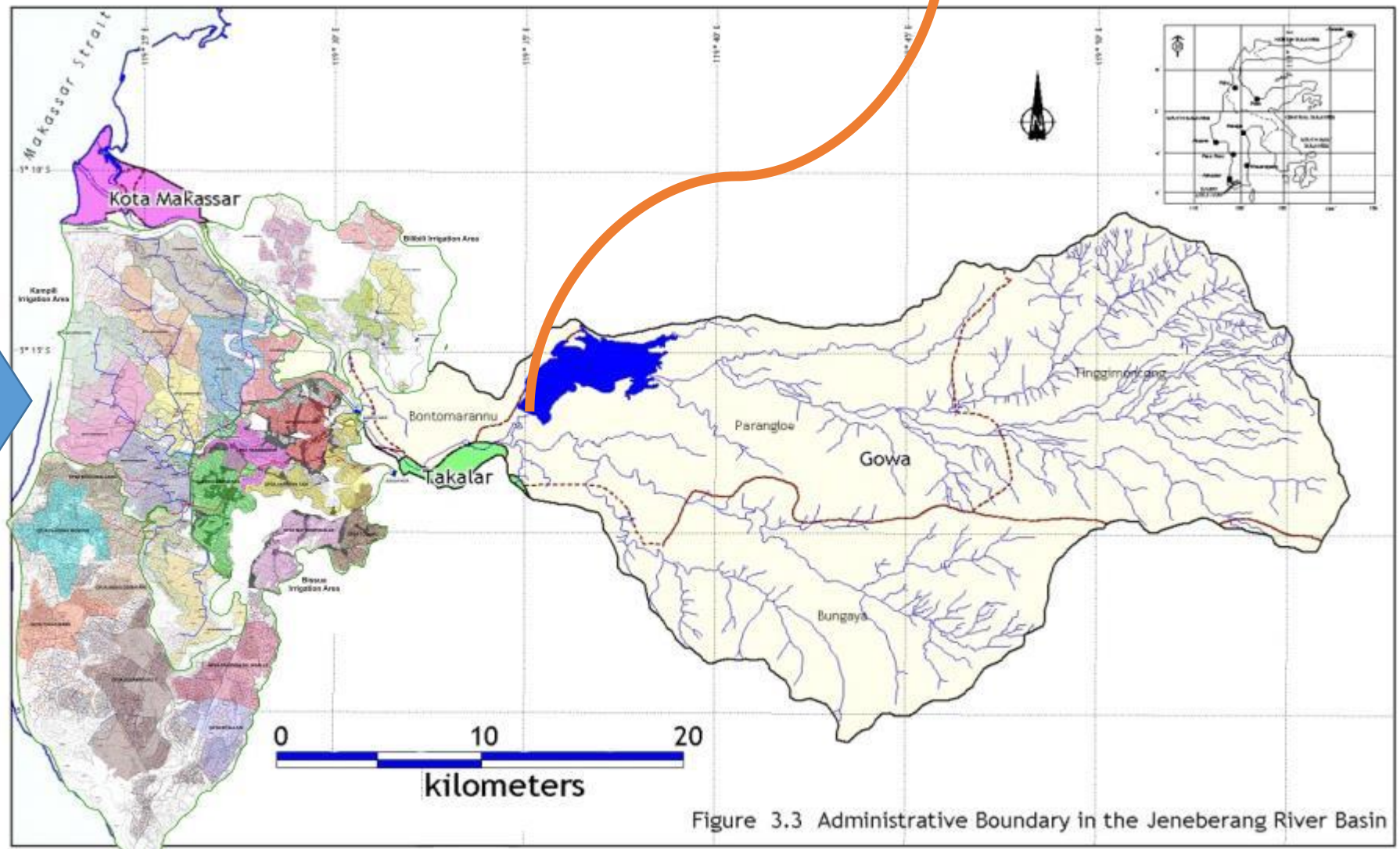

Figure 3.3 Administrative Boundary in the Jeneberang River Basin

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Bili-Bili Multipurpose Dam

Bili-bili Dam Completed in 1999.

Rehabilitation and Development of Irrigation Channels completed 2004.

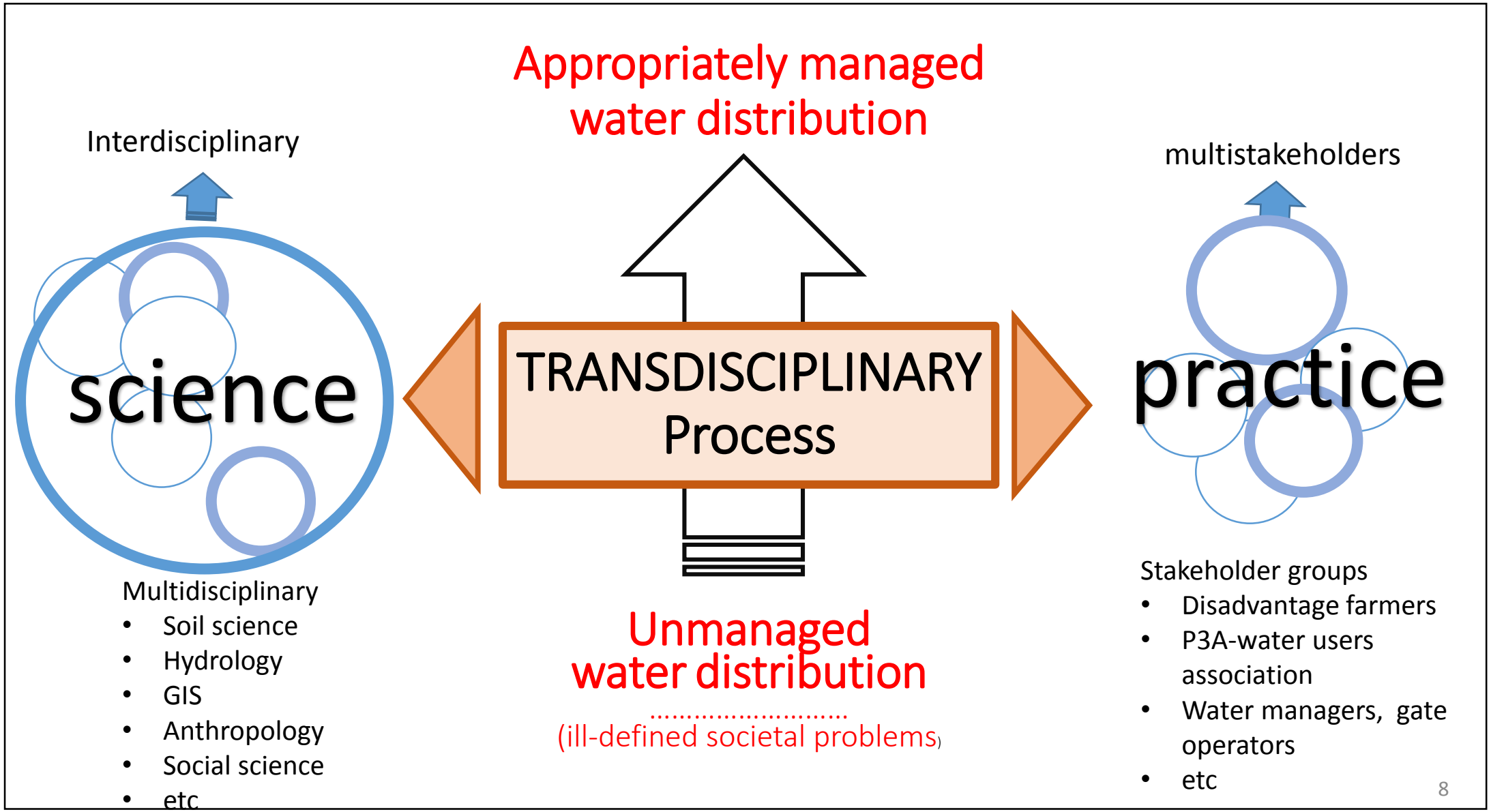
Main Principles in Enabling Transdisciplinary Process

1. **Framing a transdisciplinary research**
2. **Ensuring stakeholders legitimacy and balance**
3. **Encouraging Stakeholder participation**
4. **Facilitating Collaborative Actions**
5. **Fostering Sustainability**

1. Framing a transdisciplinary research

Transdisciplinary research ,
is defined as research that aims to ***contribute*** to ***real-world problem solving*** and that combines **different types of knowledge** in partnering with ***societal stakeholders***.

Framework of Research



Stages of research and stakeholders

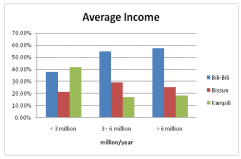
1	2	3	4	5
Getting started (2011) Field investigation	Preliminary research (2012) Basic research	Adjustment of research focus (2013) Humanity Science Natural science	Action research Stage 1 (2014) Kampili	Action research Stage 2 (2015) Kampili Bissua
RESEARCHERs NGO- farmers (downstream area) **3 types**	RESEARCHERs WUA, related government staffs, NGO-farmers **5 types**	RESEARCHERs FWUA, WUA, Local Gov NGO- farmers **6 types**	FWUA to FWUA Local Gov NGO RESEARCHERs **20 types**	Farmers, WUAs , FWUA, related gov, other stakeholders RESEARCHERs **31 types**

SCIENCE

PRACTICE

1
2
3
4
5

- Visit Location with local researcher, meet farmers in the field, visit some houses
- Started several measurements&surveys



Communication and network survey, deep interviews

Data Analysis
Paper Writings
Workshopk, Seminar and Symposium

Book writing in Japanese and English

Decide to focus on **Shortage of Irrigation Water**

Stakeholders Meeting, FGD, Action Research meeting series,
Collaborative actions: scheduling and implementing water distributions ,
Participatory monitoring

Scaling up from Kampili IA to Bissua IA

Preparing Manual
Stakeholders Meeting&
International Symposium

Assisting field visits
Involving in discussion
Helping research measurements

Conduct P3A Meetings
Cleaning canals

Relocate gate operators
Cleaning canals
Repairing broken water gates
Repairing canals
Assessing government fund
Expanding water distribution plan to wet season paddy

Sharing Knowledge

More tools 3 D map : Enhance communication

Communication and network interviews

Respondents: 13 (2014) and 26 (2015)

- Technical assistant at primary channel
- Weir operator:
- Gate operators
- FWUA leader s
- Technical assistant at secondary channel
- Gate operator at secondary channel
- WUA leader
- Mandorojene

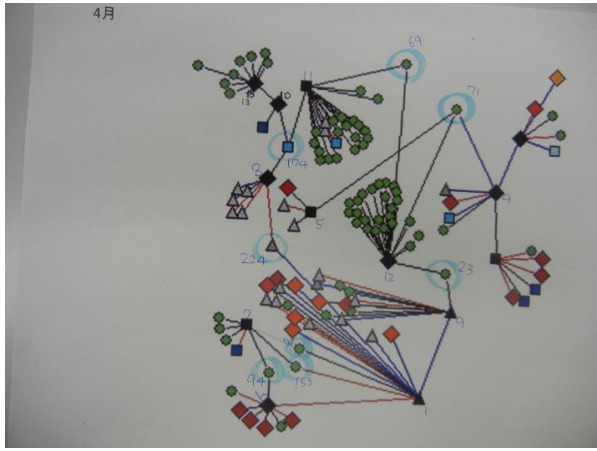
Total : 23 weeks (2014) and 25 weeks (2015)

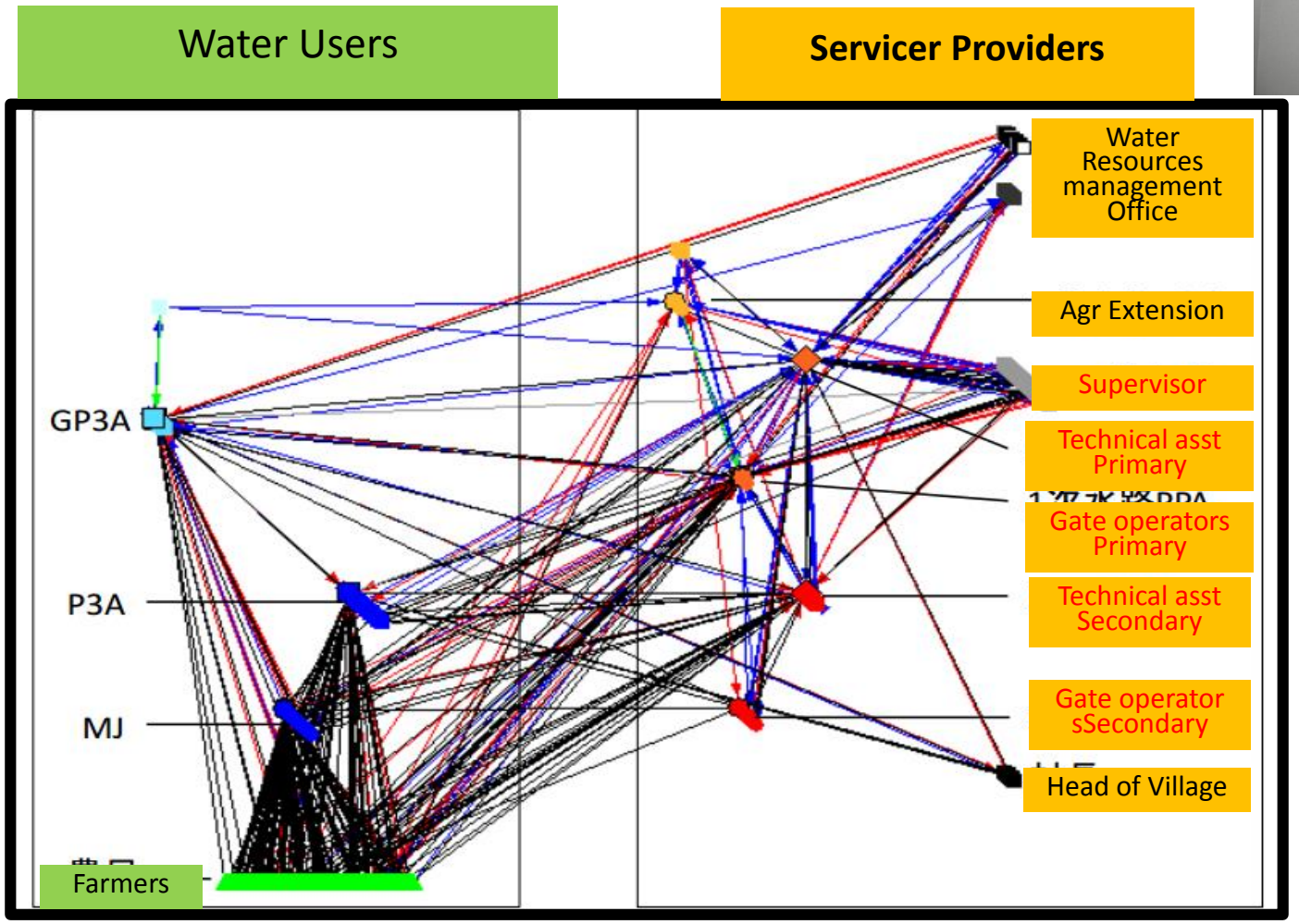
Visits per respondents: 15-20 times

Average: 17.5 visits /respondents

Total interviews :228 (2014) and 200 (2015)

Communication Network





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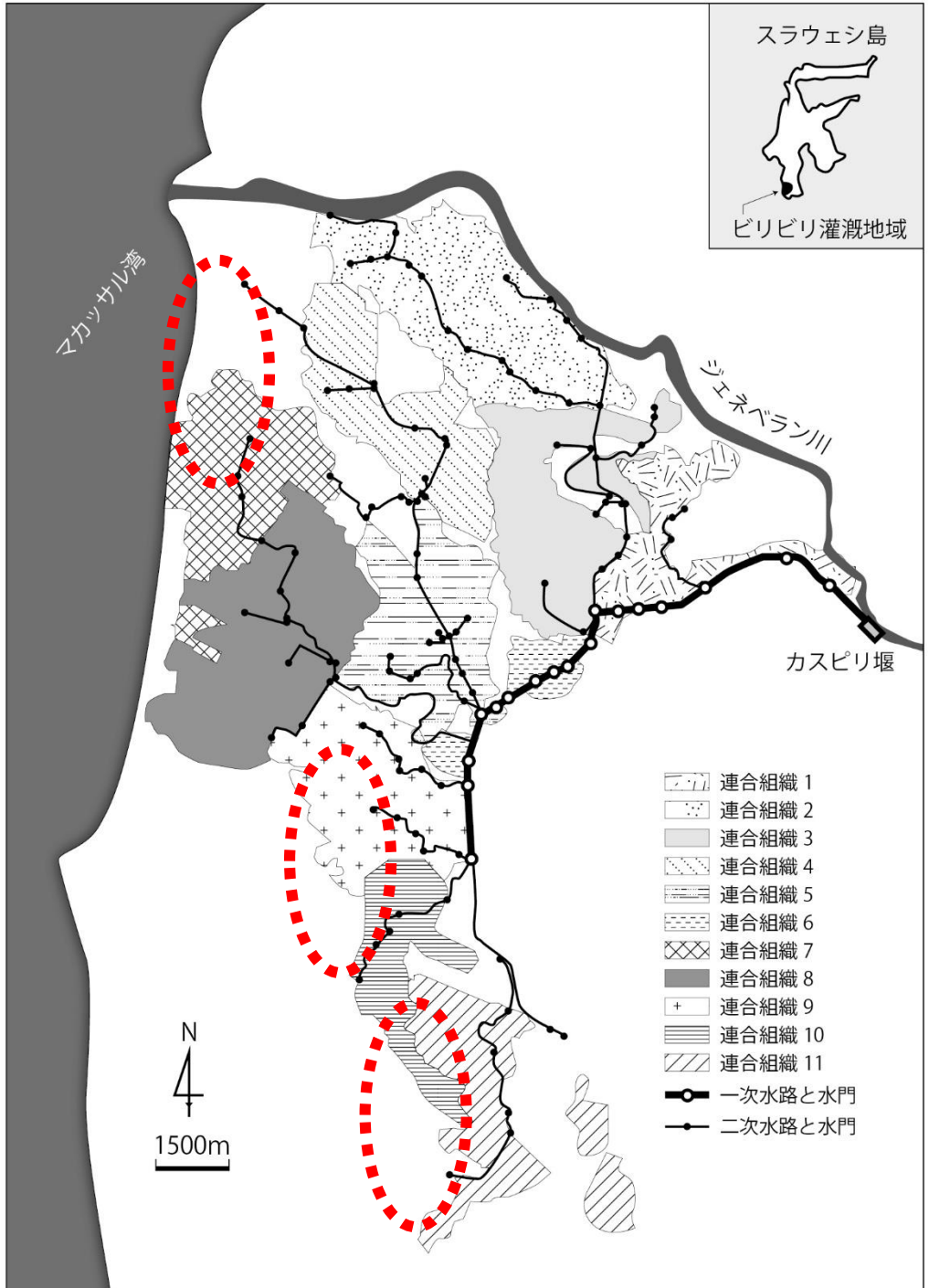
2. Ensuring stakeholders legitimacy and balance

Strategy/methods

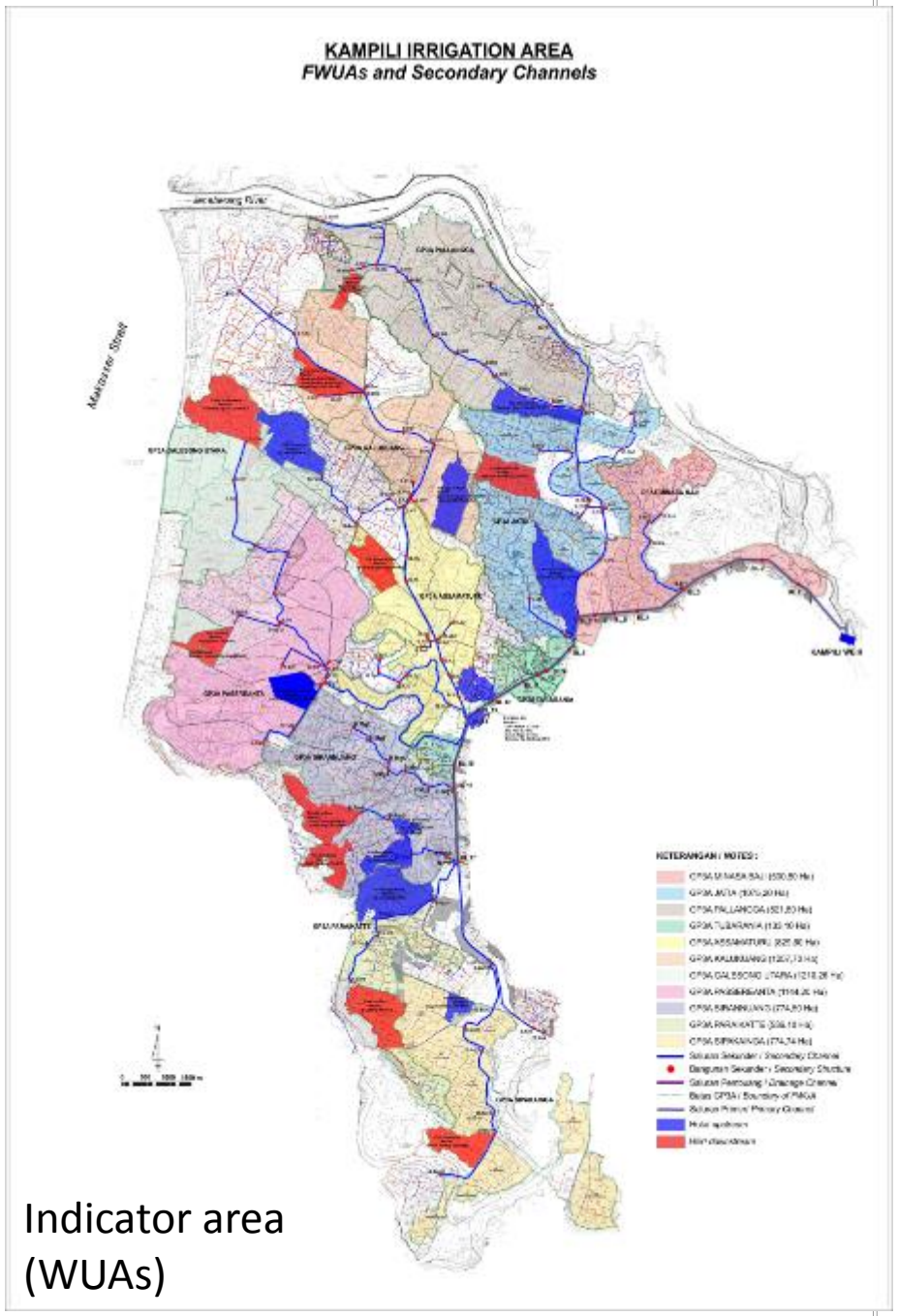
a. Conduct sound stakeholder analysis :
b. Ensure the balance of group composition
c. Take advantage of democratic election and selection: each group or sectors selected their own representatives
d. Facilitate Fair and balance discussions:



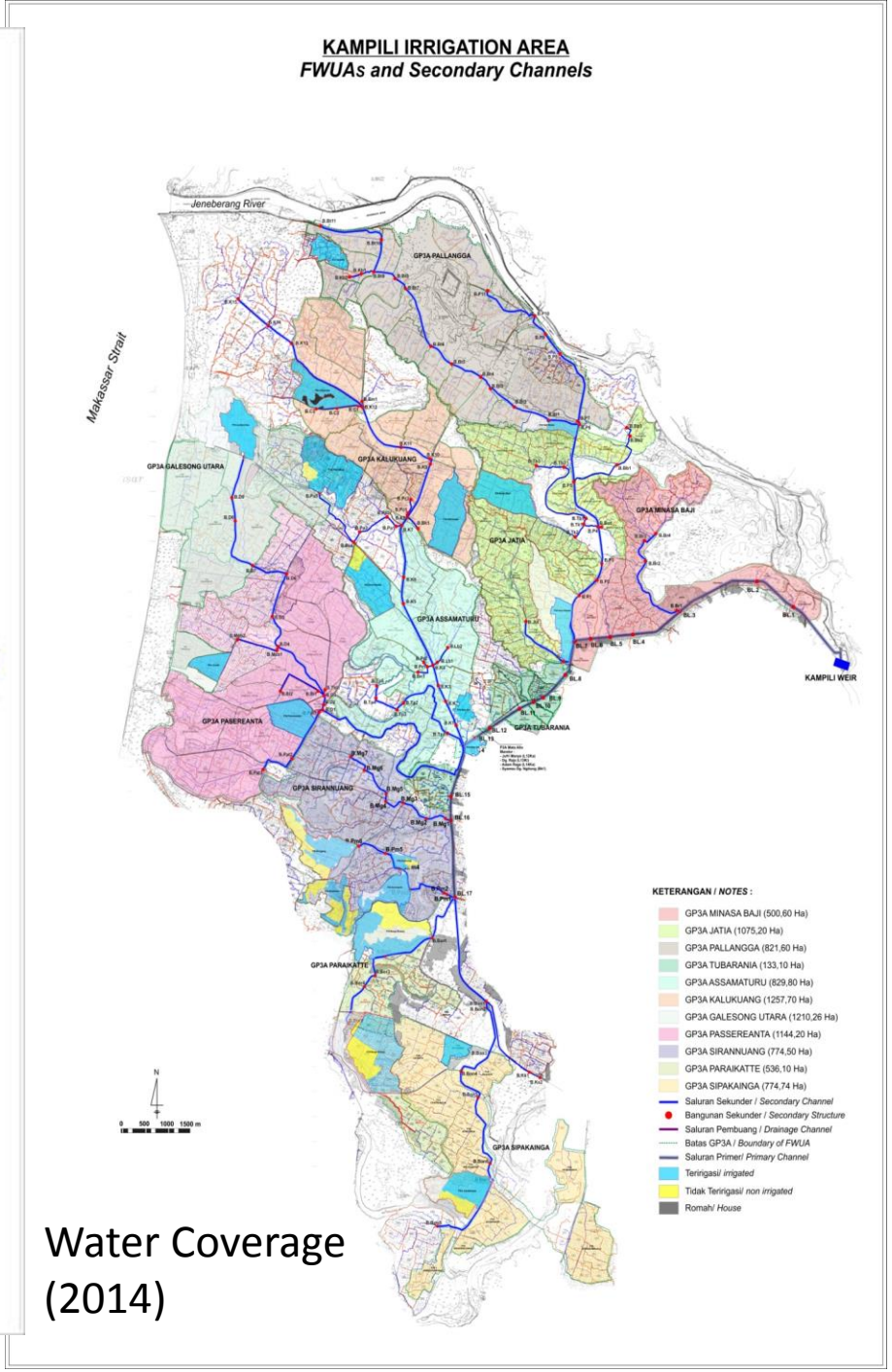
KAMPILI Irrigation System

- 1st group stakeholders
  Water users (priority for farmers in the downstream area)
- 2nd group stakeholders
  Water managers, gate keepers
- 3rd group stakeholders researchers interdisciplinary team)
- 4th group stakeholders

Other stakeholders who affected the water use and supply or collaborative actions, or have interest in harnessing the process.



Indicator area (WUAs)



Water Coverage (2014)

Identification and analyze of participants/ stakeholders

FGD.2_GROUP .IV

1. Bulaeng (Fasilitator)
2.Bachtiar Situju (O.P Majannang)
3. Chusnul Arief
4. Subhan Bani (Unit Ipair)
5.Hamzah Rani (Ketua P3A Binabbasa)
6.Rury
7. Jumpei Kubota
8. Ahmad Sijaya (Ketua P3A Renggang)
9.Drs. Agustus (Kepala Desa Tanabangka)
10. Ramli Sore (perwakilan mandor Tunirannuang)
11.Suardi (PPA BPm5-6)
12. Arni
13. Kamaruddin Rola (Sekretaris GP3A Sirannuang)
14. Kadir Awing
15. Lahasang Tutu (mandor P3A Renggang)
16.Dg. Nuntung (Mandor P3A Binabbasa)
17.Paharuddin Sikki (Ketua P3A Tunikamaseang)
18. Marzuki Rowa (Ketua P3A Sipakainga)
19. Daud Unjung (Ketua P3A Tunirannuang)
20 Saharuddin Dg Naba (Ketua P3A Pammase)
21 Dwi
22. Prof Oue

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3. Encouraging Stakeholder participation

Strategy/Methods

a. Building trusting relationship
b. Ensuring that stakeholders recognized that they would benefit from their collaboration
c. Make participation as easy as possible for stakeholders. Find central meeting places, organize meetings at alternate sites convenient to different stakeholders and set limited and clearly defined time frames
d. Fostering Commitment by establishing rules and transferring responsibility

Working together with community and in research


GENERAL MAP OF BILI-BILI IRIGATION

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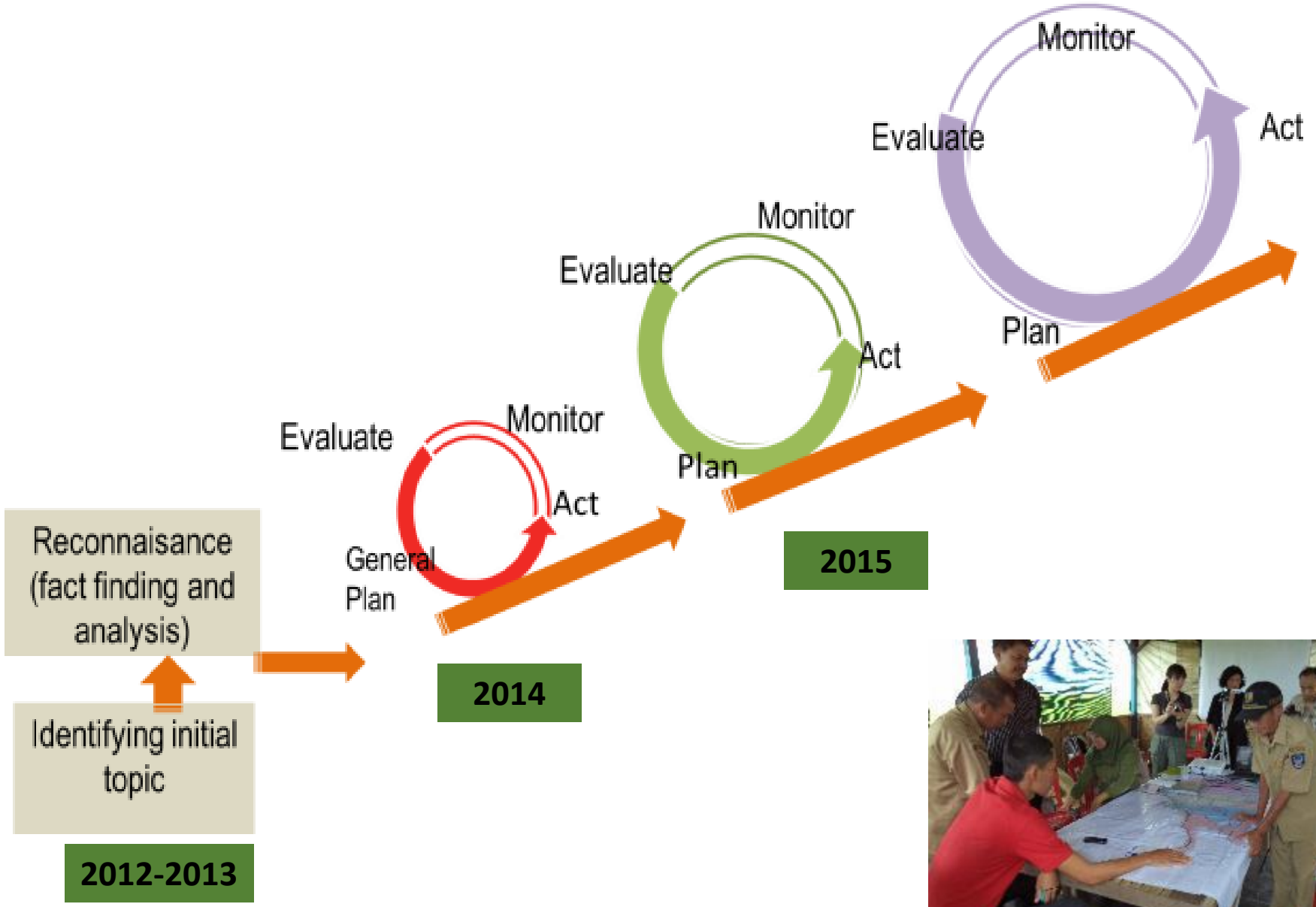
4. Facilitating Collaborative Actions

Strategy/Methods:

a. Define criteria for selection of action
b. Make sure all stakeholders understand the final objective of action plan
c. Make clear the target location beneficiaries
d. Legitimation of actions
e. Make sure roles and function of stakeholders

Strategy and Method of Collaborative Actions

Strategy/Methods	Activities /detail description	
1. Define criteria for selection of action	① Simple (small) action ② Involving as many stakeholders as possible ③ Benefits of disadvantage stakeholders ④ Make use of available resources (organization, infrastructure, traditional custom	
2. Make sure all stakeholders understand the final objective of action plan	Use tangible tools and kit to display the objective	
3. Make clear the target location and beneficiaries group	Draw the target location on map, use colorful name plates, use flags	
4. Make sure roles and function of stakeholders	Exercise of gates opening and close, role playing	
5. Legitimation of action	Involving local administrators and religious leaders Paticipatory monitoring Participatory evaluation	



Cycle of action research

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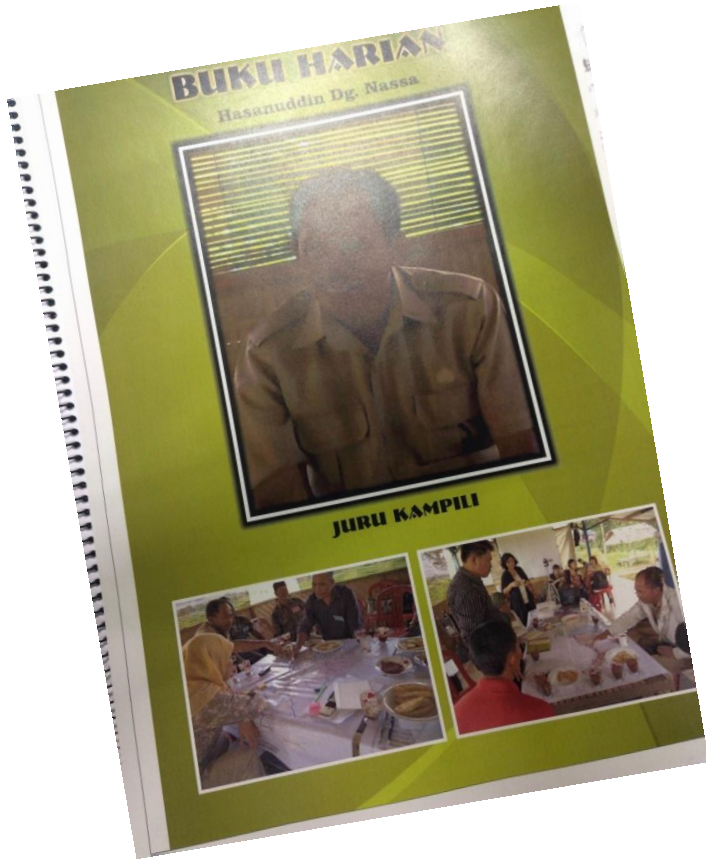
5. **Fostering** Sustainability

Strategy/methods:

a. Legitimation of Leaders
b. Harnessing self-initiative activities
c. Roles and Function of each Stakeholders
d. Getting support from Government and Academia

a. Stakeholder Meeting and Symposium
b. Manual Writing and its Socialization

Diary and MJ Identity card



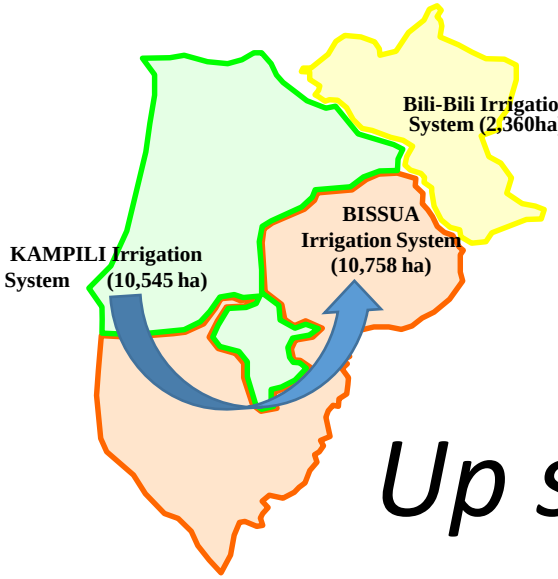
Impact:
Stakeholders self initiative activities

1. **Installation of new gate**
2. **Tertiary channel improvement work**
3. **Improvement of Embankment and garbage cleaning**
4. **Repairment of broken gates**
5. **Meeting for Scheduling water distribution at tertiary level**
6. **Garbage Cleaning (cooperated with Provincial Government)**

Accessed government fund

- A. Dg Nassa : Technical Assistant Kampili
- Renovation work of 4 secondary channels

  Paku , Bontolangkasa , Borong Boddi, Parapa



Up scaling

Leaders of Kampili IA become Facilitators at Bissua IA

Manual Preparation team Meeting
Putting experience into Manual Book

Local leaders **now** has knowledge and experience to share with wider stakeholders

MANUAL for channeling people
not many in the world
nothing technical but able to channeling water

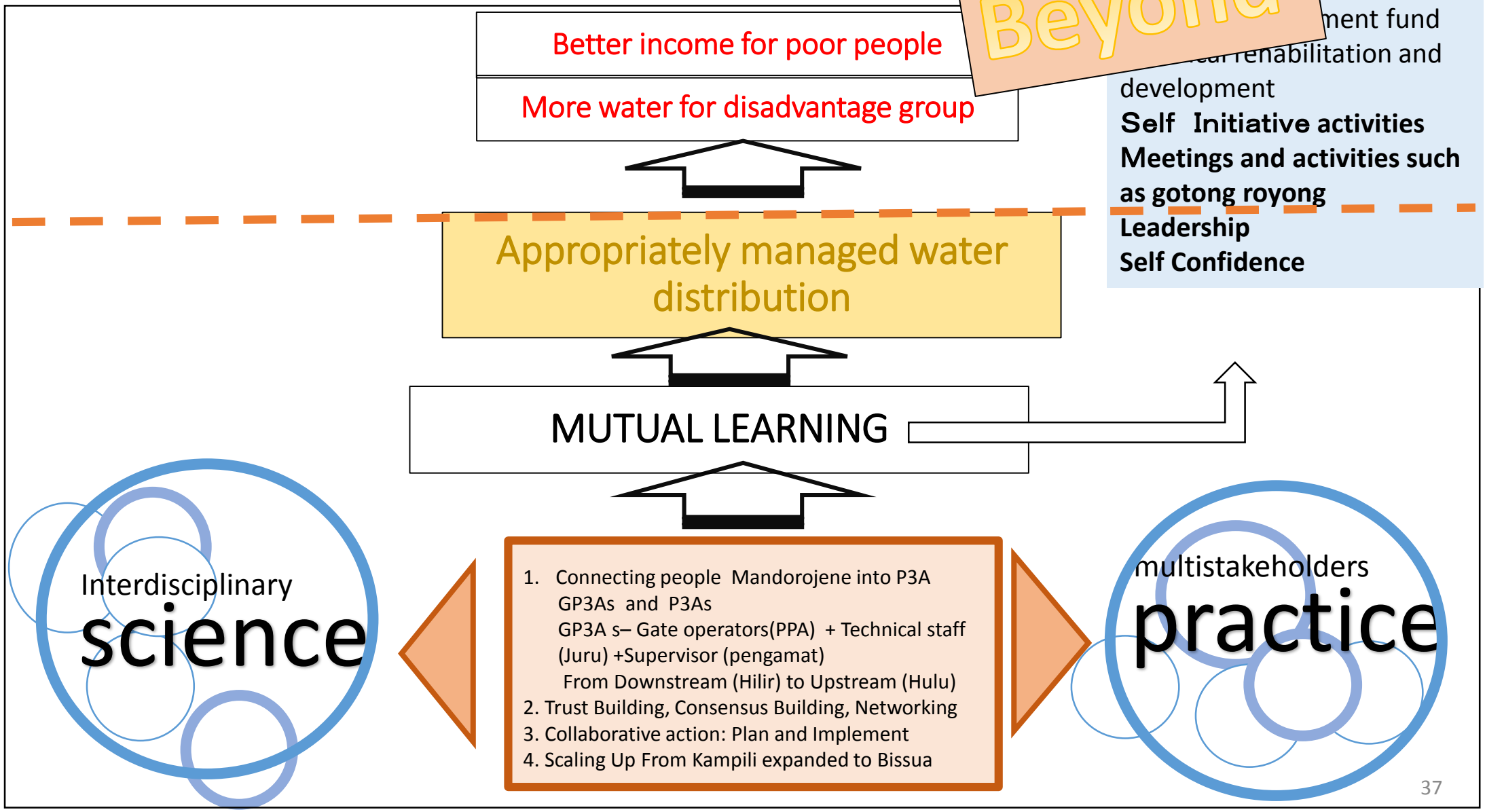
- What is inside

13 important activities to enable collaborative actions

31 stakeholders and their roles in each activity

Mizu wowakatsu cover

Result beyond science and research framework




Thank you