MSEAS 2024
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2021 2030 United Nations Decade of Ocean Science for Sustainable Development
A UN Ocean Decade Event
#MSEAS2024

S7 – Co-production of knowledge, participatory approaches and engagement with stakeholders

Assessing the performance of a national participatory scheme for the co-management of the mangrove crab fishery in Madagascar

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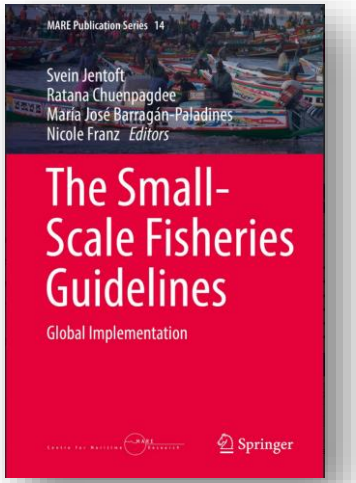
CORECRABE
COopération de valorisation de la REcherche pour la gestion de la petite pêche de CRABE de mangrove à Madagascar
EUROPEAN UNION

Food and Agriculture Organization of the United Nations

SUSTAINABLE DEVELOPMENT GOALS

14 LIFE BELOW WATER



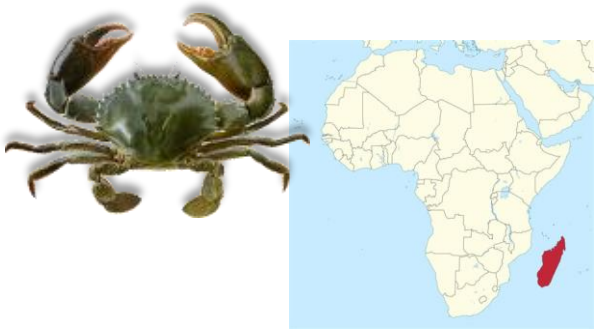
The FAO's Voluntary Guidelines for Securing Sustainable SSF call for strengthened fishing community **participation in decision-making** and **collaboration among stakeholders** to promote sustainable management.

The challenge: how to develop learning, capacity for action & homogeneity of actors' strategies (i.e., key SSF governance processes) at national level to initiate co-management of SSFs?

Collaborative approach “Action Research” in fisheries decision process

- Effective approach rooted in sustainability science (Norström et al. 2020)
- Transdisciplinary framework to deal with complex problems in SSF (Jentoft & Chuenpagdee 2007)
- Acting on multi-year processes structuring fisheries governance based on stakeholder collaboration to assess the fishery (Léopold et al. 2019)
- Co-creation of collective actions : collective processes of problem framing and problem solving through joint experimentation and social learning that directly involve the scientific and extra-scientific expertise (Popa et al. 2015)

A complex case study: the mud crab export fishery in Madagascar



- Export fisheries

~ 1,500 km of coastline
~ 8,000 fishers
~ 5,000-7,000 t / year

- Weak institutional capacity and transparence

- Limited research capacity
- Very limited fishery data

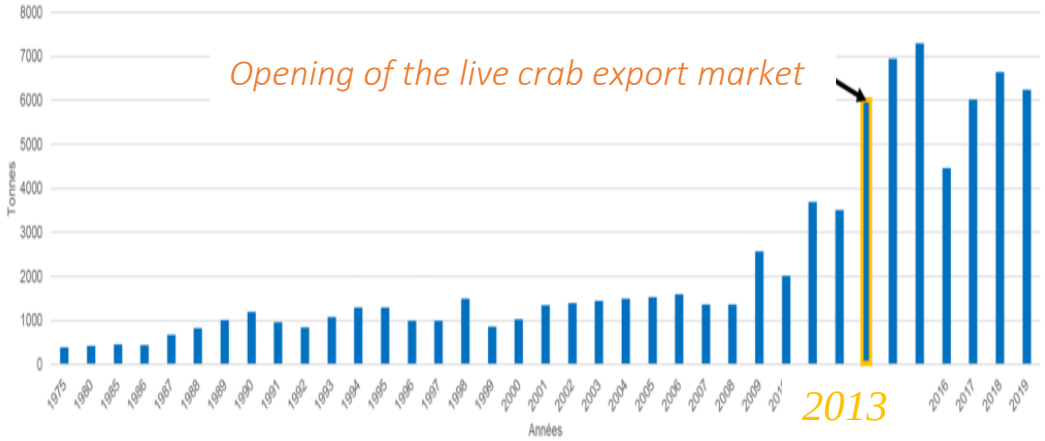
- Major change since 2014

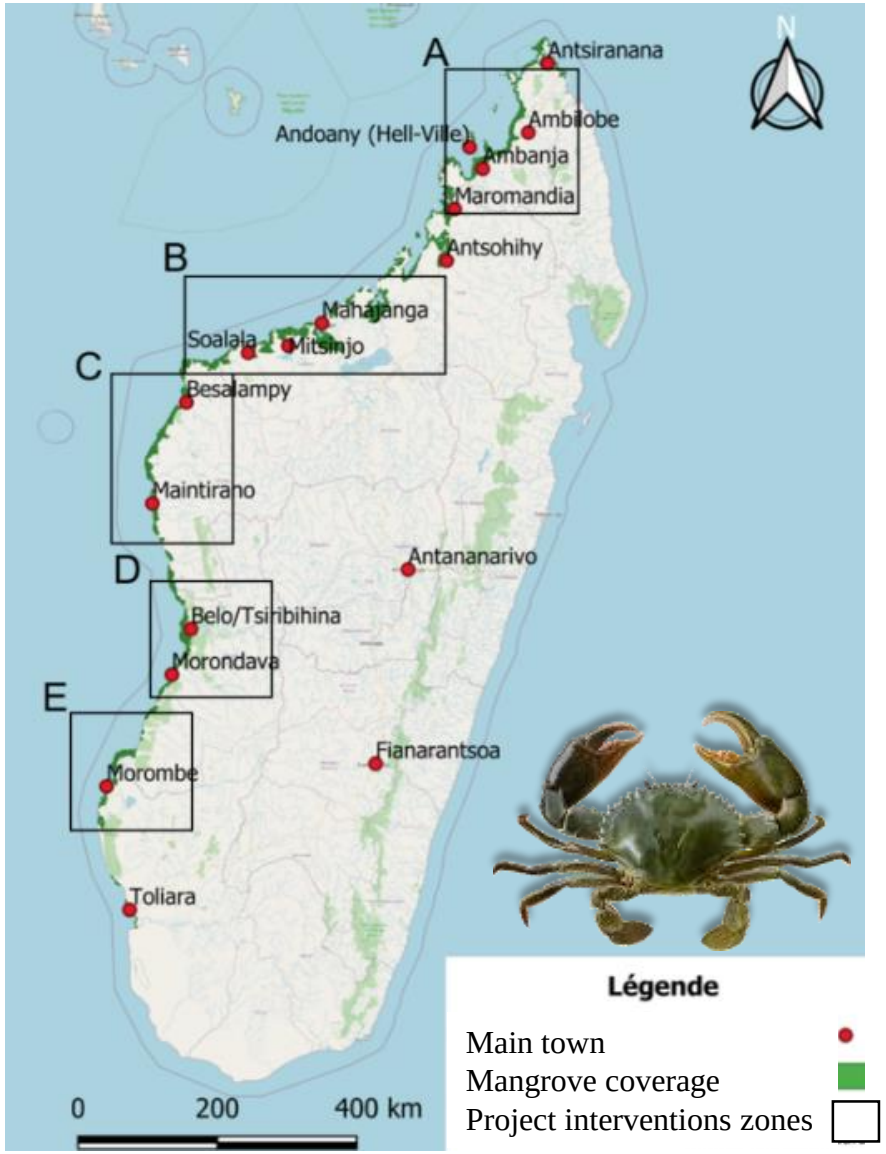
- **Fishery policy: an opportunity window at national level**

WORLD BANK GROUP

SWIOFISH 2

Annual catches (t)





CORECRABE

COopération de valorisation de la REcherche pour la gestion de la petite pêche de CRABE de mangrove à Madagascar

Interreg 2019 - 2023

CORECRABE = a 4-years national action research project involving stakeholders from the mangrove crab industry

Research project objectives:

- Supporting multi-scale management of mud crab fisheries in Madagascar
- Developing **learning**, **capacity for action** & **homogeneity of actors**' strategies at national level to initiate co-management of SSFs

3 ministries involved

MAEP · MESUPRES · Ministère de l'Environnement et du Développement Durable

Scientific institutes

IHSM · TOLIARA · UR Université de la Réunion · CERED · IRD · EMIT · cirad · Ifremer · Université de Luzern · MEMORIAL UNIVERSITY · SAINT MARY'S UNIVERSITY Since 1802 One University. One World. Yours. · UQAR Université du Québec à Rimouski

Private sector

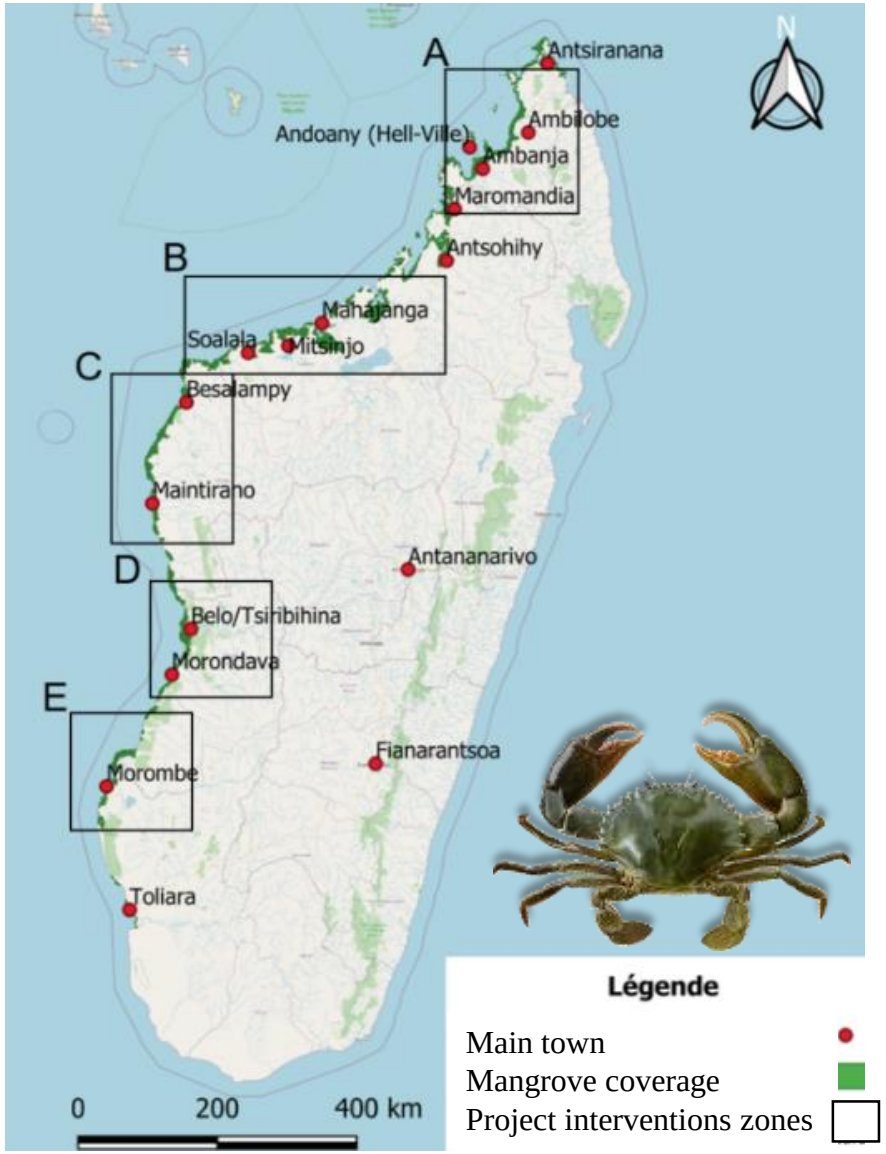
Crab fishers
Fish buyers
Collectors

Civil society

MIHARI · SWIOFISH · USAID · blue ventures · GEF6 - AMP Pêche Côtière Durable (PCD) I - II · WWF · WCS

Operational staff

Magnirike · OCEA CONSULT · RENAFEP-MADA



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My research objective:

Assessing the performance of this national participatory scheme for the co-management of the mangrove crab fishery and local stakeholders' learning and participation

CORECRABE transdisciplinary activities

1) Regional multi-stakeholders workshops set up for regional management of the action-research project

2) Village-based activities such as participatory monitoring data from fishers and collectors

3) Other activities (Participatory modeling, Development of an **interviewers** network, Association support, Scientific outreach, Summer school, Theatre-forum)

CORECRABE transdisciplinary activities

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1) Regional multi-stakeholders workshops

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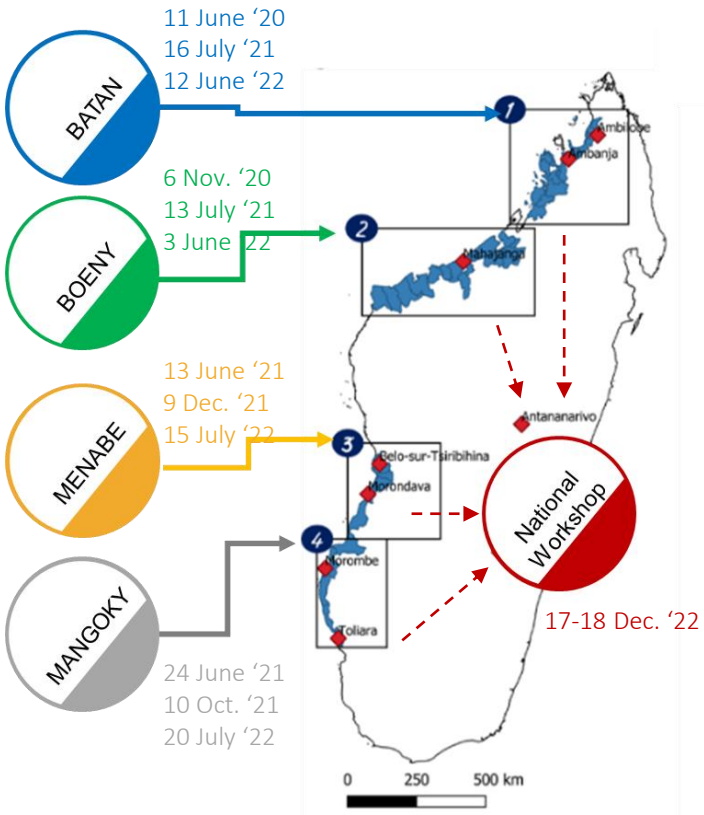
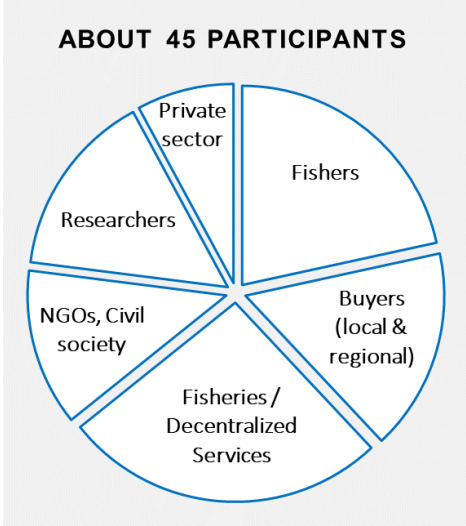
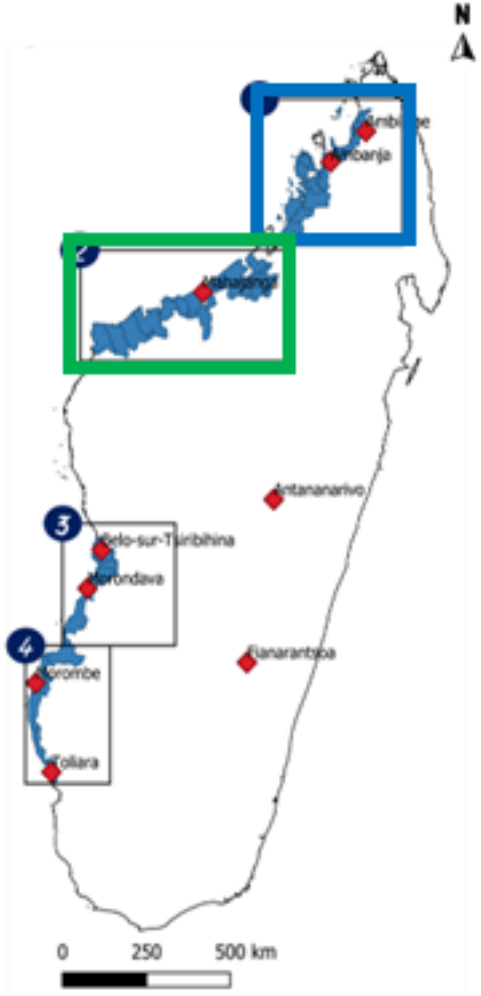


- Create **stakeholder groups** for the crab industry
- **Share research** information on crab fishing in the region and **establish diagnostics** of the value chain
- Identify **priority actions** for researchers and partners according to the particularities of the context





Analysis 1 - Evaluating technical learning, relational learning and information transfer from regional workshops

- Survey of 52 workshop participants (from the 2 Northern regional working groups)
  - from which **16 living in coastal villages (23%)** involved in CORECRABE activities

- Questions about:
  - New fishery, biological, economic & management knowledge
  - New relationships
  - Knowledge transfer: to whom and what knowledge

CORECRABE transdisciplinary activities

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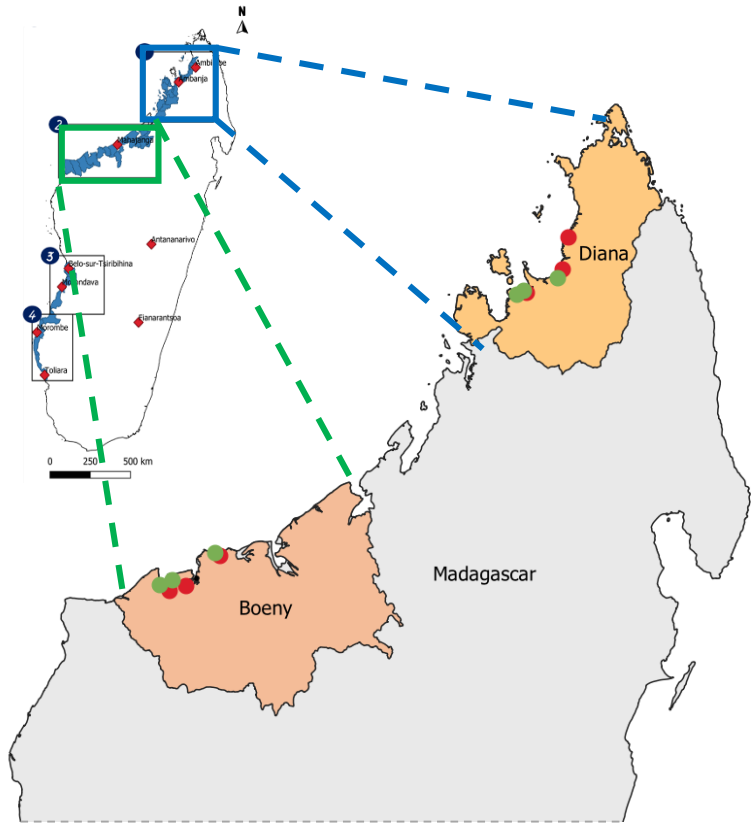
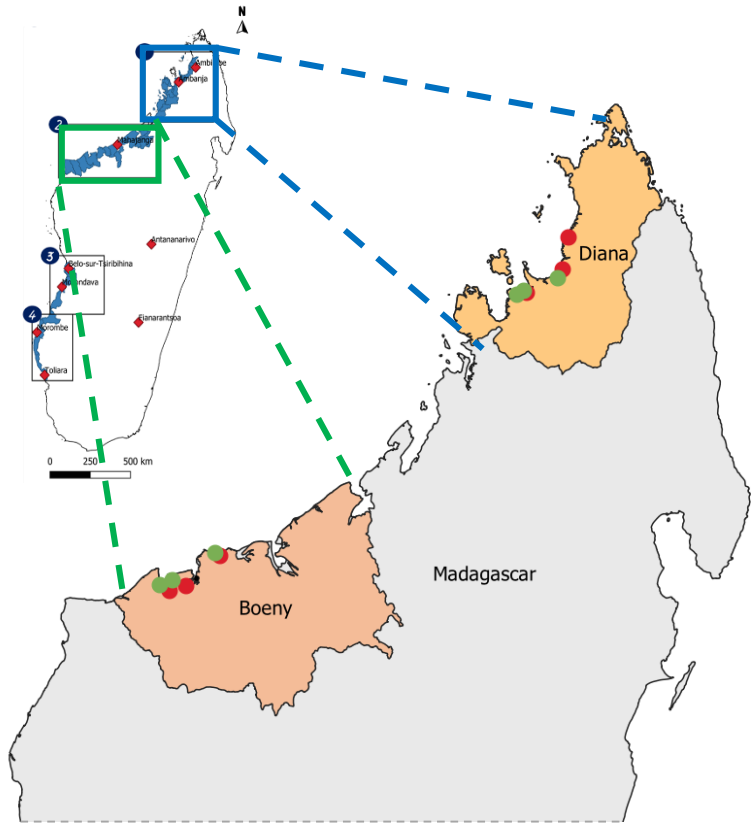
Analysis 2 - Assessing the transfer of knowledge to and from local communities



- 3-months fieldwork within 12 villages
  - 6 villages **not-involved** in the CORECRABE project
  - 6 villages **involved** in the CORECRABE project = **Control villages**

Analysis 2 - Assessing the transfer of knowledge to and from local communities



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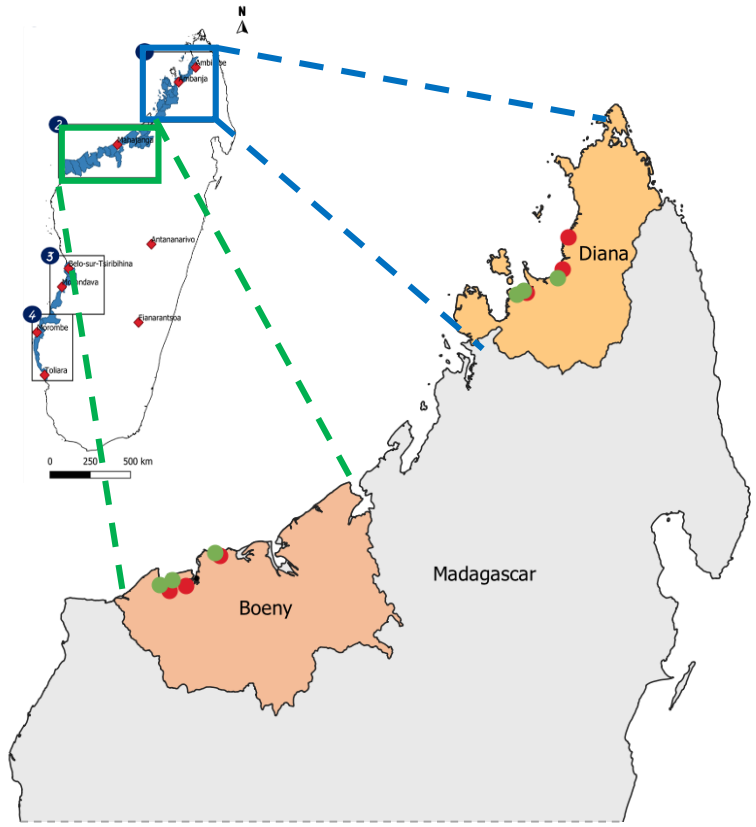
- 77 focus-groups surveyed (= 300+ local SSF actors separated by occupation, age & gender)

Fishers | Buyers | Community leaders

Analysis 2 - Assessing the transfer of knowledge to and from local communities



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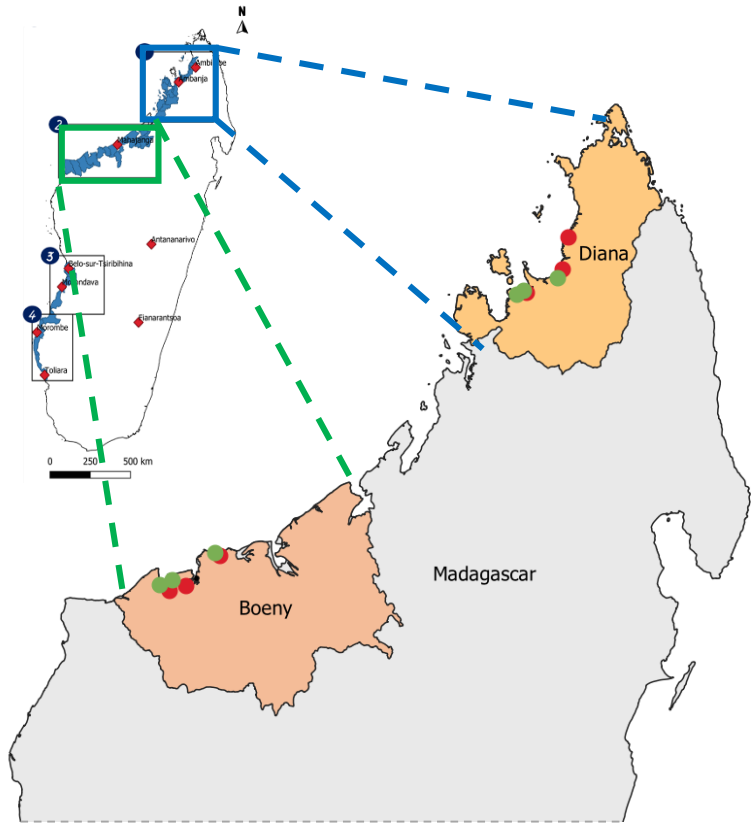

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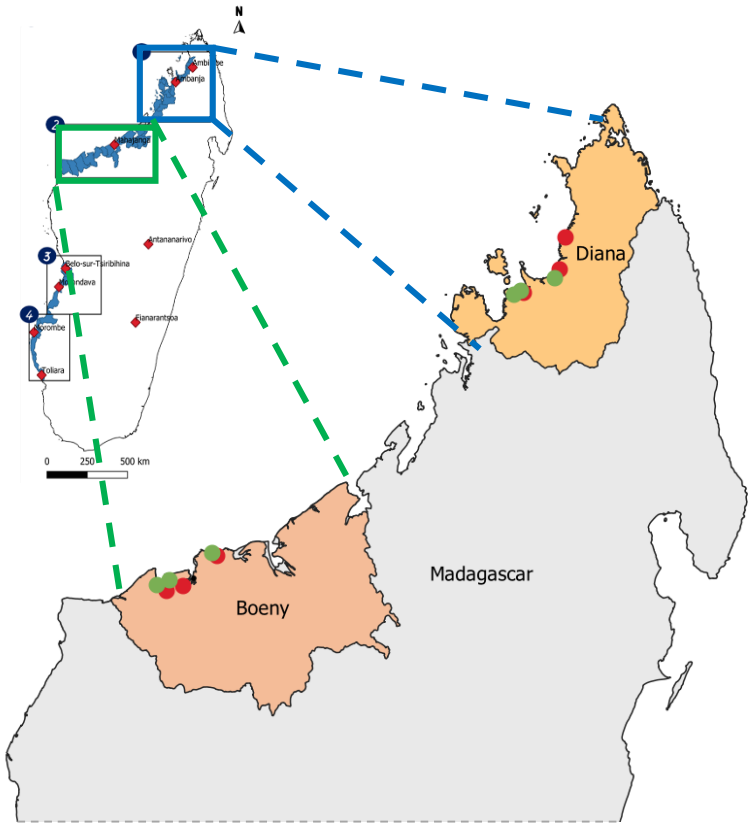
CORECRABE Villages (control)	Number of mission	Activities with control group only	Activities with the whole community
Antsatrana	15	10	16
Ambolikapiky	17	13	9
Antsahampano	17	14	10
Ampitsopitsoka	10	11	13
Marotia	8	15	10
Baly	9	15	13

Analysis 2 - Assessing the transfer of knowledge to and from local communities



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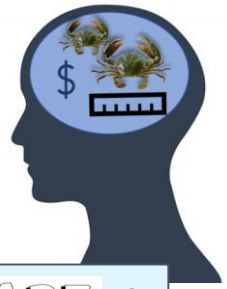
  Fishers | Buyers | Community leaders | Control groups

- Interviews about their fishery **system knowledge, knowledge sources & network**



What inputs from CORECRABE ?

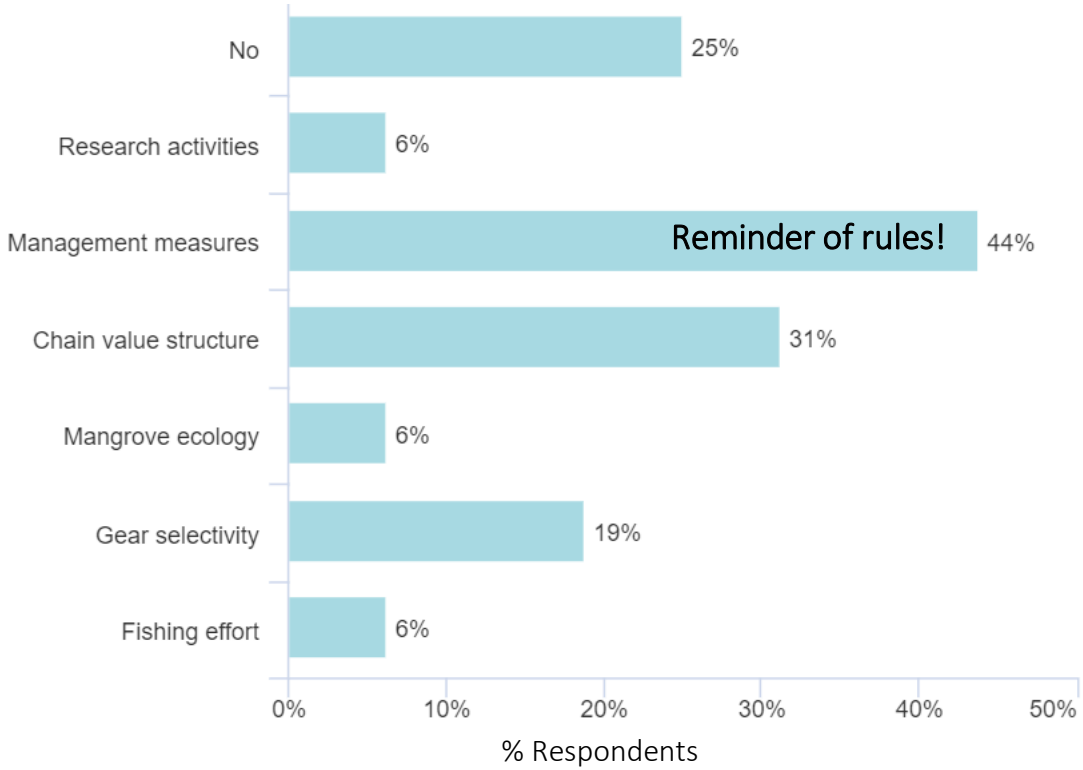
PRELIMINARY RESULTS

1) **Regional multi-stakeholders workshops** set up for regional management of the action-research project

2) **Village-based activities** such as participatory monitoring data from fishers and collectors

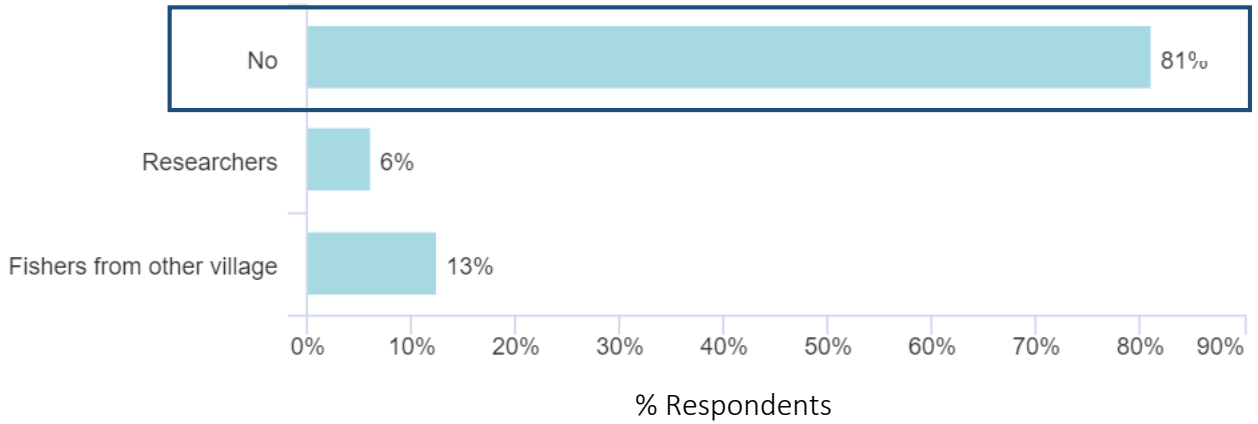
Analysis 1 - Evaluating technical learning, relational learning and information transfer from regional workshops (1/2)

New knowledge acquisition



3/4th participants said had received new insights, variable new knowledge according to participants

New relationship

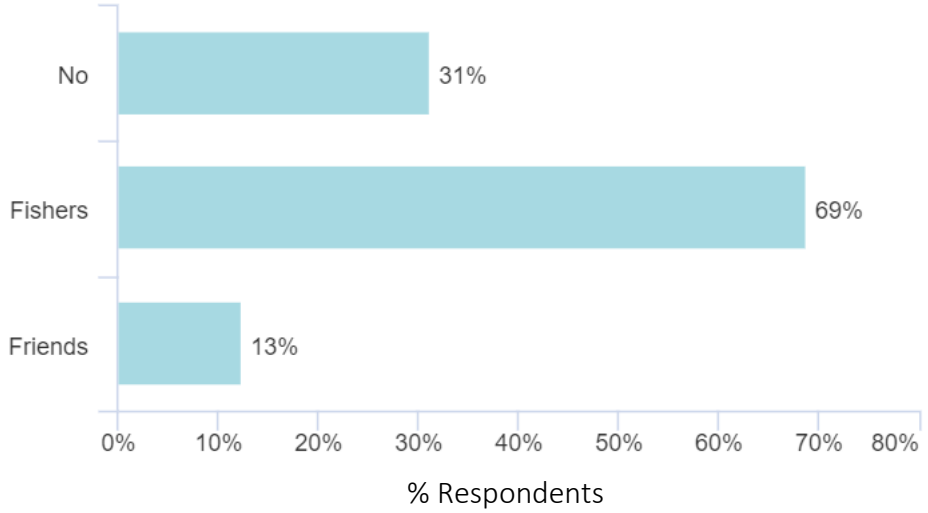


but most have not build up any new relationship

(Attention, non-exlusive modalities; 15 participants interviewed)

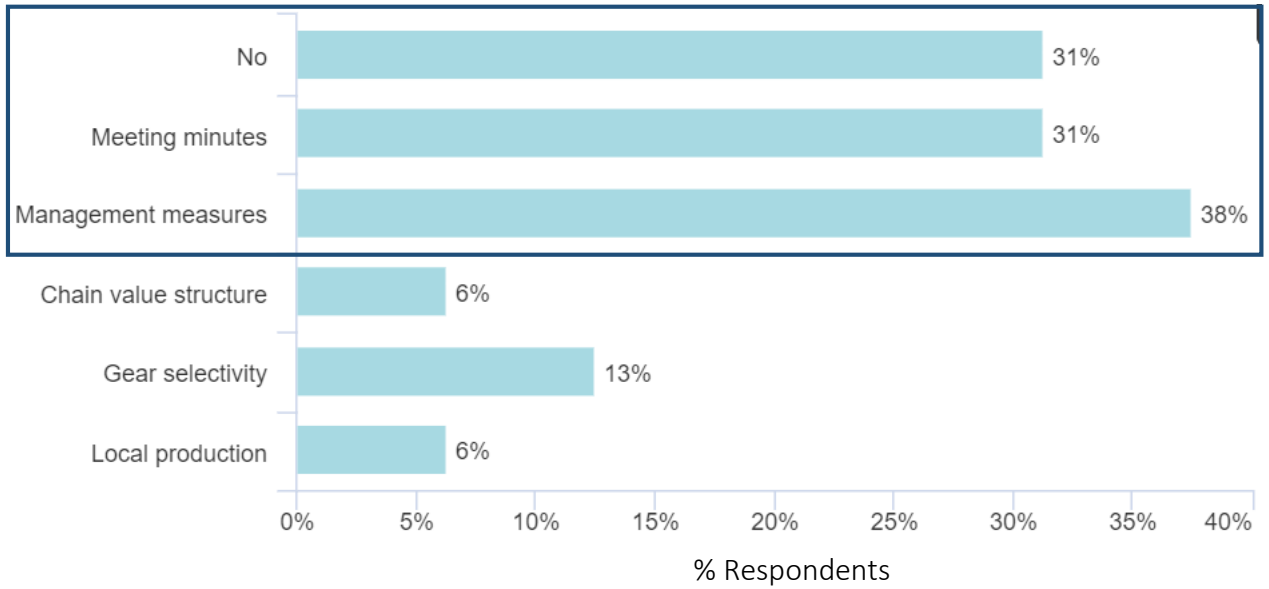
Analysis 1 - Evaluating technical learning, relational learning and information transfer from regional workshops (2/2)

Knowledge transfer (whom)



2/3rd participants said had transmitted their knowledge to fishers mainly

Knowledge transfer (what)



and it mostly concerned management rules

(Attention, non-exlusive modalities; 15 participants interviewed)

PRELIMINARY RESULTS

1) Regional multi-stakeholders workshops set up for regional management of the action-research project

2) Village-based activities such as participatory monitoring data from fishers and collectors

Analysis 2 - Assessing the transfer of knowledge to and from local communities (1/3)

Knowledge comparison between surveyed groups

H0: Improved knowledge thanks to CORECRABE workshops & activities ?

	Biological	Economic	Management
Between control villages and other villages	NS	NS	NS
Between control groups and other focus groups	NS	NS	NS

Ex. Stock status perceived the same way (CPUE not understood as abundance index)

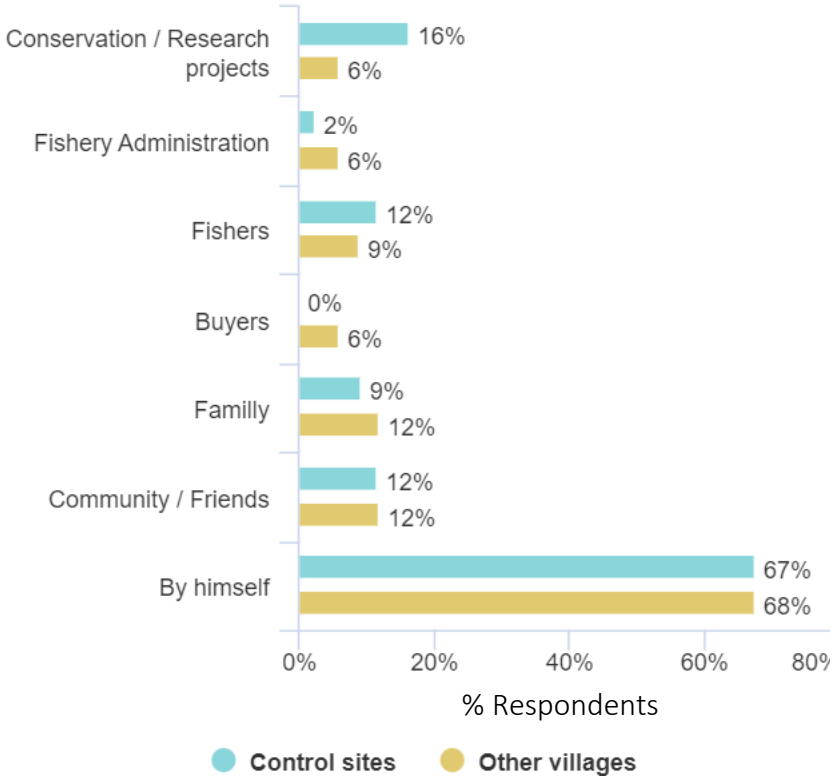
Ex. Reasons for legal size & closure well known

CORECRABE had not significantly improved knowledge

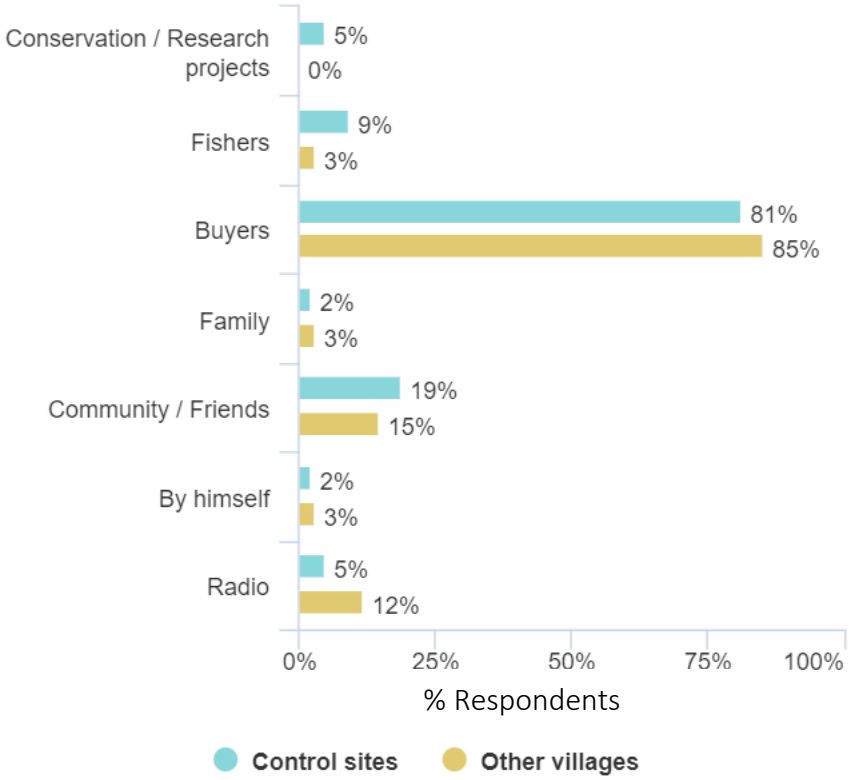
Analysis 2 - Assessing the transfer of knowledge to and from local communities (2/3)

Knowledge input sources

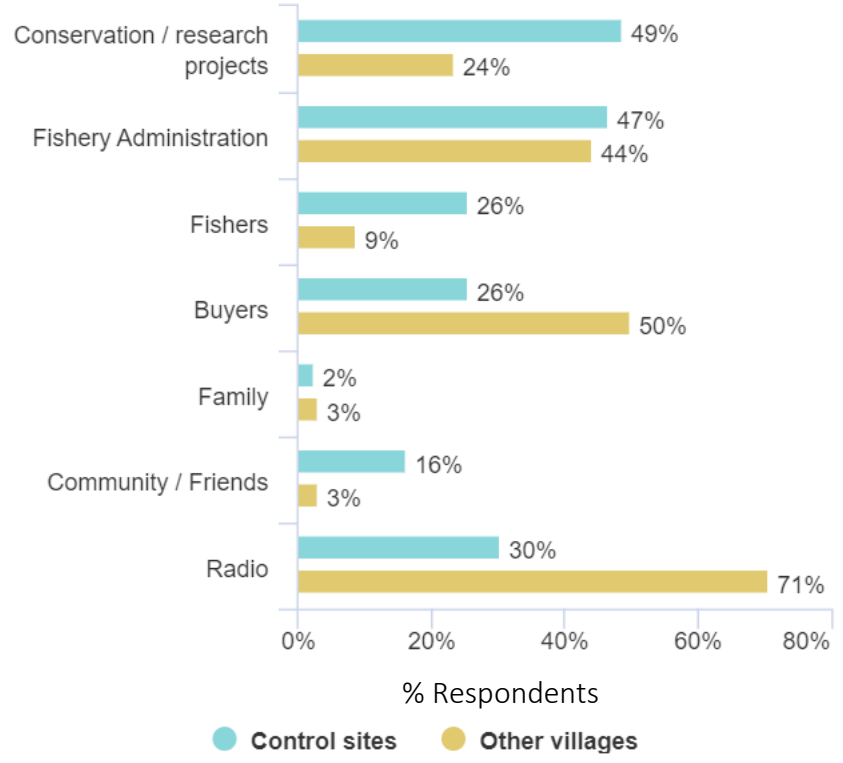
BIOLOGICAL knowledge



CHAIN VALUE knowledge



MANAGEMENT knowledge

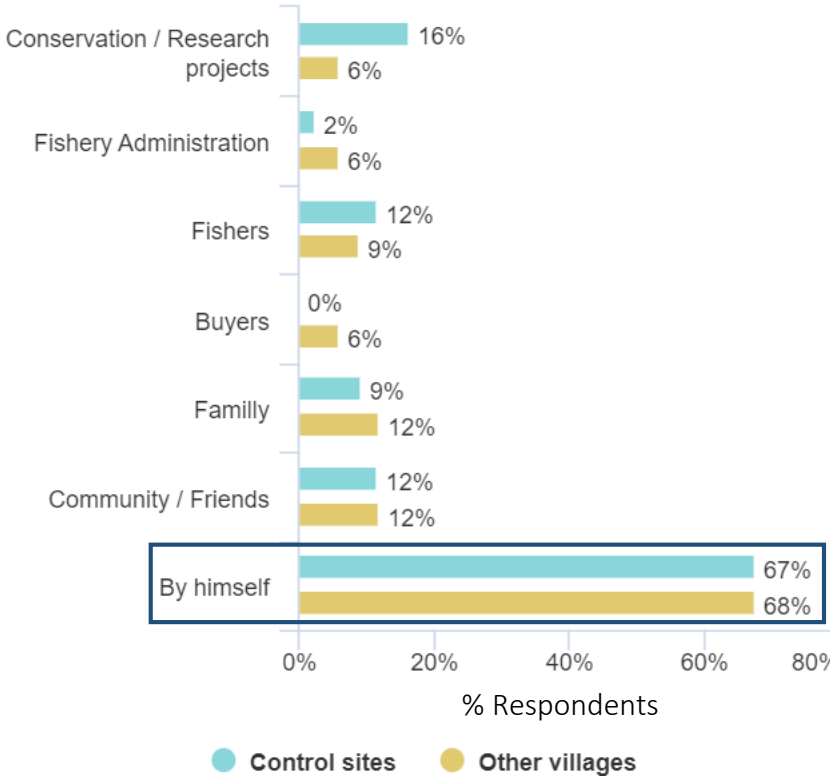


(Attention, non-exlusive modalities; 77 groups interviewed)

Analysis 2 - Assessing the transfer of knowledge to and from local communities (2/3)

Knowledge input sources

BIOLOGICAL knowledge



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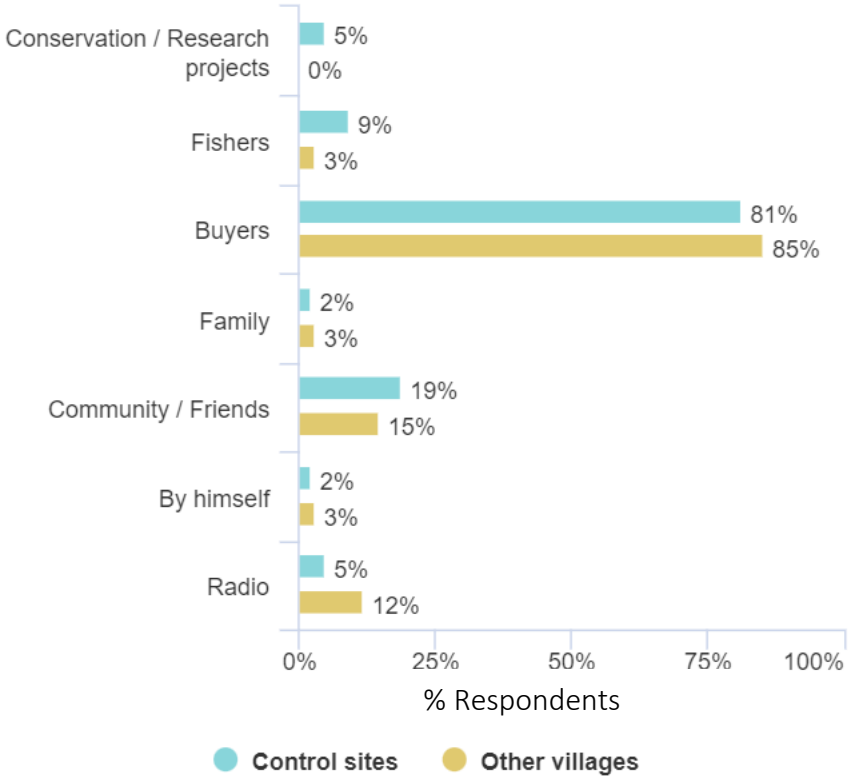
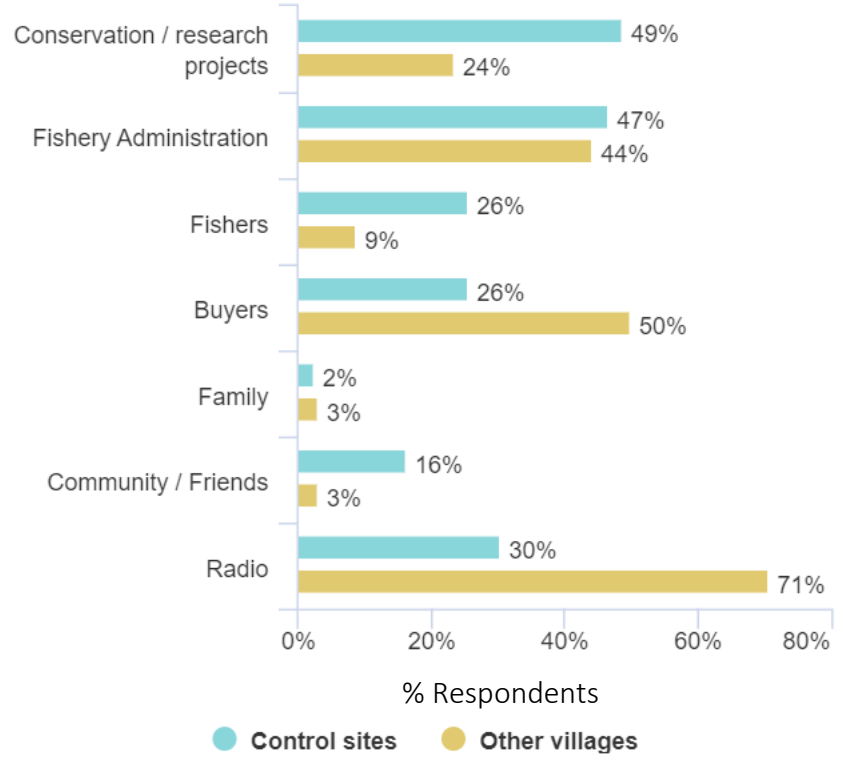


MANAGEMENT knowledge



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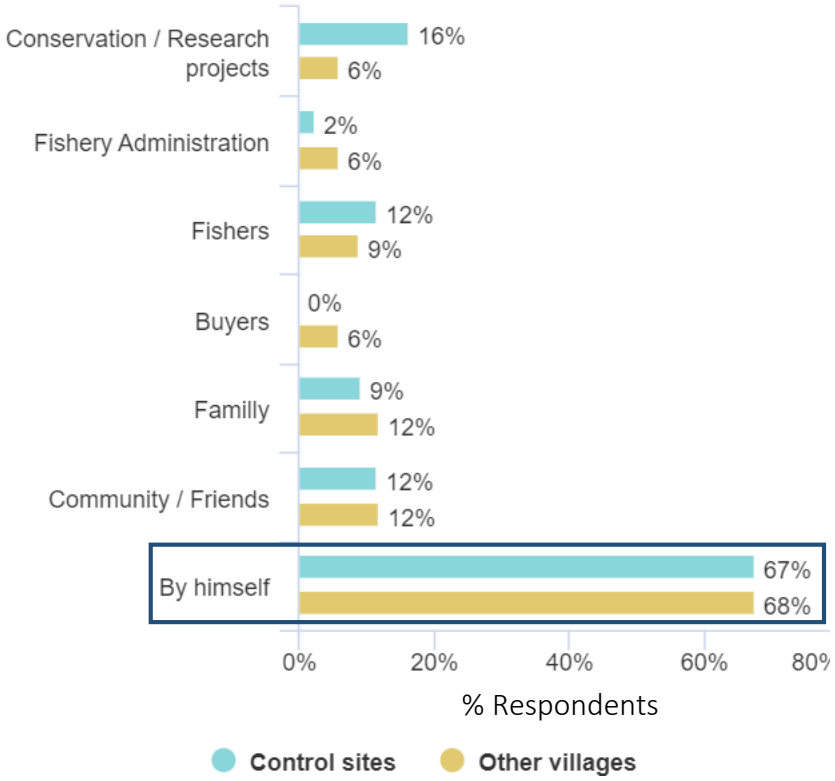
Biological knowledge learned by themselves

Analysis 2 - Assessing the transfer of knowledge to and from local communities (2/3)

Knowledge input sources

BIOLOGICAL knowledge



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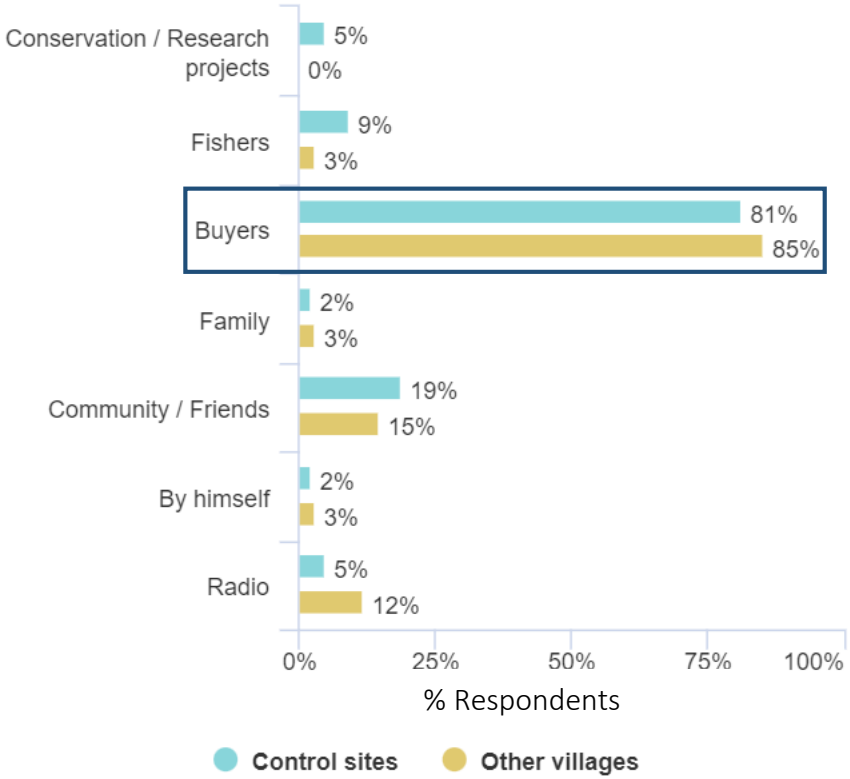
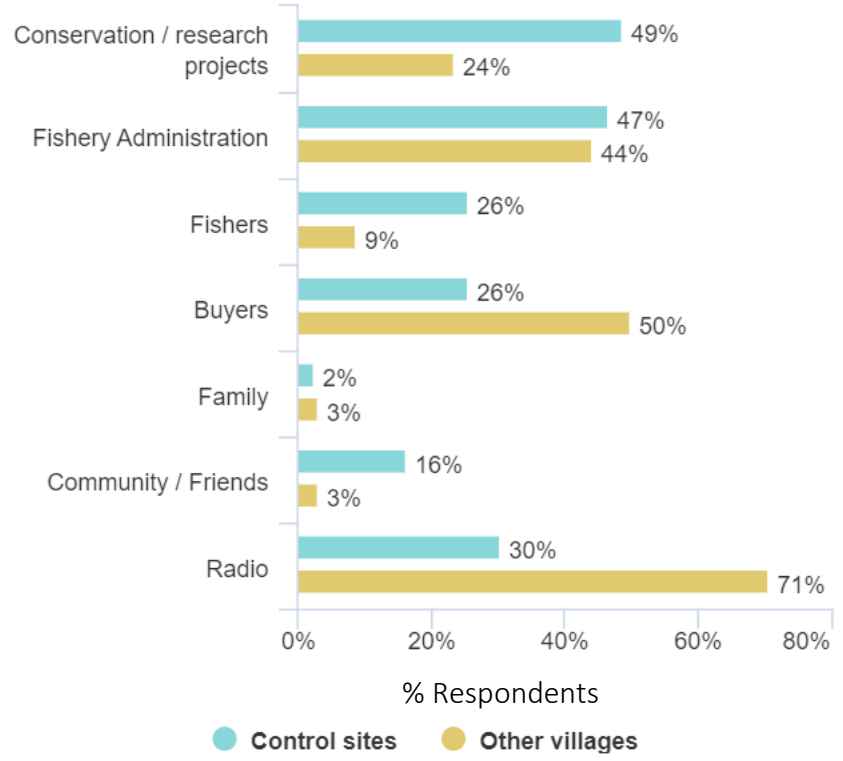


MANAGEMENT knowledge



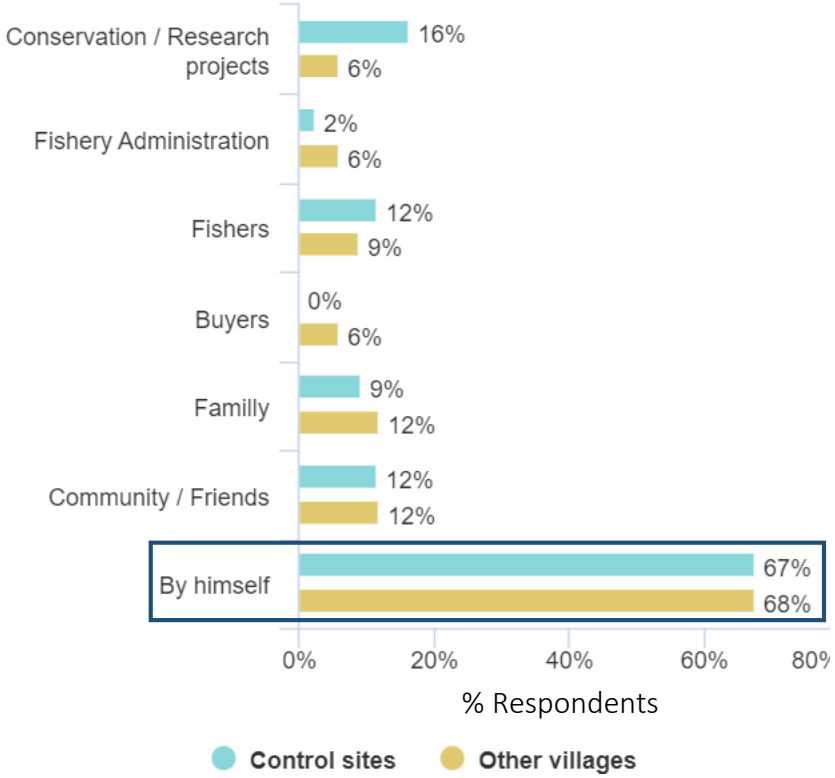
(Attention, non-exlusive modalities; 77 groups interviewed)

Biological knowledge learned by themselves
Economic knowledge transmitted through buyers & fishmongers

Analysis 2 - Assessing the transfer of knowledge to and from local communities (2/3)

Knowledge input sources

BIOLOGICAL knowledge



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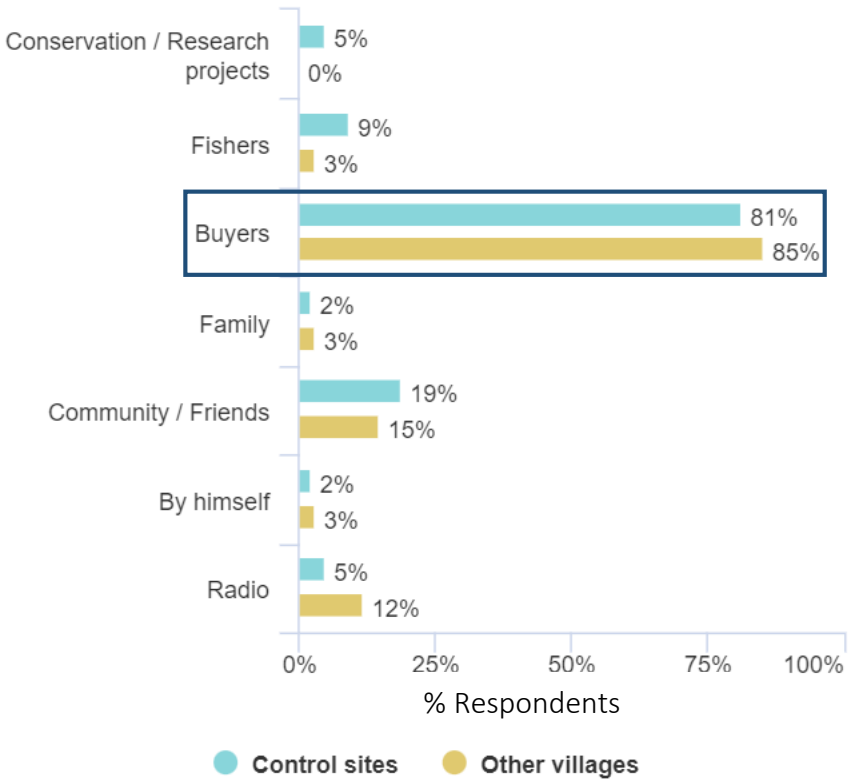

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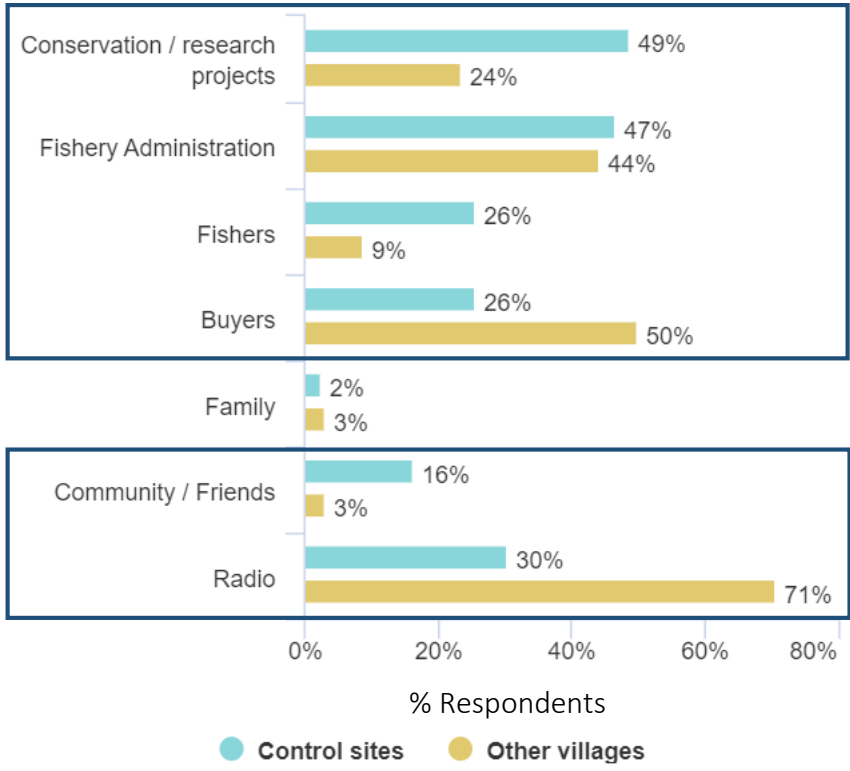


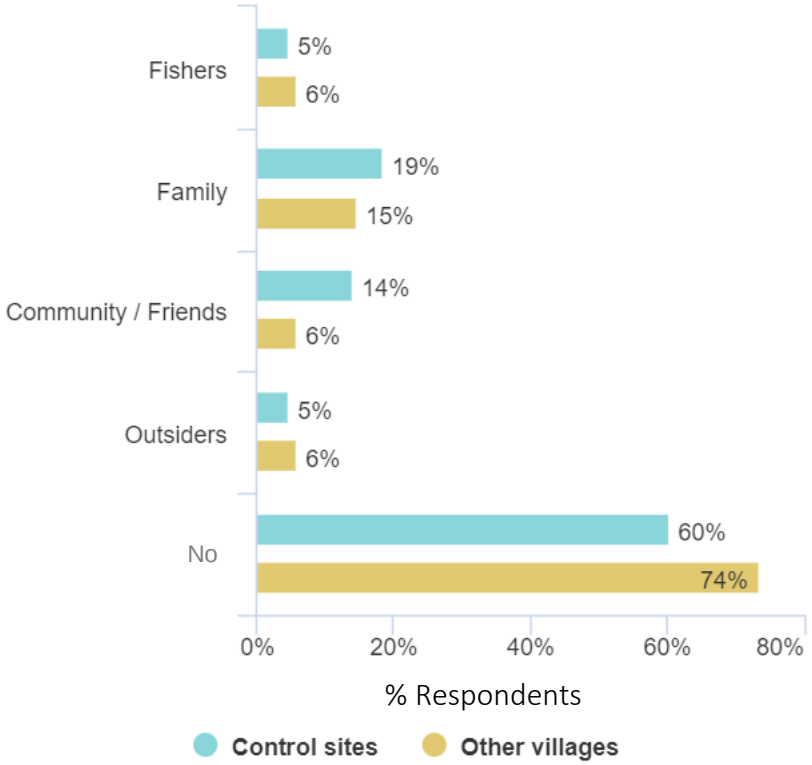
(Attention, non-exlusive modalities; 77 groups interviewed)

Biological knowledge learned by themselves
Economic knowledge transmitted through buyers & fishmongers
Management knowledge acquired via several different channels

Analysis 2 - Assessing the transfer of knowledge to and from local communities (3/3)

Knowledge transfer

BIOLOGICAL knowledge



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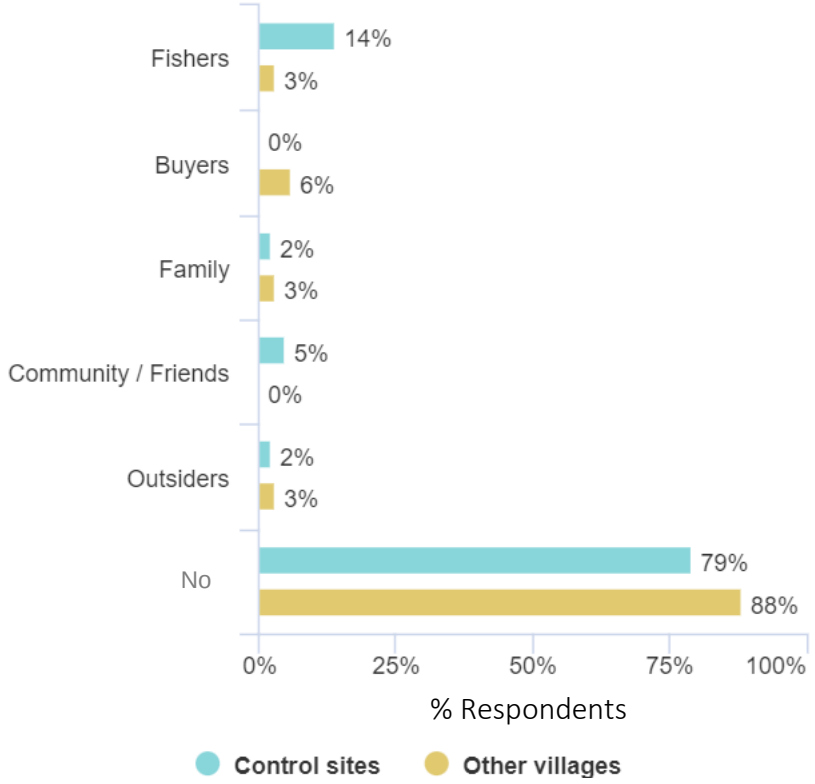

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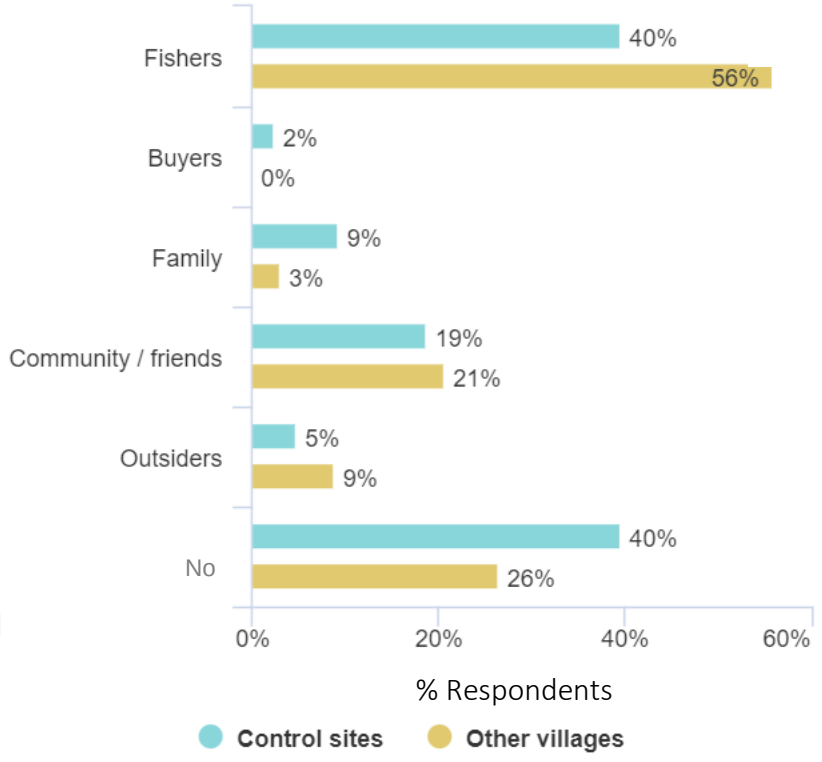
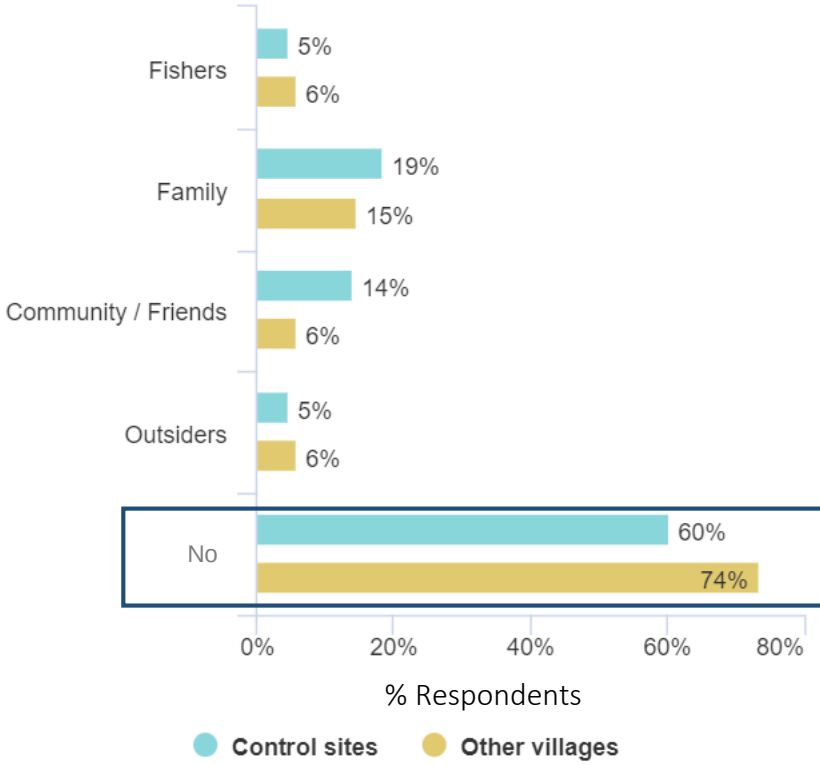


(Attention, non-exlusive modalities ; 77 groups interviewed)

Analysis 2 - Assessing the transfer of knowledge to and from local communities (3/3)

Knowledge transfer

BIOLOGICAL knowledge



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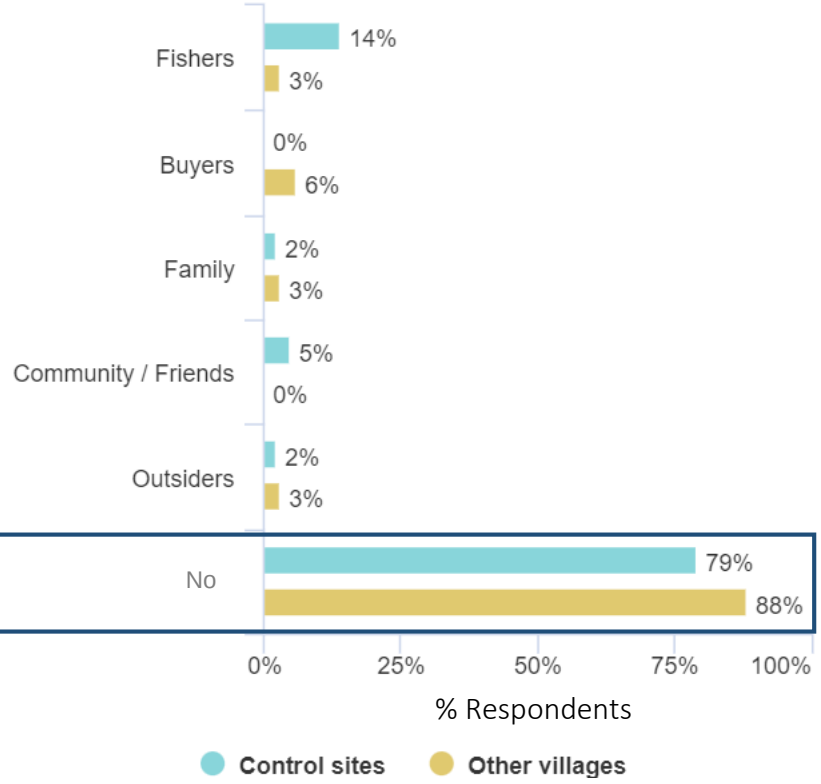

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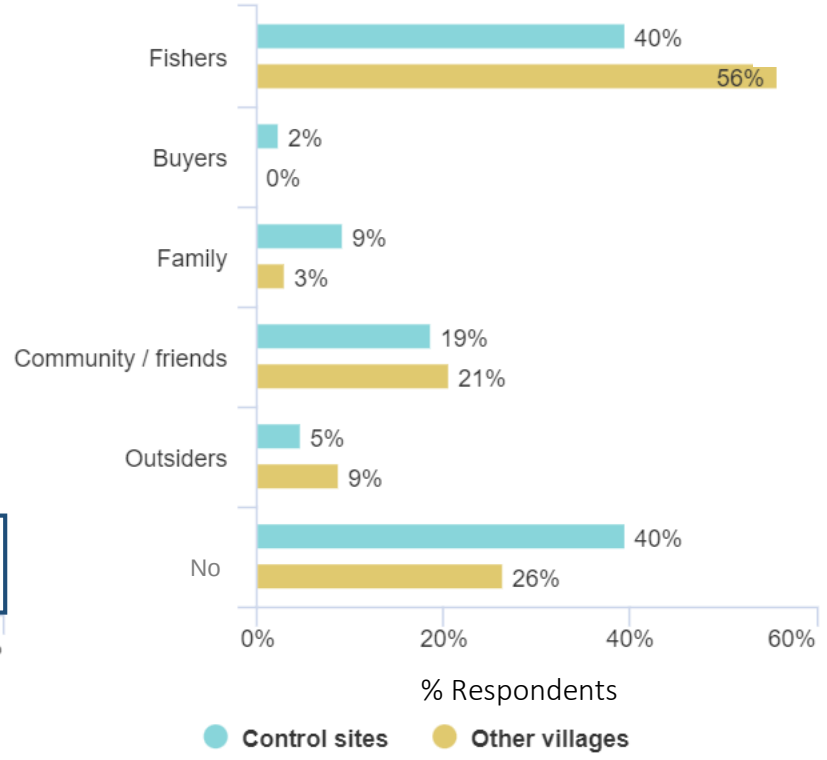


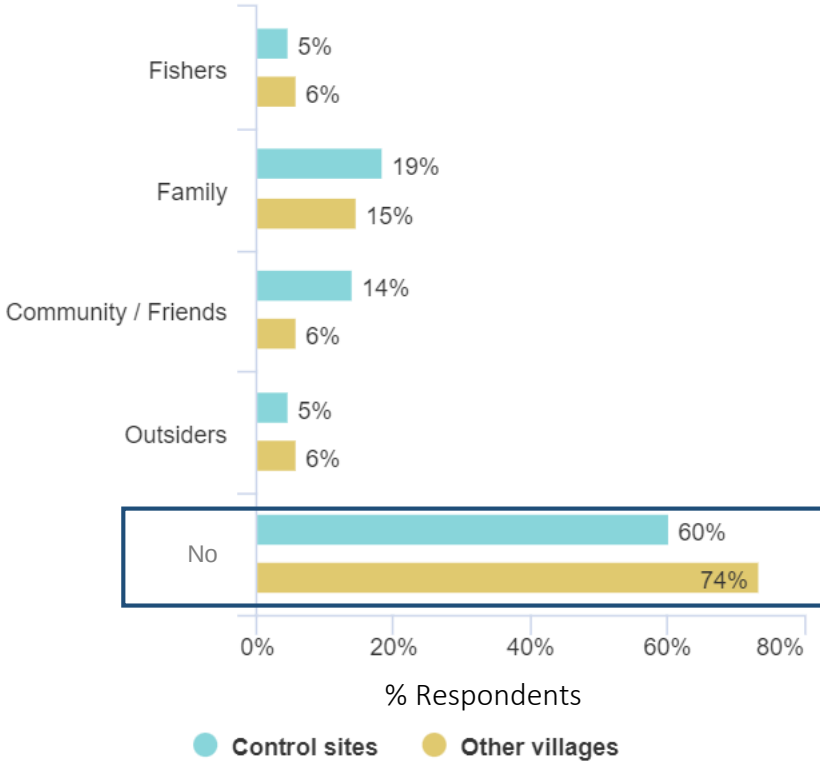
Limited, topic specific transfer

(Attention, non-exlusive modalities ; 77 groups interviewed)

Analysis 2 - Assessing the transfer of knowledge to and from local communities (3/3)

Knowledge transfer

BIOLOGICAL knowledge



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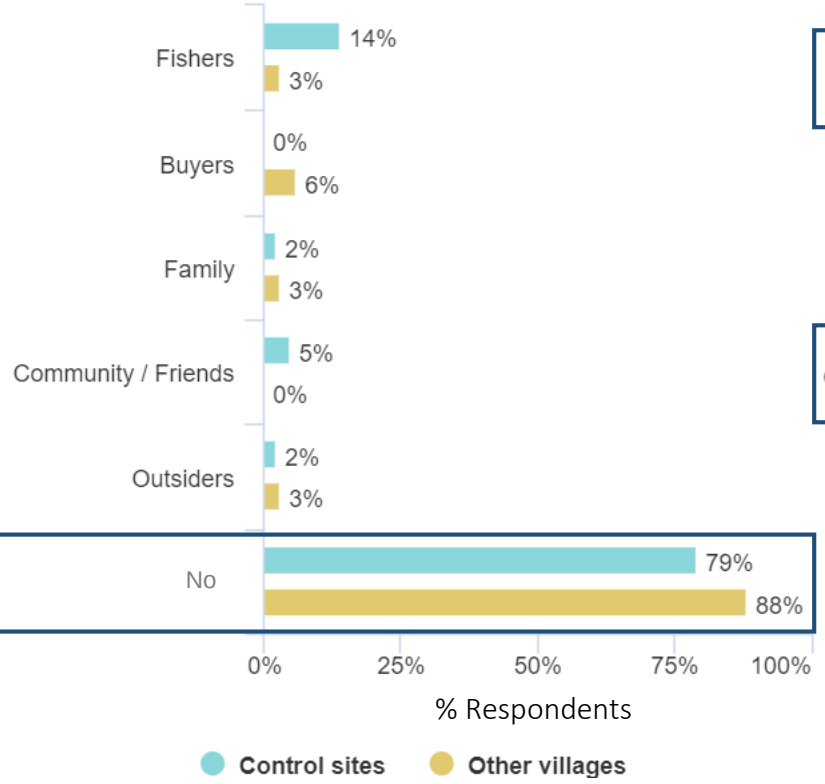
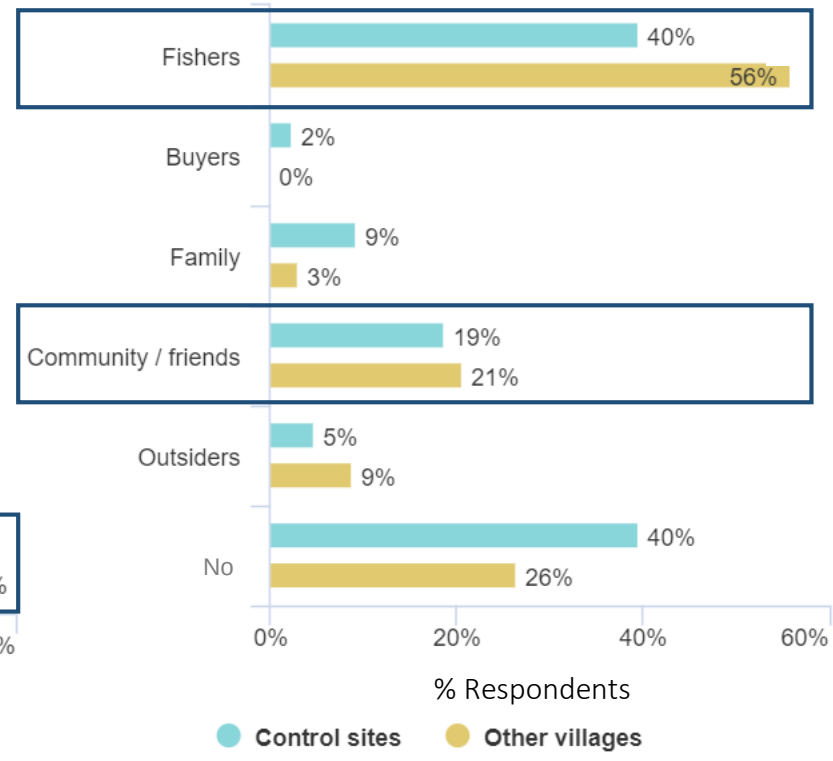


MANAGEMENT knowledge



Limited, topic specific transfer

(Attention, non-exlusive modalities ; 77 groups interviewed)

Preliminary results summary

- Aggregated, systemic, up-scaled knowledge thanks to CORECRABE workshops
- Existing limited local knowledge but topic-specific
  - CORECRABE had impacts in terms of reminding people of management rules, but had not significantly improved knowledge
- Limited knowledge transfer to local stakeholders
  - Partial and topic-specific distribution
  - Limited local network and institution that encourage exchanges
- CORECRABE did not improve social interactions (yet?)

CORECRABE transdisciplinary activities had

- successful **bottom-up knowledge co-production** and fishery diagnostic

+

Analysis 1 Regional multi-stakeholders workshops

- but **questionable top-down processes**, feedbacks to communities

?

Analysis 2 Village-based activities

Discussion points

- Ensure diversity of villages and actors for working groups formulation ✓

  ➔ Knowledge transfer at **restricted network** (friends/ fishers), no regional network

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  ➔ Knowledge transfer at **restricted network** (friends/ fishers), no regional network

- Bias with the stakeholders "chosen" to participate in working groups ?
  - Let the community selecting engaged stakeholders ⚠
  - But did not verify their capability to diffuse information as spokespersons ⊘

  ➔ Issue with actors representation and the scale of intervention
  ➔ Complicated **tradeoff between promoting knowledge learning VS disseminating knowledge**

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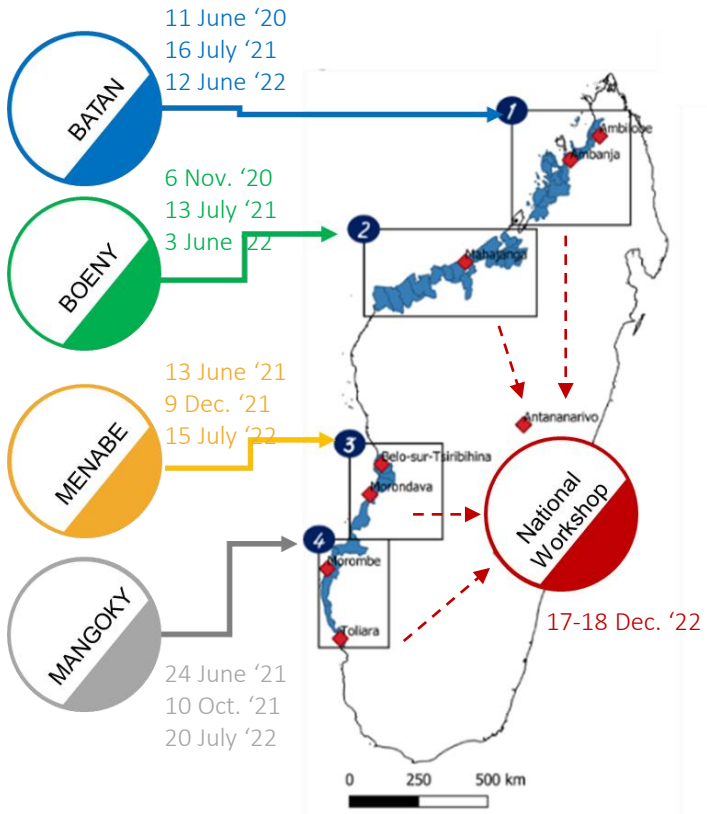
  ➔ Complicated **tradeoff between promoting knowledge learning VS disseminating knowledge**

- Iterative, multi-stakeholders, participatory working groups are not enough !

  ➔ Strengthen **direct interactions** at local level to ensure transfer of knowledge and reach out larger part of the communities (e.g., individual experimentations)

MISAOTRA - THANK YOU



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Don't hesitate to get in touch!

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EXTRA SLIDES

1) Regional multi-stakeholders workshops

Thematic	Ecology - Fishery	Economy - Value chain	Management
Research presentations	- Fishery state (monitoring, size structure, CPUE per gear) - Fishers census - **Mangrove loss effects** on crab abundance - Fishing gear efficiency and impacts	- Socio-economic values of the fishery - Price trends in Madagascar since 2010s, price variability drivers	- Collaborative approach necessity for coordinated, nationwide monitoring - **Advocate for local rules** implementation and community-based association creation
Discussions and Recommendations	- Resource decrease observed at all value chain levels - **Small crab (<11cm) fishing problem**	- Diagnostic by stakeholders with identification of all value chain levels - Purchase price is too low → Define a fairer and higher price than currently and **set a minimum purchase price** - Abolish the current monopoly on live crab exports held by Chinese companies	- Fishing **closure dates** decided brutally → Define national fishery closure fixed season ahead of time and study seasonal variability by region - Strengthen **law enforcement**, monitoring and control to ensure compliance with size and moratorium regulations - Reinforce awareness about official crab and mangrove texts

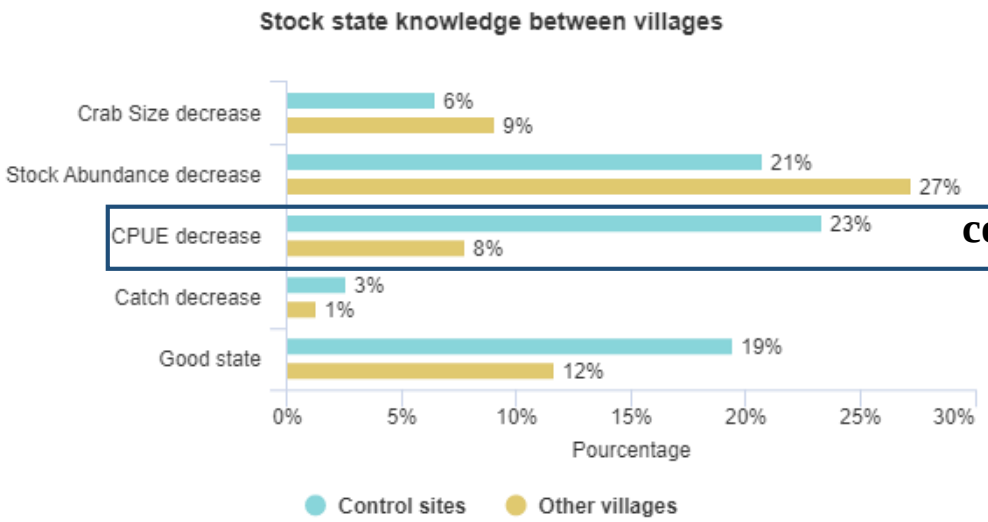
2) Village-based activities such as participatory monitoring data from fishers and collectors

Village	Number of mission	Number of different missionaries	Missions with control group	Mission RENAFEP	Interviewer survey	Voluntary fishmongers survey	Mission with the communities	Socio-economic Diagnostic	Socio-cultural Diagnostic	Fishers census	Surveys / interviews with fishers	Communities or fishers meetings and feedbacks	Participative fishing	Other activities CORECRABE	NGO(s)
Antsahampano	17	15	**14**	1	0	13	**10**	1	1	2	3	2	1		BV, MIHARY
Antsatrana	15	14	**10**	0	0	10	**16**	1	1	2	3	5	4	Test de sélectivité	WWF
Ambolikapiky	17	12	**13**	0	0	13	**9**	1	1	2	3	1	1		BV
Ampitsopitsoka	10	34*	**11**	1	5	5	**13**	1	1	3	3	4	1	École d'été ; Projection vidéo CORECRABE x2	ASITY
Marotia	8	16	**15**	2	7	6	**10**	1	1	3	2	2	1	Projection vidéos CORECRABE	ASITY
Baly	9	17	**15**	2	7	6	**13**	1	1	3	2	4	2	Test de sélectivité ; Projection vidéo CORECRABE x2	MNP

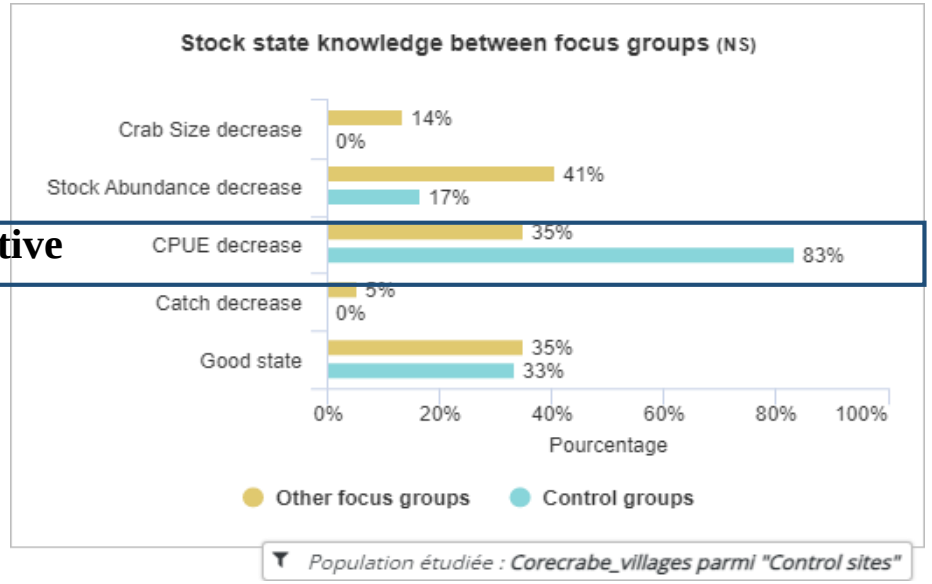
2) Village-based activities such as participatory monitoring data from fishers and collectors

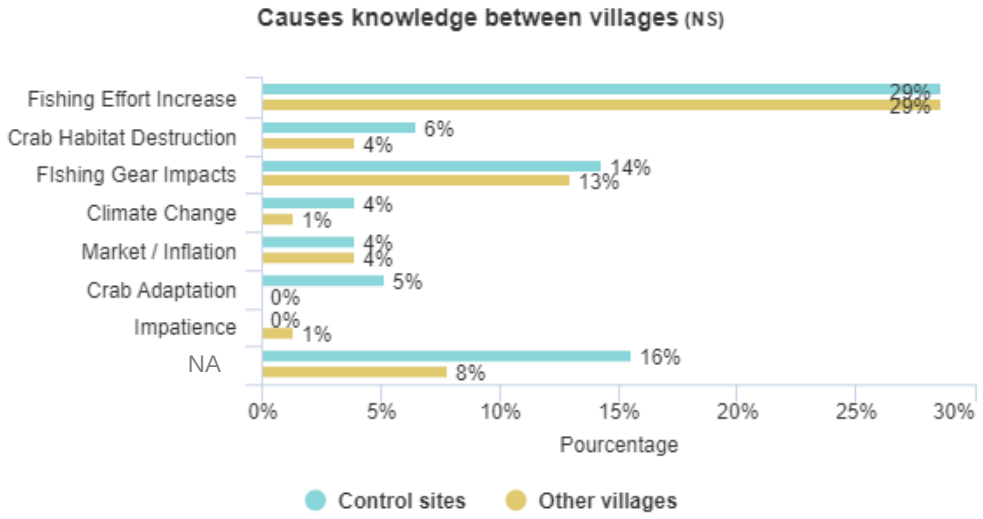
Scientific outreach

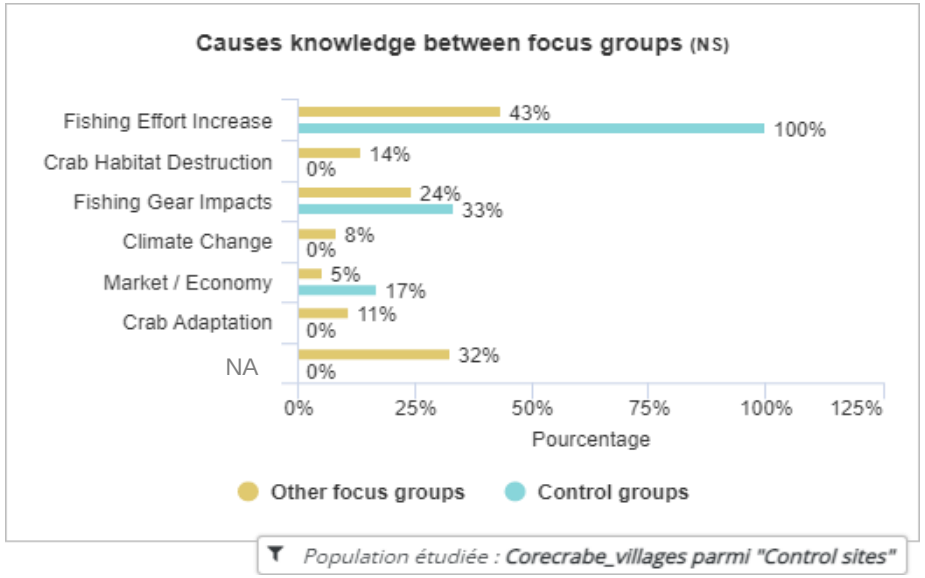
In terms of <u>biological</u> knowledge, there is no difference



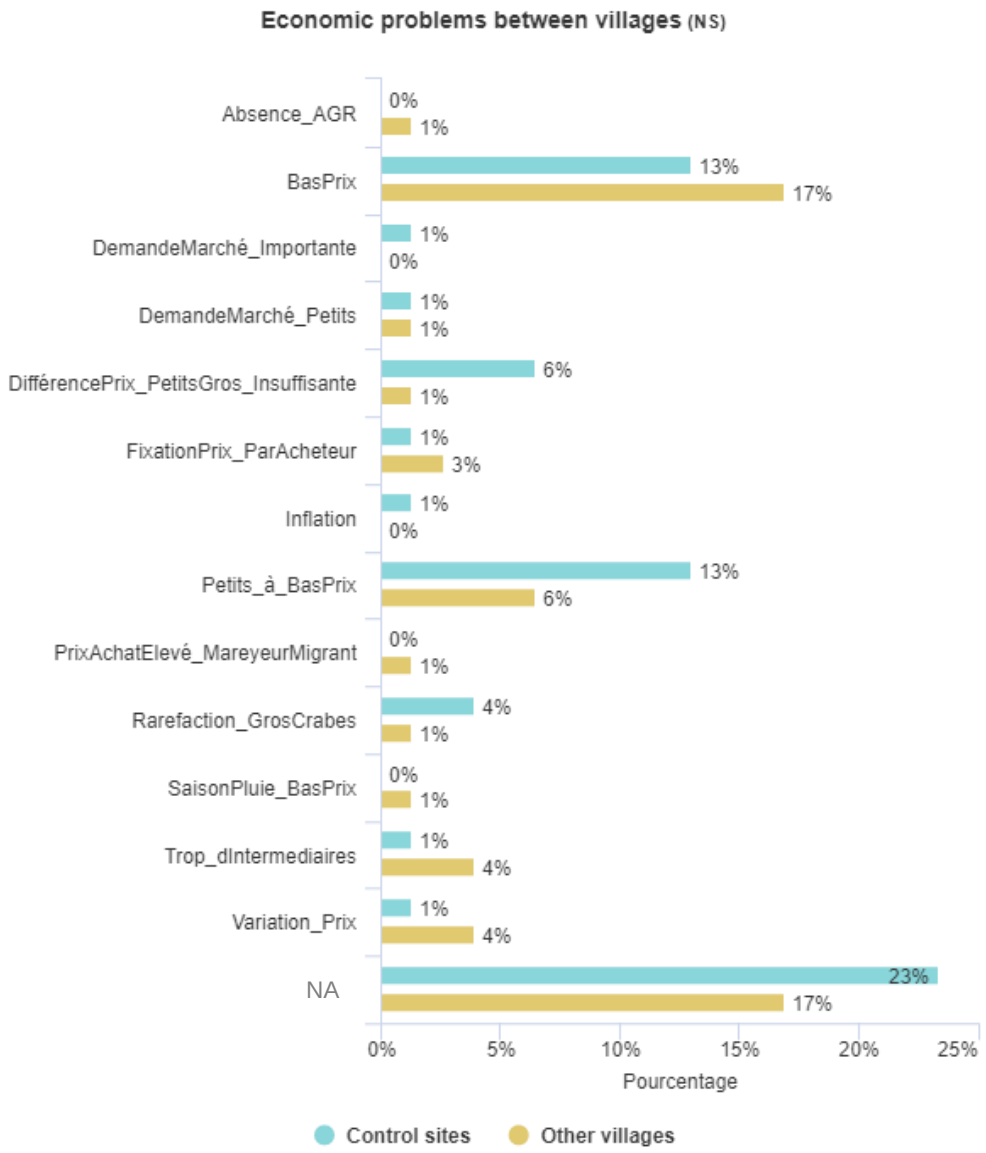
counterintuitive

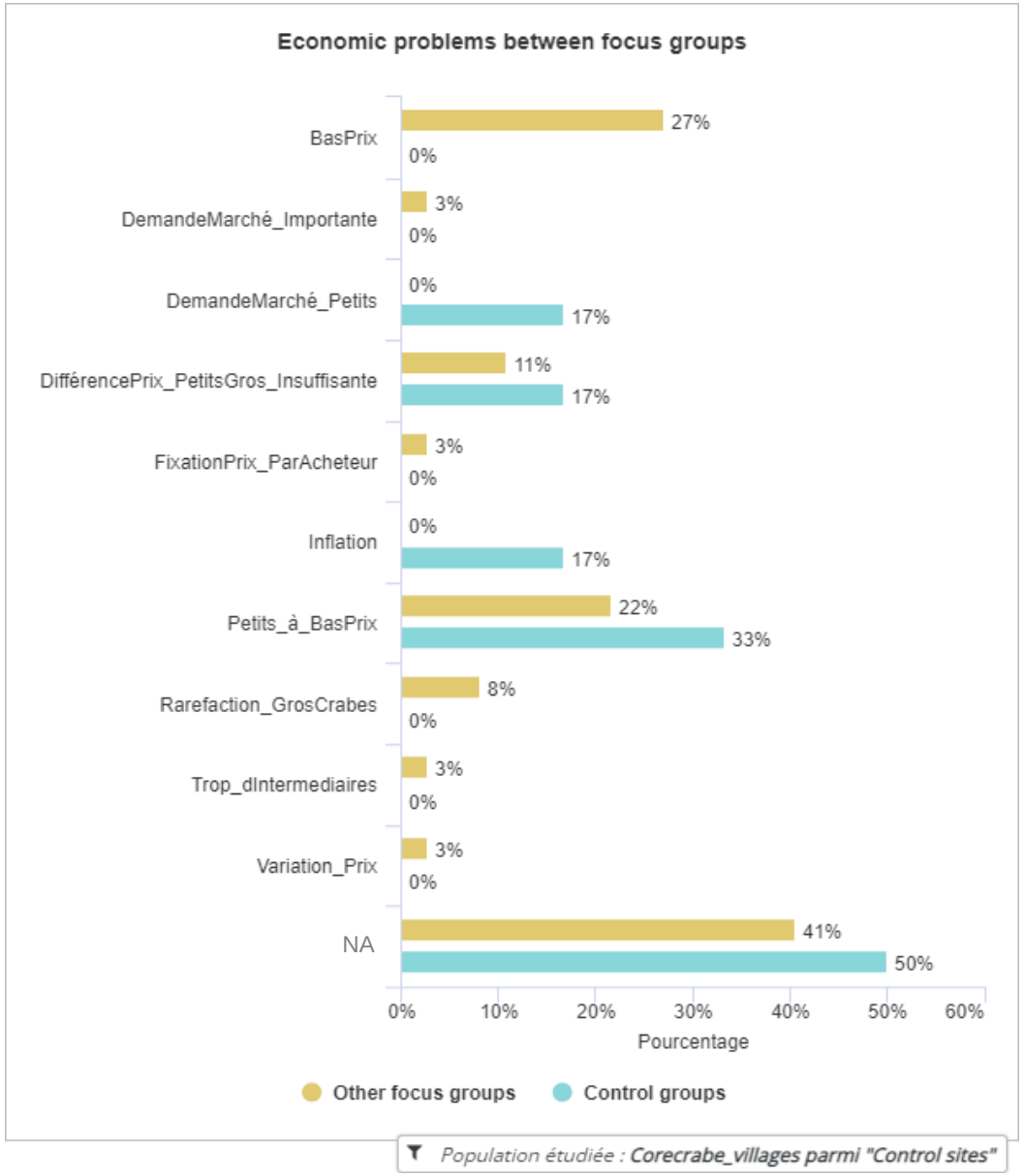






In terms of economic knowledge, there is no difference





In terms of management knowledge, there is no difference