

Building Capacity to Improve Resilience to Weather and Climate Extremes in the Philippines



“Building Capacity to Build Resilience to Climate Extremes in the Philippines”

Main research questions

1. What climate information is available to support decision makers help build greater resilience to typhoons and extreme climate events in the Philippines?
2. In a changing climate, how might tropical cyclones activity change?
3. How can we improve provision and uptake of climate information for planning and decision making?

What are the project products?

New information on climate change

Process to increasing usage of existing information in planning

Regional climate modelling

Regional sea level rise assessment

Learning on changes in tropical cyclones

Training pack for using risk information

Enabling roadmap to inform wider integration



Supporting PAGASA's modernization plan

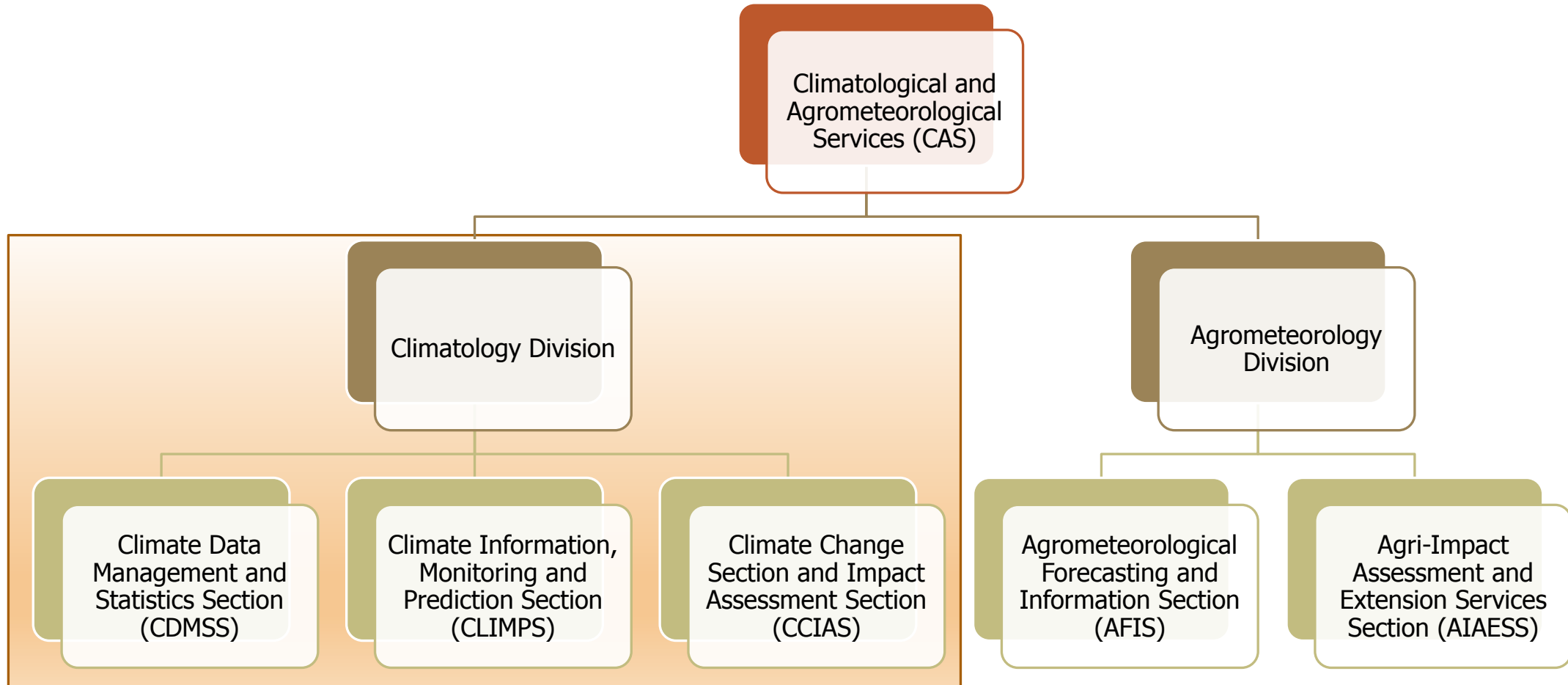
Project contribution to:

“... (b) To enhance research and development capabilities by adopting a rationalized and integrated approach with focus on the improvement of basic operations and specialized services;

(c) To integrate disaster risk reduction and management, climate change adaptation and water resources management in the sustainable socioeconomic development planning at the national and local levels in coordination with appropriate government agencies and other entities;

(d) To strengthen linkages and cooperation at the national level among the various providers and users of weather, climate, and water-related information, products and services as well as to provide for the appropriate mechanisms for this purpose...”

In particular...





Project approach

Phase I: Situation review

Review literature

Map stakeholders

Consult stakeholders

Further actions

Phase II: Piloting climate change (CC) information production and dissemination

CC projections
workshop

Prepare training

Local
Government
Units work

Train local
officers

Report findings

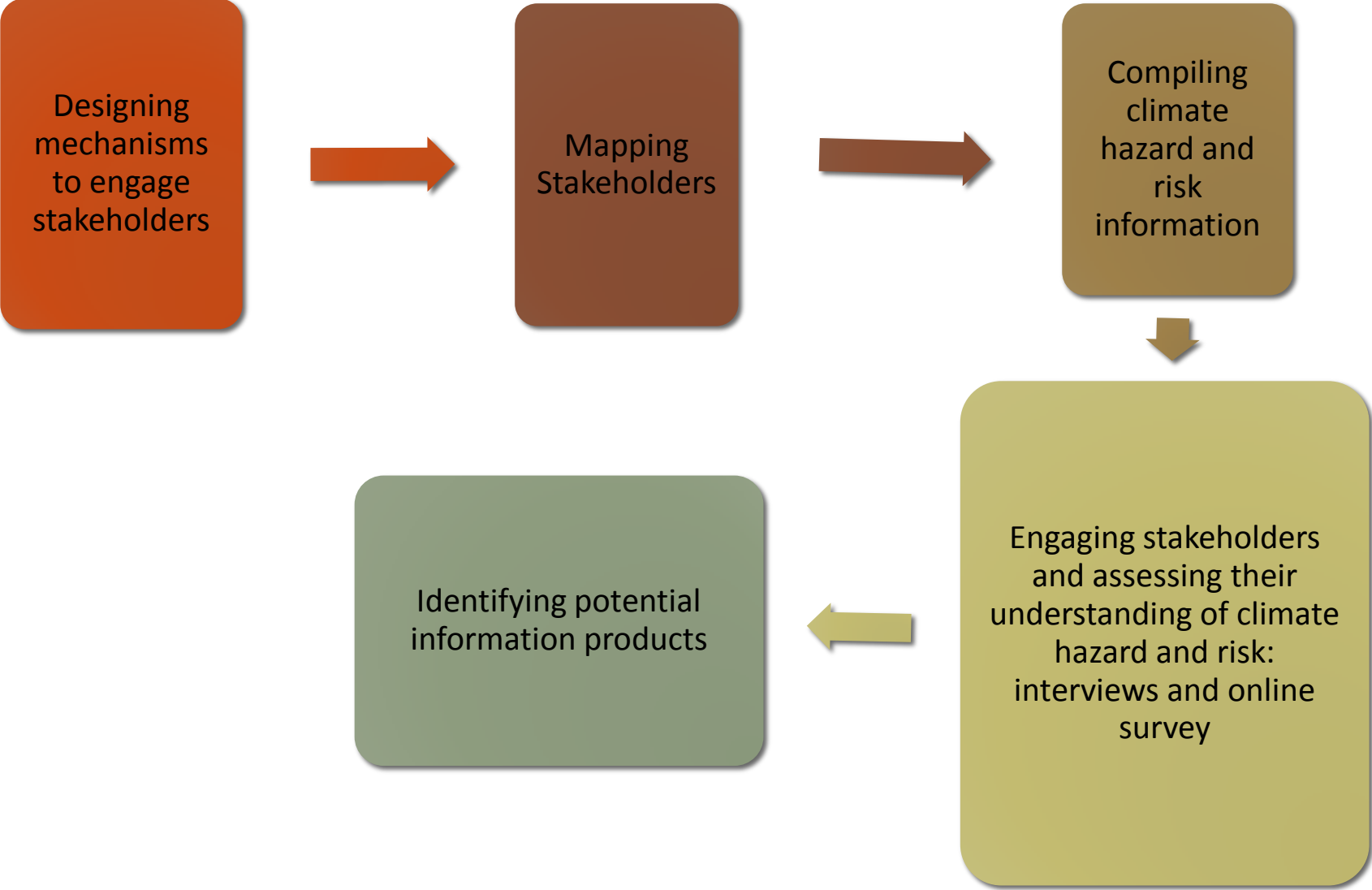
Phase III: Preparing an Enabling roadmap

Consult sectoral stakeholders

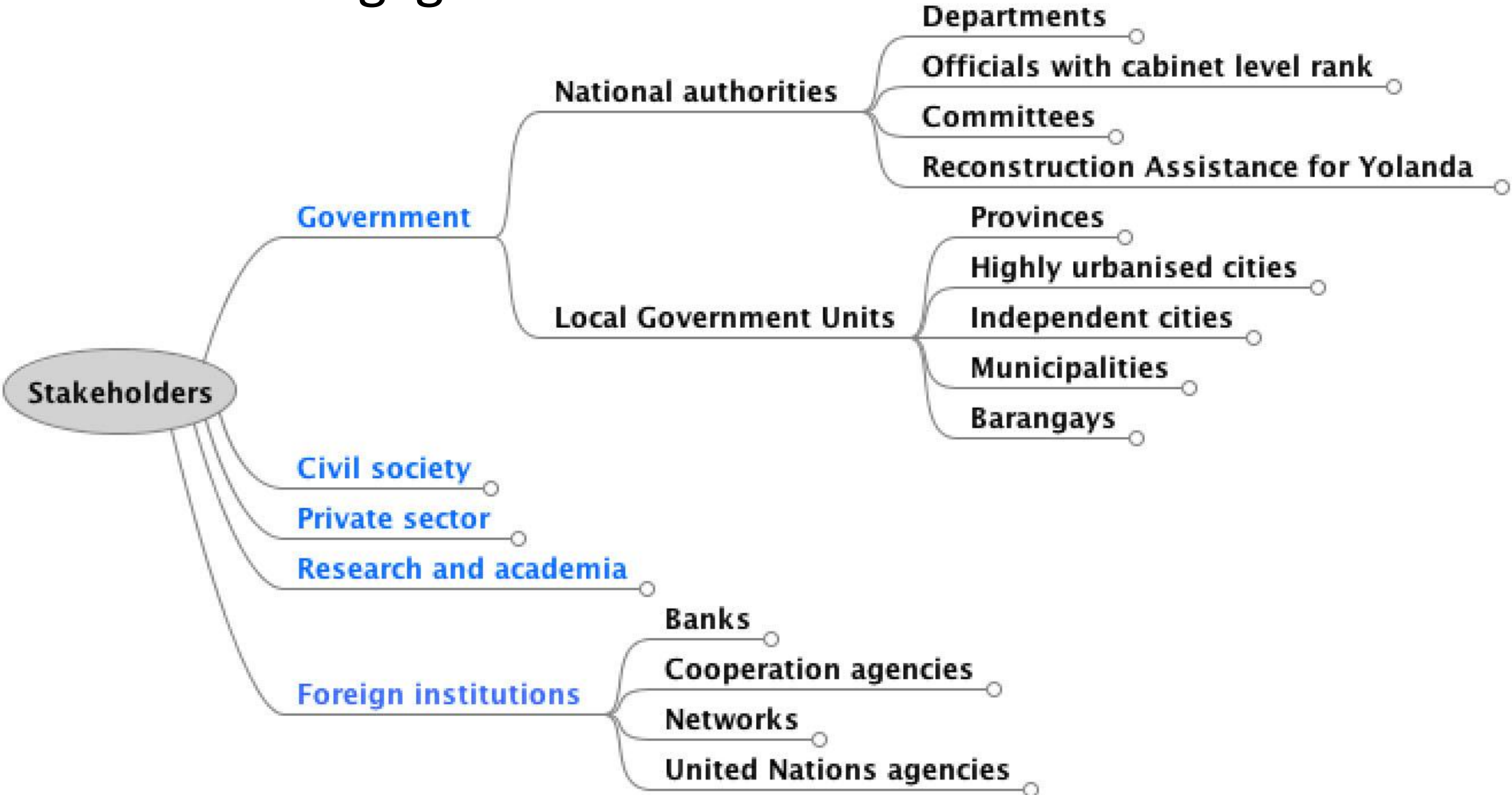
Prepare roadmap

Findings and recommendations

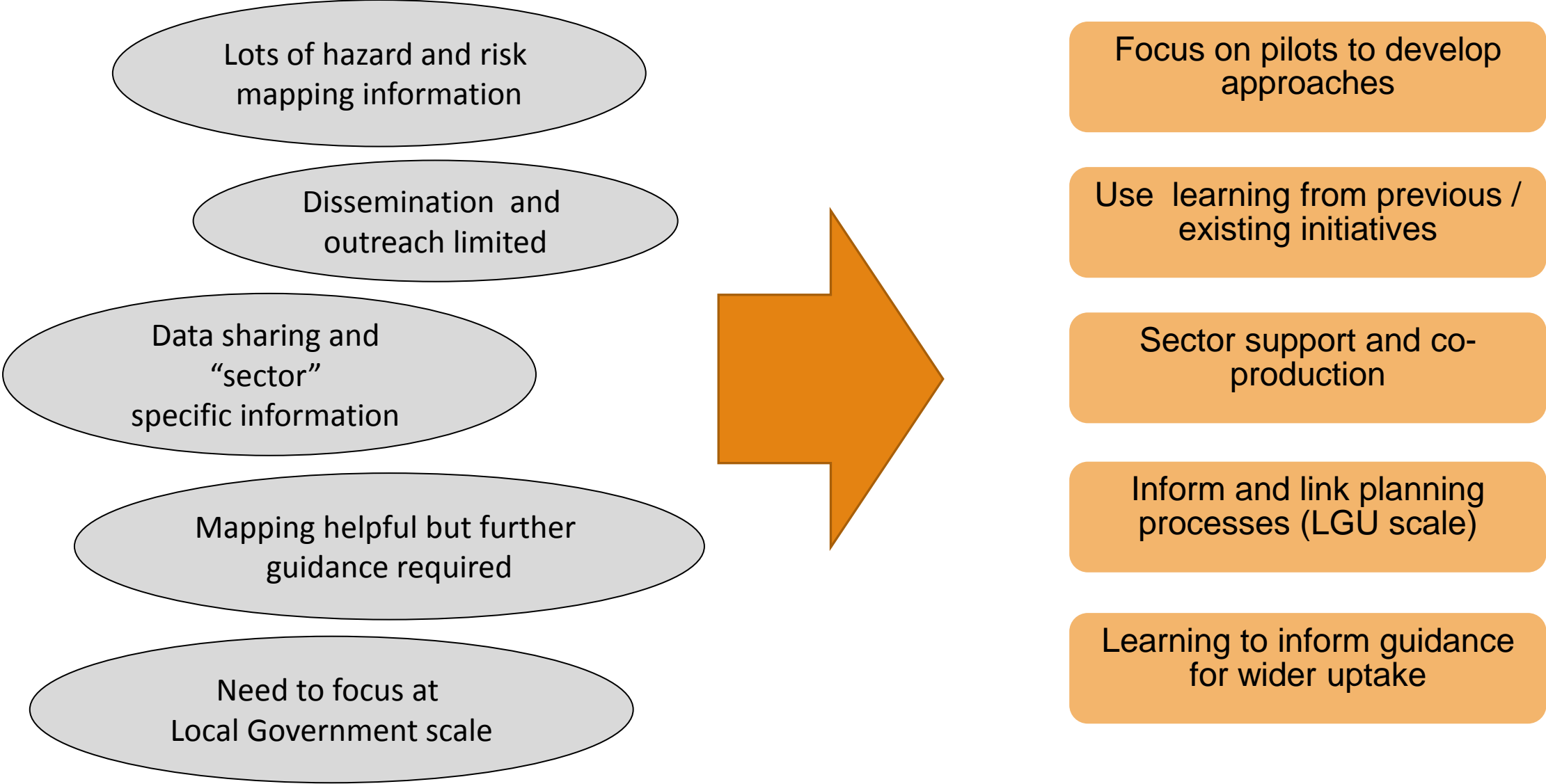
Stakeholder engagement



Stakeholder engagement



Stakeholder issues and opportunities identified



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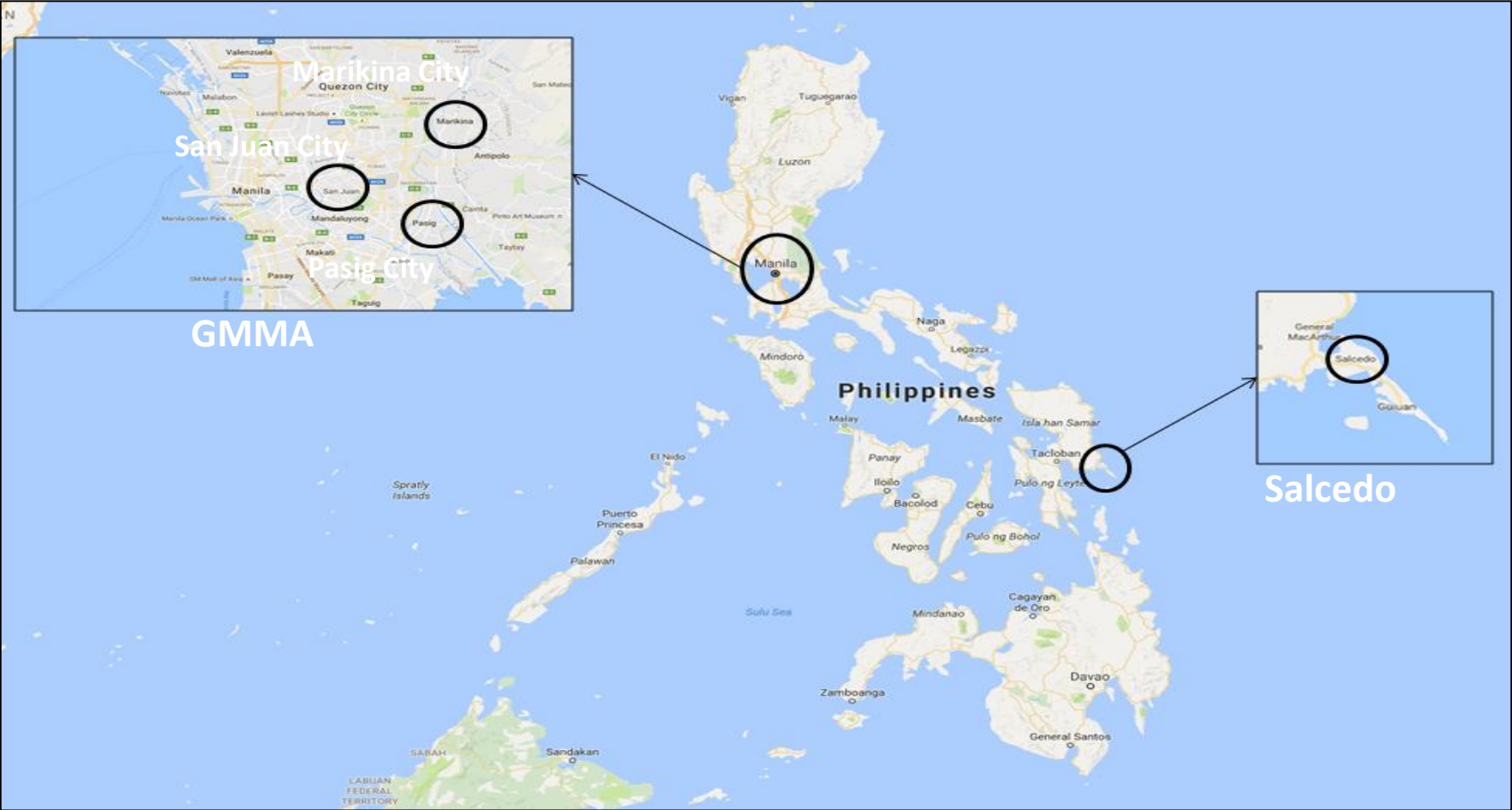
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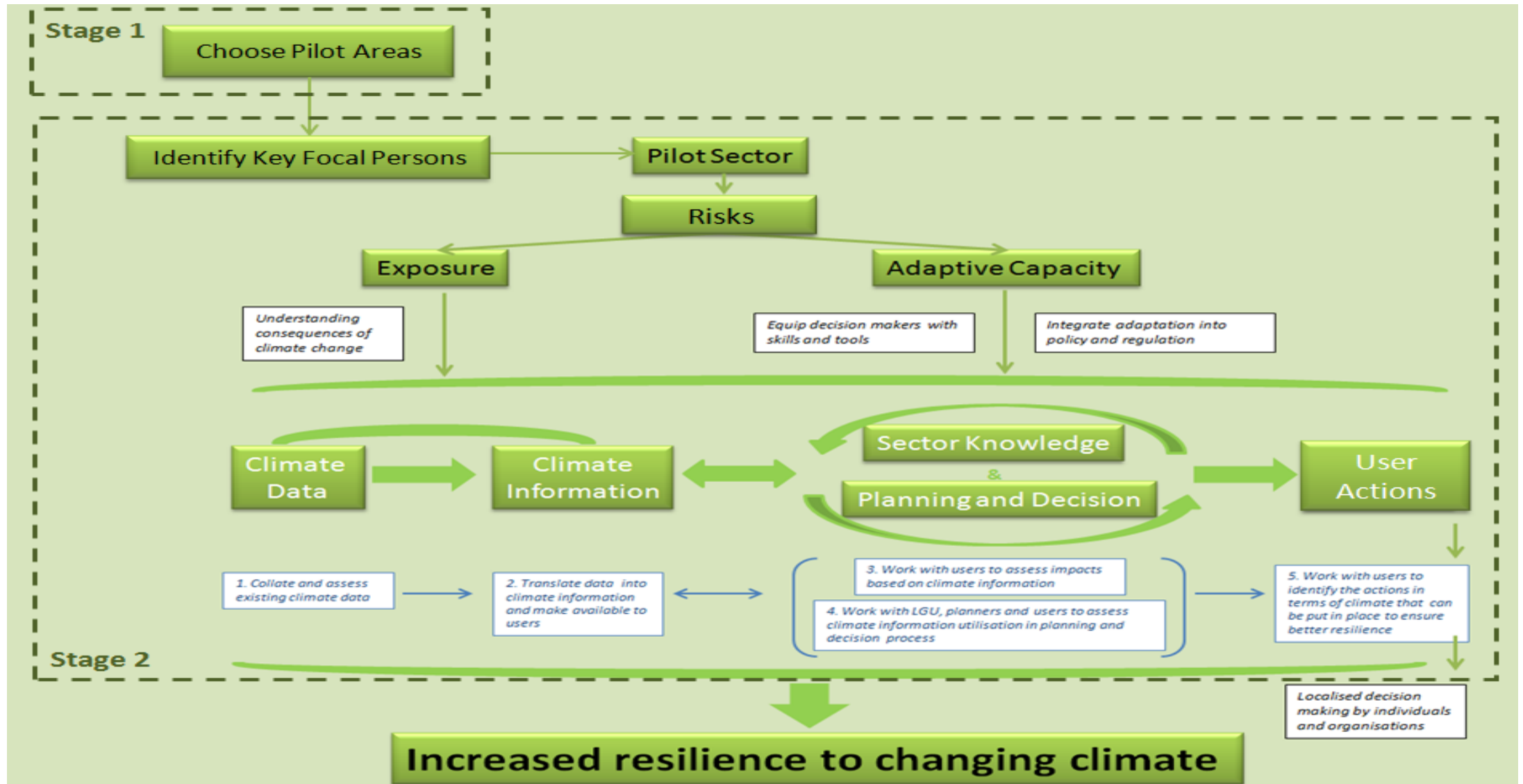
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Findings and recommendations

Pilot Selection



Supply Chain of Information



Pilot Process

Core Activities

1.
Design of Pilot
Development
Strategy

2.
Selection of Pilot
Areas

3.
Design and
Implementation
of Pilots

Outputs

1. Training of
Trainers &
Climate
Orientation
Pack

2. Re-designed
Climate
Information


3. Climate
Information and
Risk Analysis
Matrix

4. Integration of
Climate
Information into
the Planning and
Decision Making
Process

Increase Resilience To Changing Climate

Pilot outcomes and outputs

- I. Climate Orientation Pack
- II. Co-produced Climate information
- III. Climate Information and Risk Analysis Matrix
- IV. Guidance to support integrating Climate Information in Local Planning

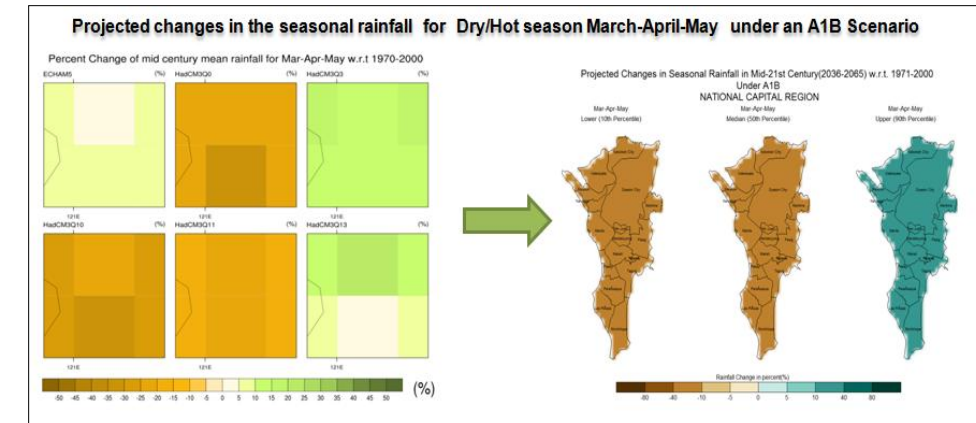


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Content

- Climate Science
- Climate Change
- Climate Impacts
- Available Climate Information from PAGASA
- Other Climate Information????
- Hazards, Exposure, Vulnerability & Risk
- Adaptation, Mitigation & Policy Environment
- V & A Assessments & Other available tools

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Projected Change in Seasonal Rainfall in Mid-21st Century(2036-2065) for Metro Manila						
December-January-February (DJF) Observed Baseline (1971-2000) = 107.5 mm						
SCENARIO	Range	PROJECTED CHANGE		Projected Seasonal Rainfall Amount (mm)	Potential Impacts	Proposed Solutions
		PERCENT (%)	Rainfall amount in mm			
Low Emission RCP45	Upper (90th percentile)	97.2	104.5	219.8		
	Median (50th percentile)	17.7	19.0	127.9		
	Lower (10th percentile)	-3.5	-3.8	103.4		
Medium-Range Emission A1B	Upper (90th percentile)	27.5	29.6	139.3		
	Median (50th percentile)	-19.1	-20.6	85.4		
	Lower (10th percentile)	-46.9	-50.4	53.3		
High Emission RCP85	Upper (90th percentile)	57.6	61.9	174.1		
	Median (50th percentile)	21.0	22.5	131.7		
	Lower (10th percentile)	2.6	2.8	110.5		

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ROADMAP – What does it look like?

- 1.) Background and the approach used to prepare the roadmap
- 2.) Current situation, gaps, barriers and opportunities to improve climate information delivery and uptake
- 3.) Recommendations
- 4.) Action plan: Proposing a series of actions to improve information production and delivery by the PAGASA, as well as uptake by different stakeholders



PAGASA Modernization Plan

Approach and activities

Approach

- User-needs approach
- Information acquired at different stages (online survey, interviews, workshops, sectoral meetings)
- More than 300 stakeholders consulted.
- Stakeholders consulted : Government, Civil Society Organisations, Private Sector, Research, Academia and International or Bilateral Cooperation Agencies
- Additional information from literature reviews

Sectoral meeting objectives

Meeting with Government Departments, August 2016:

- Learning about current and future policies that would include the usage of weather and climate information
- Identifying needs for weather and climate information
- Assessing the effectiveness of current provision mechanisms
- Exploring potential mechanisms for improving information dissemination and strengthening collaborations across Departments

Engaging Government Departments

Institution

Department of Agriculture (DA)

National Economic and Development Authority (NEDA)

Department of Energy (DoE)

Department of Environment and Natural Resources (DENR)

Department of Health (DOH)

Housing and Urban Development Coordinating Council (HUDCC)

Department of Interior and Local Government (DILG)

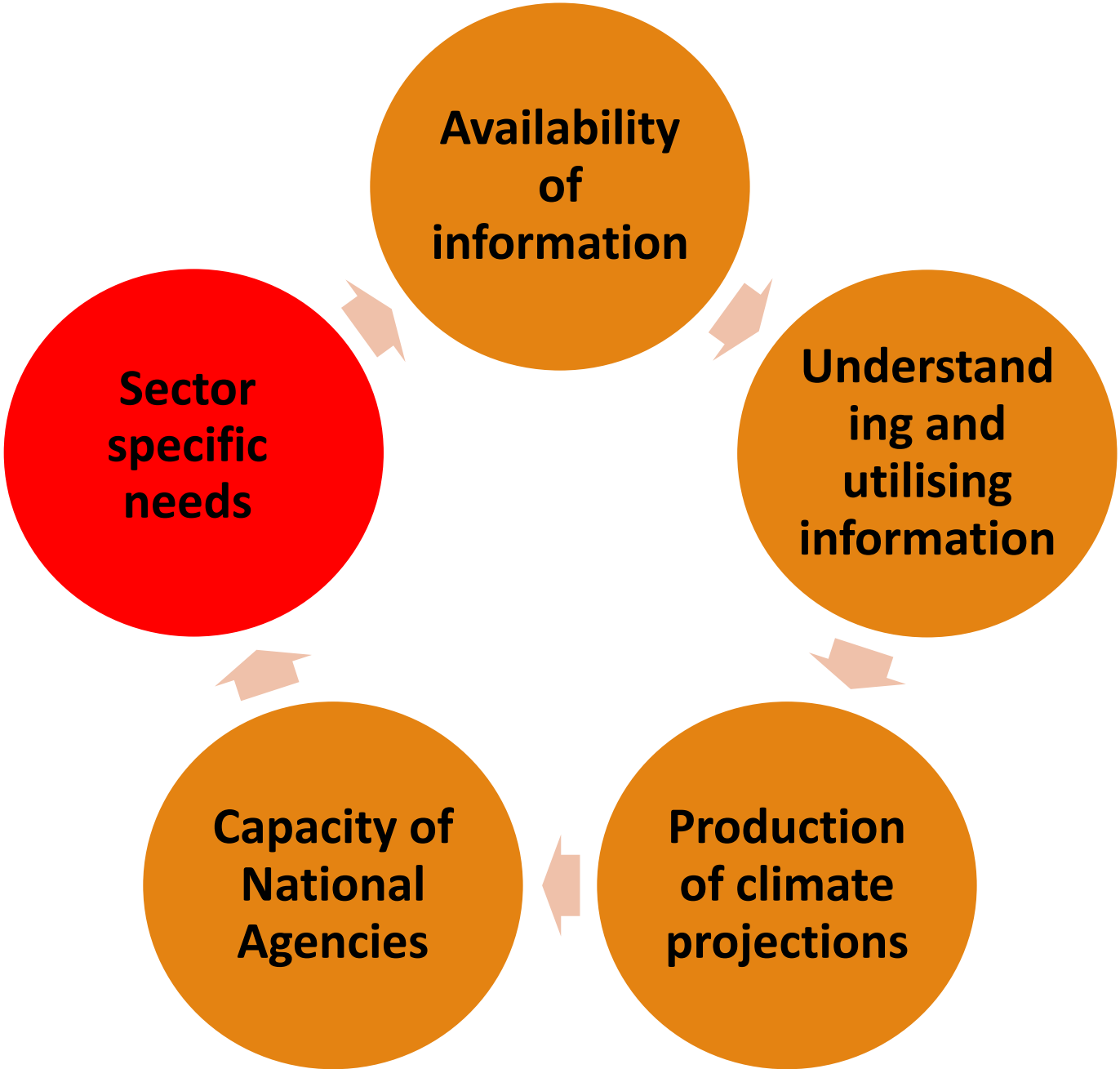
Department of Public Works and Highways (DPWH)

Department of Tourism (DOT)

Department of Transportation (DOTr)

Examples of findings and opportunities

Themes identified





Understanding and using information

Users aware of information often they do not fully understand

Potential impacts of hazards not fully understood

Websites and information portal are not easy to understand

Urgency to empower LGUs to understand, use and update climate information

Government officers identified need for enhanced culture of hazard preparation



Production and dissemination of climate projections

Climate projections produced by different groups, showing different potential futures

Local planners need information that is relevant to their constituencies

Local planners need to understand how to incorporate it in decision making

Other scales, e.g. river basin or land management units would be useful

Users would welcome a unified message from PAGASA



Capacity of national agencies

Information dissemination and outreach problematic, given the lack of personnel

More creative mechanisms need to be devised

Until now, scientists / technical staff overseen information dissemination

If technical officers acquire better communications impacts could be better understood

Opportunities to explore joint posts with other departments



Usage and needs for climate risk related information in specific economic sectors

There is a need for more specific climate information for different economic sectors

There is a need to involve sectors in the generation and analysis of climate hazard information and their impacts

Mechanisms for involving government and private sector should be found.

Government agencies are willing to work with PAGASA to prepare impact assessments

Agriculture



Gaps and needs

- More reliable forecasts (daily – seasonal)
- Climate projections and impacts on specific crops
- Information at municipal level / crop production areas
- Standards for AWS (Automated Weather Stations)
- Training in climate information.
- Access to raw data for preparation for extreme events

Opportunities

- Integrate and scale up learning from existing projects
- AWS can be an asset if incorporated into the PAGASA
- Distribute TOT training to DA regional and municipal officers
- Consider shared posts (Agromet)
- DA welcomes collaborative work for climate impact assessments and the production of a drought index



Energy

Gaps and needs

- Information on how climate change could affect the sector
- Information costs of climate proofing the sector
- Reliable weather and seasonal forecasts to support operations
- Climate information for planning new infrastructure (IA) & technologies
- Building designs may need to be changed depending on the results of impact assessments

Opportunities

- DOE is willing to work with PAGASA to produce impact assessments for the sector
- Could be incorporated into the regular programmes of DOE
- Data requirements may provide opportunities to work with the private sector

Environment and natural resources



Gaps and needs

- Projections at river basin, land management units & islands
- Climate tools for foresters (welcome approach similar for farmers)
- Climate information needs to be more user friendly for end users
- Information may not be appropriate for the private sector (EMB training)
- Impact assessments for different subsectors (e.g., biodiversity, forestry management, conservation of natural areas and species).

Opportunities

- Integrate training approaches
- PAGASA contribution to DENR climate change database
- Climate projections could support IRBM *Master Plans*
- NAMRIA and PAGASA collaboration to deliver maps
- Synchronize projections with the preparation of national reports, e.g., GHG inventories.



Health



Republic of the Philippines
Department of Health
Kagawaran ng Kalusugan
ISO 9001:2008 CERTIFIED

Gaps and needs

- Links between climate change and health yet been established
- Require more detailed presentation of the information from PAGASA
- Impact assessments for the different subsectors
- Help of PAGASA to identify research priorities
- DOH currently extends to regional level and officers
- Co-production of a Heat Index

Opportunities

- DOH is working on the strategy for adapting the sector to climate change
- New administration provides opportunity to integrate climate change into DOH planning
- Collaboration with other divisions in DOH
- DOH willing to make a group of experts available to work with the PAGASA

Housing and urban development



Gaps and needs

- Climate data useful if integrating geohazard data / land use data
- Areas at risk to identify planning; (no build zones; relocating communities)
- Tools for cost-effectiveness of climate change adaptation welcome
- Support for action planning under El Niño/La Niña events would be useful
- Simpler information for the preparation of Comprehensive Land Use Plans (CLUPs)

Opportunities

- Harmonisation of current data
- Platforms for common work and expand work to more areas and communities
- Support insurance sector on potential impacts of climate change
- Private banking sector may be willing to contribute to impact assessment work (links to insurance for different sectors)

Local government



Gaps and needs

- LGUs require information relevant to local planning scales
- Training for local planners should be the priority
- Projects often an additional burden to local planners
- A need to further translate and relate to local language terminology
- DILG would welcome a collaboration with the PAGASA to collect local terms for climate hazards and impacts

Opportunities

- Training CC & DRM starting in 2016 – Link to TOT and major funding opportunity
- Focusing on planners and municipal / city level can break the preparedness “gap”
- DILG is keen to collaborate with PAGASA (training and assessment of hazards)
- Opportunity to create a registration of projects related to climate information that could compile information on methodologies and results - administered by PAGASA

Public works and highways

Gaps and needs

- Requirement for improve weather forecasts and utilization of future climate information
- Require information at River Basin scale (18)
- Sectoral impacts assessments (flooding and water resources)

Opportunities

- Many “strategy” developments at an early stage and potential to join up
- Already preparing environmental studies and potential to join-up
- Planning preparation of design manuals from 2017
- Potential activities on Integrated Water Resources Management (IWRM) from 2017
- Meet with River Basin Control Office

Tourism

Gaps and needs

- DOT requires more easily available W&C data
- Identifying areas at risk is important for the sector – IA (inc no-build zones)
- Tourism Development Plan would benefit from incorporation of longer term climate considerations.
- Important that local land use planners identify hazards/at risk areas
- Require support to deliver training to on climate to sector stakeholders and to explain the new storm warning signals

Opportunities

- Extending training programme **for environmental officers** in LGUs (TOT)
- The *Marine wildlife tourism interaction guidelines* would benefit from incorporation of climate projection data
- Further incorporate the climate change perspective in the work of the DOT
- Partnering with the private sector to further train local communities

Transportation



Gaps and needs

- DOTr needs more details on the information that PAGASA provides for subsector planning
- Land and maritime require timely and accurate weather forecasts. Timely forecasting of flooding is important to manage transport.
- Climate change projections are needed for infrastructure projects
- Data on typhoon paths important for planning.
- Sea level rise data is required for reclamation projects.

Opportunities

- The DOTr recognises the technical capacity of the PAGASA
- Work on Climate Change is at an early stage participation of PAGASA could make a significant difference in sector planning

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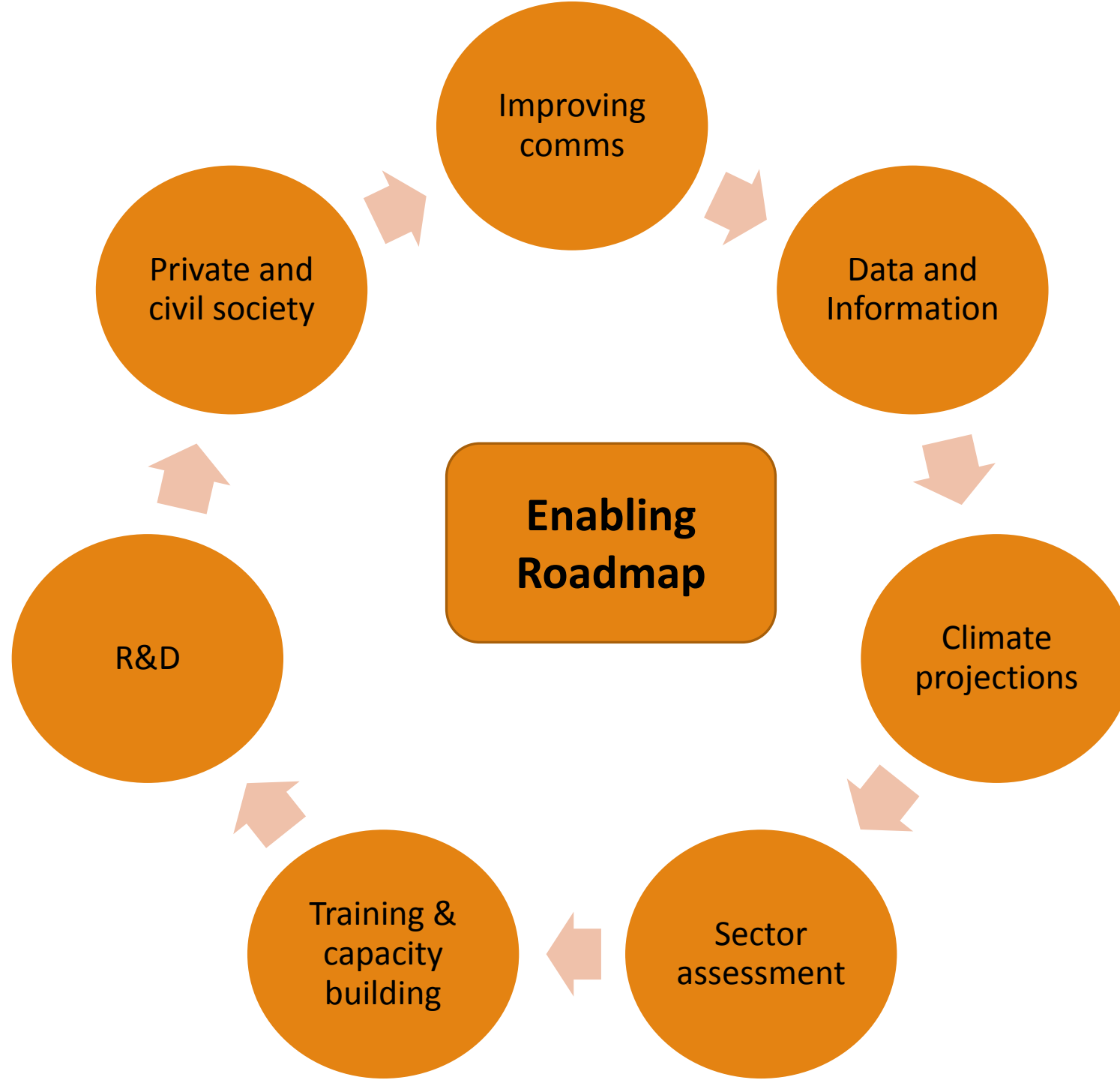
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Recommendations and examples from action plan

Themes for Action

Overarching

- Follow up to maintain momentum
- Present roadmap with climate projections



ACTIVITY	Government Department											
	DA	NEDA	DE	DENR	DH	HUDCC	DILG	DPWH	DT	DTr	NDRRMC	CCC
CLIMATE PROJECTIONS												
<i>Integrate with other national plans / initiatives</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Develop River Basin Scale projections</i>				✓		✓		✓				
<i>Develop Regional and other scale e.g. Municipal, projections</i>	✓	✓	✓	✓	✓	✓	✓		✓	✓		
SECTOR IMPACT ASSESSMENTS												
<i>Develop sector and sub-sector specific risk assessment</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Identify at-risk specific regions and areas</i>	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
<i>Inform and incorporate climate risk assessment into sector design standards</i>		✓	✓			✓		✓	✓	✓		✓
<i>Inform and incorporate climate risk assessment into sector operating procedures</i>			✓							✓		
<i>Provide mechanism to climate proof infrastructure projects</i>		✓	✓			✓		✓				✓

ACTIVITY	Government Department											
	DA	NEDA	DE	DENR	DH	HUDCC	DILG	DPWH	DT	DTr	NDRRMC	CCC
RESEARCH AND DEVELOPMENT												
<i>Technical meeting to identify joint research priorities</i>	✓			✓	✓				✓			
<i>Study to look at past El Niño and typhoon events and impact on areas</i>			✓			✓			✓			
<i>Preparation of a heat index for the Philippines</i>					✓							
<i>Preparing a tool for cost benefit analysis of adaptation options</i>		✓				✓						✓
<i>Develop climate tools for foresters</i>				✓								
<i>Explore potential work on Agricultural drought index</i>	✓					✓						
PARTNERING WITH PRIVATE SECTOR AND CIVIL SOCIETY												
<i>Explore opportunities to work with private sector to train local communities</i>	✓		✓			✓		✓	✓	✓		
<i>Work with private sector to explore impact assessment work</i>	✓		✓			✓		✓	✓			
<i>Work with private sector to explore data sharing and impact assessment work</i>			✓			✓		✓		✓		