The Current State of Climate Change Perceptions and Policies in Vietnam: 2014 Report

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Abstract

This report was constructed to assess the current perceptions and policies regarding climate change in Vietnam. The report comprises a country report, outlining current policies relating to climate change, stakeholder mapping regarding climate change locally and nationally, and results from two stakeholder perception surveys conducted locally and nationally in Vietnam. A total of 50 stakeholders were interviewed, 25 locally and 25 nationally. The stakeholders in the survey represented government offices, universities, research institutions, NGOs, and farmers' groups. Concerns about climate change impacts included drought, flooding, rainfall variation, and salinity intrusion. These concerns, as well as the methods in which stakeholders would like to receive climate information, varied between local and national stakeholders as well as by the type of institution that the stakeholder represented. This emphasizes a need for location- and user-specific responses to climate change.

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Background

The Consultative Group on International Agricultural Research (CGIAR) initiated the research program on Climate Change, Agriculture, and Food Security (CCAFS) in 2011. The stated goal of the research program on CCAFS is "*to promote a food-secure world through the provision of science-based efforts that support sustainable agriculture and enhance livelihoods while adapting to climate change and conserving natural resources and environmental services."* To help achieve this goal, CCAFS has been divided into four themes: (1) adaptation to progressive climate change, (2) adaptation through managing climate risk, (3) pro-poor climate mitigation, and (4) integration for decision making.

By phase two in mid-2015, the original themes of CCAFS had been replaced by four flagship programs: (1) climate-smart agricultural practices, (2) climate information services and climate-informed safety nets, (3) low-emissions agricultural development, and (4) policies and institutions for climate-resilient food systems. Topics of importance to CCAFS such as gender, innovation, and knowledge will be integrated across all flagships.

The Policy Information and Response Platform on Climate Change and Rice in ASEAN and its Member Countries (PIRCCA) Project is one of the trial projects funded under Flagship 4. PIRCCA has an overarching goal to enable policymakers in ASEAN countries to make informed decisions on (1) food security policies focusing on the supply and availability of rice, (2) climate change adaptation policies, and (3) gender action plans. The relevance and foundation of this project stem from the outstanding role of rice for food security in ASEAN countries and the specific vulnerabilities of rice production to climate change impacts. ASEAN member states have committed to act as one community in improving their capacity to adapt and mitigate the effects of climate change in their respective countries. However, these initiatives are hampered by limited access to relevant data, information, and scenarios that could help them decide on R&D approaches/methods in addressing climate change challenges at different scales. The PIRCCA project aims to establish a platform of information exchange among stakeholders locally, regionally, and nationally; scientists; and partners from different ASEAN countries. The proposed platform will bridge the gap between science and policymakers and also establish informal and operational links with other stakeholders such as the private sector.

The PIRCCA project has three sets of activities over the period 2014-17. The first set, titled "Setting the stage," includes (1) the identification of key stakeholders and engagement mechanisms, (2) the identification of key national priorities and knowledge gaps in terms of

climate change and food security, and (3) the identification of geographical domains for up-scaling and out-scaling of proven good practices that can inform decision making on adaptation to climate change. The second set of activities, denoted “Knowledge generation for policy application,” includes information profiling toward the needs of specific user groups, data management, and capacity building. The last set of activities, which represent the heart of the PIRCCA project, is denoted “Strategic alliances for paradigm adjustment,” and it aims to create a network for efficient information exchange among ASEAN stakeholders in different institutions.

The PIRCCA project in its impact pathway is expected to contribute to two major outcomes by 2019. First, recommendations from the PIRCCA project will lead to rice policies that will be mainstreamed into at least three provinces in the Mekong Delta in Vietnam and one municipality in Myanmar. In order to achieve this outcome, the PIRCCA project recommendations are expected to contribute to the rice restructuring program in Vietnam in 2015 as well as in Myanmar in 2016. Second, at least one equitable food system policy incorporating climate-smart practices is to be fully implemented in Vietnam, Myanmar, and at least two other ASEAN member states by 2019. This target is to be measured through the frequency of times in which climate information is considered in decision making by subnational and national governments, the number of policy dialogs negotiating the use of climate information in decision making, the number of training participants who agree to follow up with their respective ministries and institutions after PIRCCA training, and collaboration among strategic alliance groups quantified as the number of letters of agreement between alliance group partners.

This report summarizes the major activities undertaken during 2014 under “Setting the stage” and highlights major findings and implications for subsequent activities in the coming years.

Vietnam and Myanmar as Target Areas

Ideally, the PIRCCA project would have been implemented in all ASEAN countries. However, resource constraints dictated that PIRCCA be implemented on a smaller scale. As such, Vietnam and Myanmar were selected as the target areas for the PIRCCA project. This decision was based largely on the variation in the rice sector between the two countries. Vietnam, the second-largest rice exporter in the world, has a very well developed rice economy. Conversely, Myanmar’s rice economy is less developed than that of many of its ASEAN neighbors. This dichotomy between the two countries allowed for analysis to be conducted concurrently on the rice sector at two very different levels of development.

Vietnam Country Report

Background

Vietnam's geographic location with different topography and climates matched with its long coastline contributes to its being one of the most hazard-prone countries in the Asia-Pacific region. Given that a high proportion of the country's population and economic assets, including irrigated agriculture, is located in coastal lowlands and deltas, Vietnam has been ranked among the countries that are most likely to be affected by climate change (GFDRR 2012). A study conducted by the Vietnam Institute of Meteorology, Hydrology and Environment in 2012 reported that the country's annual average temperature has increased by 0.5 to 0.7 degrees Celsius, with more rapid increases in recent years. From 1993 to 2008, sea-level rise was at the rate of about 3 mm/year, comparable with global estimates.

At present, many regions and countries have developed climate change scenarios at regional, national, and climatic or smaller scales to formulate targeted programs in response to climate change. In Vietnam, several climate change scenarios have been developed and applied for different purposes of climate change-related activities (Tran et al 2012). In addition to the development of different climate change scenarios, Vietnam has developed several strategies to adapt to the impacts of climate change so as to reduce the vulnerability of society to climate change. These strategies are aligned to the main objective of integrating options for mitigation and adaptation on climate change in all its socioeconomic development activities, plans, programs, and projects through the identification of appropriate coping strategies and responses, with special consideration for the impacts of sea-level rise on coastal infrastructure and livelihood of coastal communities.

Priority Adaptation Measures

Vietnam has several different legislative measures in addressing climate change adaptation and mitigation. In 1994, Vietnam ratified the United Nations Framework Convention on Climate Change (UNFCCC), as well as the Kyoto Protocol in 2002. In 2010, Vietnam submitted to the UNFCCC its Second National Communication on Climate Change, which identifies vulnerable sectors and approaches that are needed to cope with the impacts of climate change. Such sectors include water resources, coastal zones and aquaculture, agriculture, forestry, aquaculture, energy and transportation, and human health. Short- and long-term measures have been identified in terms of climate change adaptation in agriculture. Among the short-term

measures are crop selection and farming methods that are better suited to climate change while shifting cropping patterns, upgrading and modernizing cultivation techniques, and crossbreeding are seen as long-term adaptation measures (MONRE 2010).

The Ministry of Natural Resources and Environment (MONRE) acts as the focal point nationally for Vietnam's formulation and development of climate change legislative measures. In 2010, the national climate change governance received a new structure when the National Steering Committee on Climate Change (NCCC) was established, with the vice minister of the MONRE assigned as the chair (MONRE 2012). Aside from MONRE, the ministries involved in climate change policy formulation include the Ministries of Construction (MOC), Agriculture and Rural Development (MARD), Transport, Industry and Trade (MOIT), and Planning and Investment (MPI).

The following are the major national climate change policies approved by the government of Vietnam:

The National Target Program to respond to climate change

The country's overall response to climate change is guided by the National Target Program (NTP) to respond to climate change, which was approved by the prime minister in December 2008. The strategic objective of the NTP includes the following:

- to assess climate change impacts on sectors and regions in specific periods;
- to develop feasible action plans to effectively respond to climate change in the short term and long term to ensure sustainable development of Vietnam;
- to take opportunities to develop toward a low-carbon economy; and
- to join the international community's efforts in mitigating climate change and protecting the climate system.

The main tasks of the NTP consist of the following:

- assessing climate change extent and impacts in Vietnam;
- identifying measures to respond to climate change;
- developing a science and technology program on climate change;
- strengthening the capacity of organizations, institutions, and policy on climate change;
- raising awareness and human resource development;
- enhancing international cooperation;
- mainstreaming the NTP in strategies, plans, socioeconomic development planning, and other sectoral/local development plans;

- developing action plans of ministries, sectors, and localities to respond to climate change; and
- developing and implementing projects of the program.

The National Climate Change Strategy

This law, which was approved in 2011, sets a number of targets for the country to be achieved until 2050. The following are the overall objectives of the strategy:

- sustainably use natural resources;
- carry out adaptation measures and GHG mitigation options;
- safeguard people's life and property;
- ensure the sustainable development goals;
- strengthen human and natural system resilience to climate change;
- develop the low-carbon economy to protect and enhance quality of life; and
- ensure national security and sustainable development.

Strategic tasks:

- proactive disaster preparedness and climate monitoring;
- food and water security;
- suitable proactive response actions to sea-level rise in vulnerable areas;
- protection and sustainable development of forest by increasing carbon removals and biodiversity conservation;
- GHG emission reduction to protect the global climate system;
- increasing the lead of the government in climate change response;
- community capacity development to cope with climate change;
- scientific and technological development for climate change response; and
- international cooperation and integration to enhance the country's status in climate change issues.

In order to carry out the National Climate Change Strategy and achieve its objectives and tasks, the government of Vietnam approved the National Action Plan to Respond to Climate Change in 2012–2020 in October 2012. The Action Plan includes 65 programs, projects, and tasks in 2012–20, with 10 priorities in 2012–15. The Plan was approved by MONRE and has the following approved objectives:

- carry out the UNFCCC and other related treaties that Vietnam is involved in;
- take opportunities to develop a low-carbon economy and green growth in the country;
- join the international community's efforts to mitigate GHG emissions and contribute to sustainable development; and
- achieve set mitigation targets in 2020.

National Green Growth Strategy

The Vietnam Green Growth Strategy (VGGS) aims to accelerate the process of economic restructuring in order to use natural resources efficiently, reduce greenhouse gas emissions through research and application of modern technologies, develop infrastructure to improve the entire efficiency of the economy, cope with climate change, contribute to poverty reduction, and drive economic growth in a sustainable manner.

Approved in September 2012, the VGGS is an effort to synthesize green action plans of the major sectors and society in order to promote "green growth" as a means to achieve the low-carbon economy and to enrich natural capital, and for it to become the principal direction in sustainable economic development as well as to reduce GHG emissions and increase capability to absorb GHG (CDKN 2013).

Key gaps, barriers, and challenges

Various studies have focused on the capacity gaps and needs throughout government ministries and agencies that must be addressed in order to effectively implement projects and programs on climate change adaptation. In particular, there should be concerted effort to coordinate the ministries that are mainly responsible for working for climate change adaptation such as the MONRE, MARD, and MPI (Grajales 2013).

In terms of capacity and management, the national expertise to undertake vulnerability and adaptation assessment is still considered weak. A part of this is the limited staff capacity in analysis, planning, and monitoring and evaluation because of gaps in knowledge, skills, and technical expertise (Huong 2008). For instance, a higher degree of expertise is required regarding impact and vulnerability assessment and modeling tools for climate change projections and adaptation options. Translating scientific reports into a more comprehensible format to be available for the use of end users is also a challenge.

At the provincial level, there is a gap in scientific research conducted provincially and locally, particularly in the fields of water resources, agriculture, and aquaculture that would support provincial strategy planning and sector mainstreaming. Likewise, capacity building is needed in skills, knowledge, and measures to support vulnerable communities, especially for government agencies at the provincial level owing to Vietnam's system of decentralization. Efforts in community awareness raising and training on risk from climate hazards need to be frequent and systematic. Further, outreach and extension services are needed to better inform farmers of climate risks in the agricultural sector, and similar efforts are needed for the aquaculture sector (World Bank, 2011).

Regarding assessment and research, the Global Facility for Disaster Reduction and Recovery (GFDRR) identified the following gaps and limitations:

- improved local information on impacts of climate change for key sectors;
- sufficient information provided by adaptation assessments, models, and tools, particularly for cross-sectorial or inter-regional assessments;
- capacity to assess the country's technological needs for adaptation;
- research (and dissemination to farmers) on flood- and drought-tolerant crop species and improved production methods;
- better access of research groups to real-time data in order to refine their predictions; and
- accurate zoning maps to depict areas that are at risk from various natural hazards.

In terms of monitoring, there is an identified need for improved geographic coverage of hydro-meteorological observation infrastructure in order to collect more accurate data. There is also a need to implement multi-sector pilot projects in key vulnerable areas in order to contribute to observations of environmental and climate change, the impact, and local coping responses.

National priorities on climate change and food security

The government of Vietnam has identified several action points as priority areas in order to fulfill its task to respond to climate change adaptation and mitigation. The following are the identified priorities:

- develop and issue the Action Plan to Respond to Climate Change of ministries, sectors, and localities;

- develop the climate change monitoring system with a high-accuracy digital elevation model;
- develop flood, disaster risk, and climate change maps according to the climate change scenarios with GIS;
- continue to research and update the climate change scenarios;
- implement the pilot programs to adapt to climate change in Quang Nam and Ben Tre provinces;
- issue the policies related to climate change adaptation and GHG mitigation for prioritized sectors: agriculture, forestry, land use, water resources, energy, and transportation;
- strengthen institutional capacity and financial institutions to encourage and mobilize international donors to provide and invest in resources and technologies on climate change; and
- raise awareness on climate change.

Institutional Frameworks and Stakeholder Mapping

National-Level Stakeholder Mapping

A brief description of the stakeholders

The office of the NCCC is housed within the Department of Meteorology, Hydrology, and Climate Change (DMHCC) of MONRE. The office is led by the director of DMHCC. In addition, the office also serves as NCCC Secretariat, which is responsible for supporting and assisting the NCCC in fulfilling its assigned tasks.

MOST is a government agency tasked with performing functions for the state regarding the management of issues relating to science and technology. These responsibilities include (1) the management of science and technology activities; (2) overseeing the development of potential science and technology innovations; (3) managing intellectual property; (4) managing standards, metrology, and quality control for science and technology; (5) overseeing atomic energy, radiation, and nuclear safety; and (6) state management of public services in fields under the Ministry's management of issues related to science and technology as stipulated by law.

MARD is a government agency responsible for performing state management functions regarding agriculture, forestry, salt production, fishery, irrigation and water services, and rural development nationwide. Responsibilities include the state management of functions regarding agriculture and rural development in accordance with legal regulations of the state.

MPI is a government agency responsible for overseeing state management functions in planning, development investment, and statistics. These responsibilities include (1) providing insight to general investment strategies; (2) planning national socioeconomic development targets for development planning, development mechanisms, and policies for general and specific economic management; (3) managing domestic investments, foreign investments into Vietnam, and Vietnam's investment abroad; (4) overseeing economic zones, including industrial parks, border-gate economic zones, and hi-tech parks; (5) assisting in the management of official development assistance sources and foreign nongovernment aid; (6) overseeing the establishment and development of enterprises, collective economy, and the cooperative sector; and (7) performing statistical support for state management over public services in the sectors under its management as prescribed by law.

MOF is a government agency responsible for performing state management functions in finance. These responsibilities include (1) managing the state budget; (2) overseeing state taxes, fees, and other revenues of the state budget; (3) managing the national reserve, state financial funds and investments, and corporate finance and financial services; (4) overseeing state accounting functions such as independent auditing; (5) managing state insurance programs; (6) managing prices for the state; (7) managing state securities; and (8) establishing the ownership rights to the state's investment capital in enterprises according to regulations of the law.

PPC is the executive agency of the Provincial People's Council and the state administrative agency at the local level. It is responsible for executing and carrying out state management locally in accordance with the constitution, law, and other documents of state agencies as well as resolutions of the Provincial People's Council. PPC is organized and operates under the principle of democratic centralism with collective leadership and each individual is charged with working toward the implementation of assigned duties.

A brief description of the NCCC

The NCCC was established in January 2012 under Decision No. 43/2012 to coordinate all activities on climate change in Vietnam. The chairman of the NCCC is the prime minister, who has the overall responsibilities for all climate change-related issues. By assigning the prime minister to act as the chairman of the NCCC, the government expresses its highest concern about climate change issues. The NCCC has one permanent vice chairman, who is the deputy prime minister, and another vice chairman, who is the minister of MONRE. There are another 19 members of the NCCC, including the following:

(1)

inister, chairman of the Office of the Government; ministers of the Ministry of Planning and Investment (MPI), Ministry of Finance (MOF), Ministry of Science and Technology (MOST), Ministry of Foreign Affairs (MOFA), Ministry of Agriculture and Rural Development (MARD), Ministry of National Defense (MND), Ministry of Public Security (MPS), Ministry of Construction (MOC), Ministry of Transport (MOT), Ministry of Health (MOH), and Ministry of Industry and Trade (MOIT);

(2)

representative from the Committee on Science, Technology and Environment of the National Assembly;

(3) representative from the Committee on Social Affairs of the National Assembly;

(4) he permanent vice chairman of the Steering Committee for South-West Region;

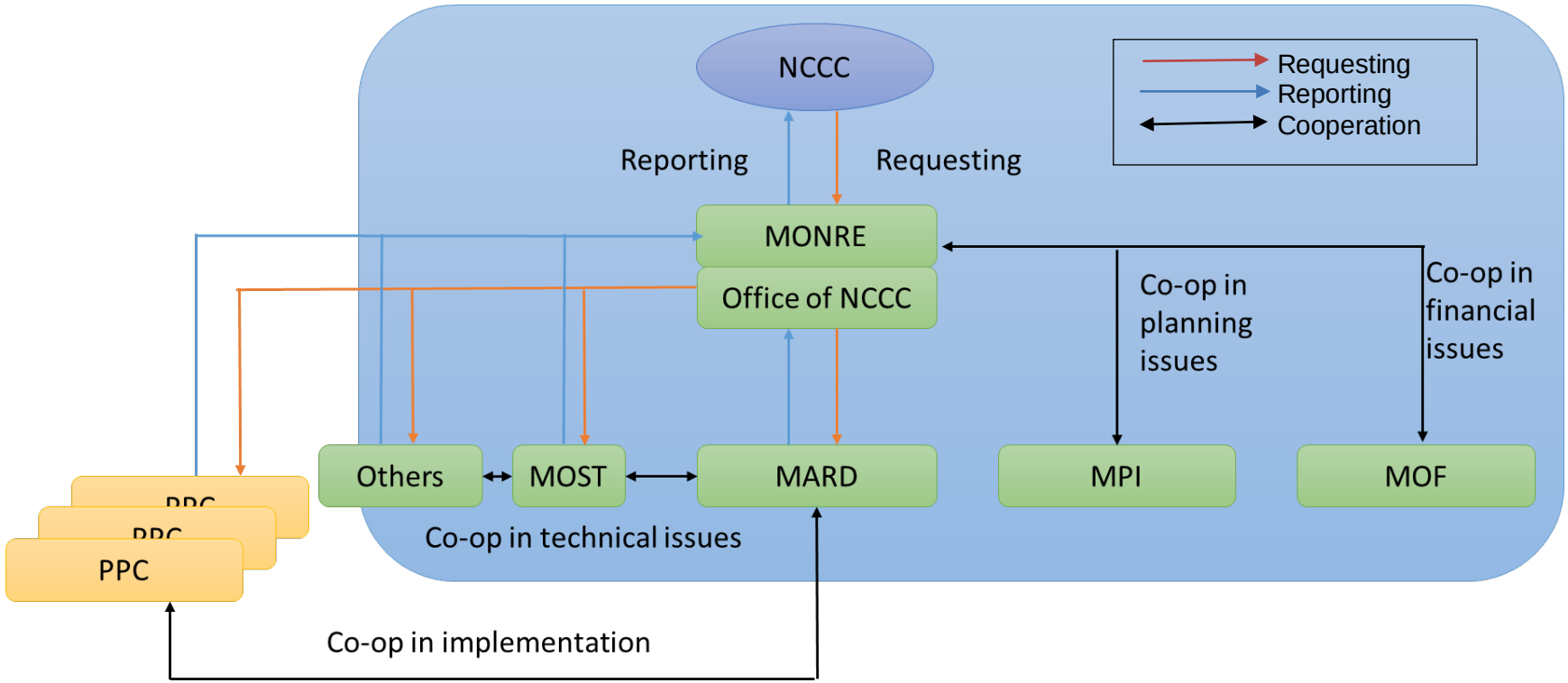
(5) he president of the Vietnam Academy of Science and Technology (VAST) and vice president of the Vietnam Academy of Social Science (VASS);

(6) he president of the Vietnam Union of Science and Technology Associations (VUSTA);

(7) deputy minister of MONRE; and

(8) ome management specialists and scientists related to climate change.

MONRE is the standing body of the NCCC. Its responsibilities include (1) assisting the NCCC chairman in developing programs and working plans, (2) coordinating and monitoring the implementation of the programs and working plans by related ministries, (3) synthesizing reports of activities to cope with climate change, and (4) performing other tasks assigned by the NCCC chairman.



NCCC: National Committee on Climate Change
MONRE: Ministry of Natural Resources and Environment
PPC: Provincial People's Committee
MOST: Ministry of Science and Technology
MARD: Ministry of Agriculture and Rural Development
MPI: Ministry of Planning and Investment
MOF: Ministry of Finance

Fig. 1. Stakeholder mapping at the national level.

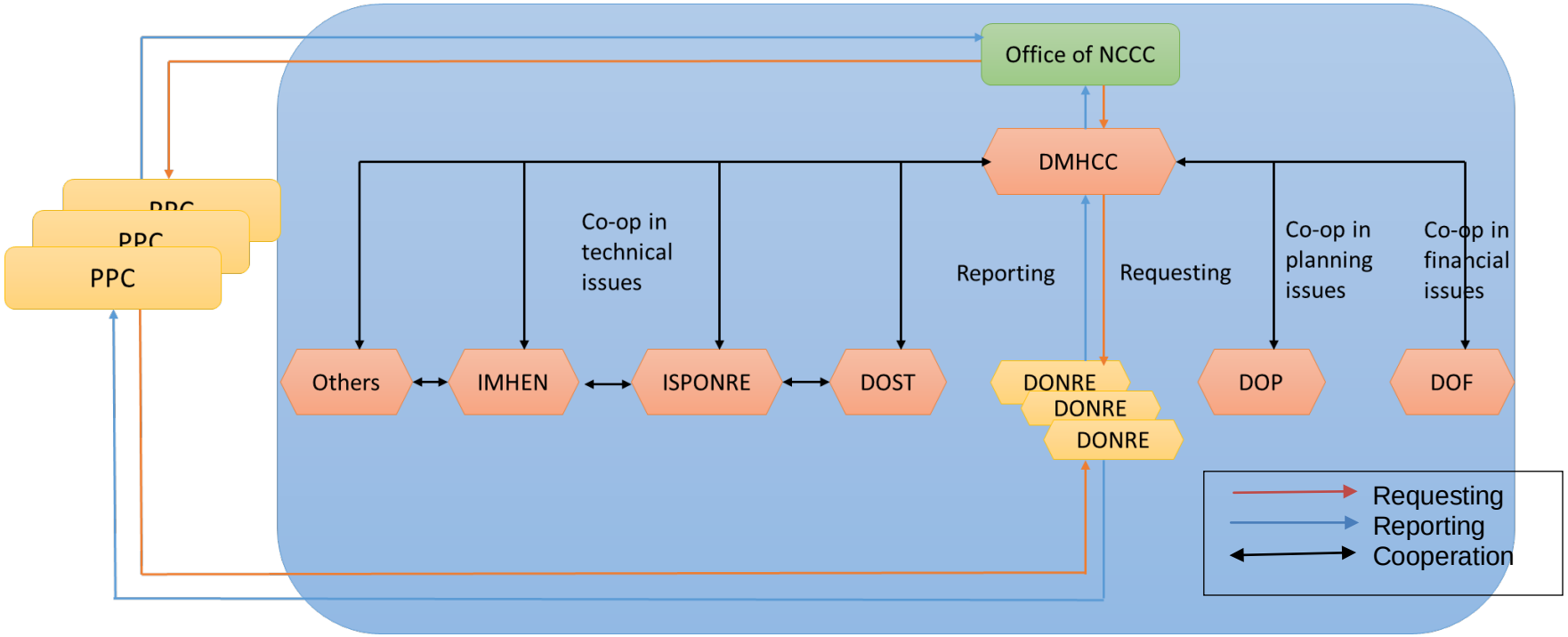
Process for policy formulation and implementation

The process for the formulation and implementation of policies on agriculture and rural development nationally can be seen in Figure 1. It can be described as follows:

The NCCC sends requests for policy formulation to the office of the NCCC within MONRE. It will then ask MARD to provide necessary inputs, including but not limited to data, information, comments, and technical advice on agricultural and rural development-related issues. MARD also engages in designing climate change policies on agricultural and rural development matters as assigned and requested by the NCCC. MOST and other ministries such as VASS and VUSTA will participate in this process if the concerned issues are related to their expertise and participation is requested by the NCCC.

MARD cooperates with MOST and other ministries during the process on technical issues while MONRE and the office of the NCCC work closely with MOF for financial issues and with MPI for planning issues. In theory, the participation of MOF and MPI is important to ensure that the designed policies will follow the related national plans of the central government and money will be allocated from the state budget. This ensures overall proper implementation of the policies.

PPC is an important partner for the office of the NCCC for ensuring that national policies are implemented provincially. MARD will cooperate with PPCs across provinces in the implementation of the policies through the Department of Agriculture and Rural Development at the provincial level. PPC and MARD report mainstreaming activities and implementation results to the office of the NCCC.



DMHCC: Department of Meteorology, Hydrology and CC
DOP: Department of Planning
DOF: Department of Finance
DOST: Department of Science and Technology

IMHEN: Institute of Meteorology, Hydrology and Environment
ISPONRE: Institute of Strategy and Policy on Natural Resources and Environment
DONRE: Department of Natural Resources and Environment at the provincial level.

Fig. 2. Stakeholder mapping at MONRE.

Stakeholder Mapping at MONRE

A brief description of key stakeholders

DMHCC is an organization under MONRE that has the functions of (1) advising and assisting the minister of state management in hydro-meteorology, climate change, and ozone layer protection policy and (2) overseeing the public service of hydro-meteorology, climate change, and ozone layer protection as stipulated by law (Fig. 2).

DOST is an organization under MONRE that has the functions of advising and assisting the minister of state management of science and technology actions, development of science and technology, transfer of technology; oversight of atomic energy; standards and technical regulations; intellectual property rights; as well as metrology and quality of products for the areas under its state management.

IMHEN is a functional organization for science under the jurisdiction of MONRE with mandates for managing research and development of science and technology on meteorology, hydrology, oceanography, water resources, and environment.

ISPONRE is a functional organization under the jurisdiction of MONRE with mandates for research and support of the minister of state management on proposing and formulating strategies and policies on areas under its state management such as performing scientific research, providing public services, counseling, and training related to resource management and environmental protection in accordance with the law.

DOP is an organization under MONRE that has the functions of advising and assisting the minister of state management in the areas of strategy, planning, investment, and development under its state management.

DOF is an organization under MONRE that has the functions of advising and assisting the minister of state management in the fields of finance, accounting, and pricing within its state management.

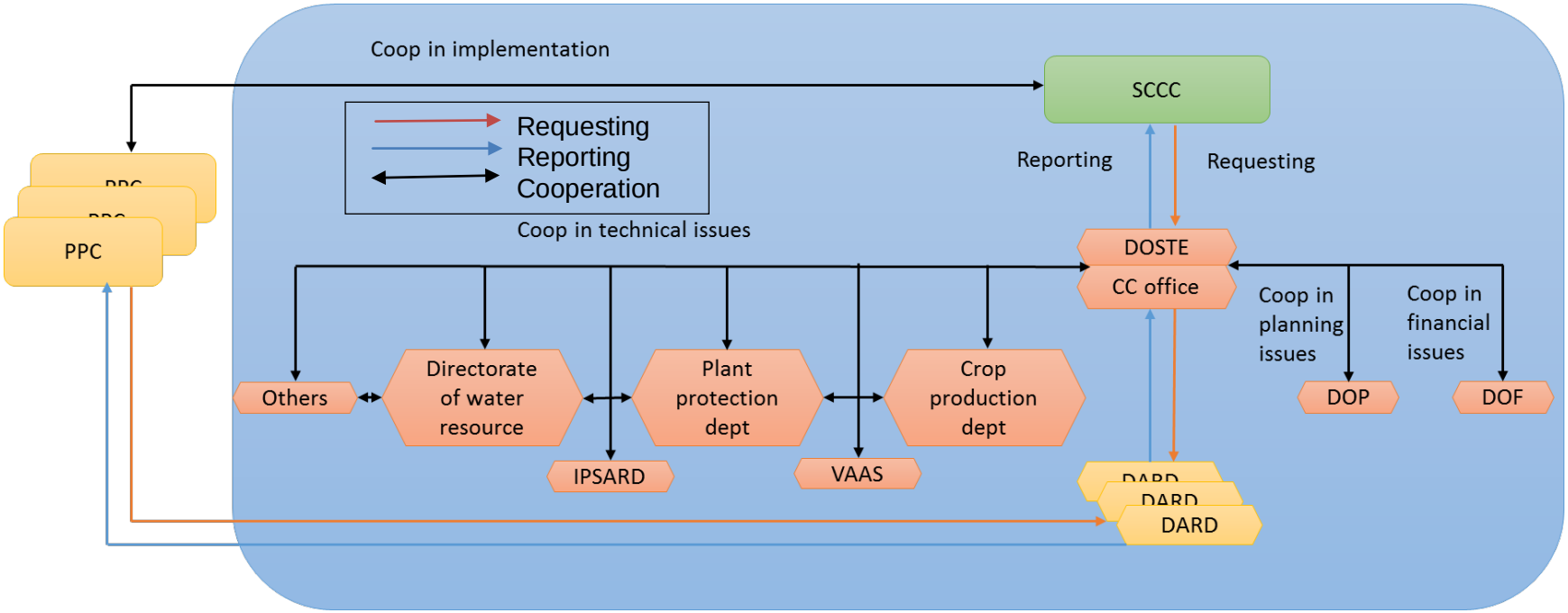
DONRE is a specialized agency of the PPC that has the function of advising and assisting the committee in performing state management in the geographic area under its control in the fields of natural resources and environment, including land resources, water resources, mineral resources, geology, environment, hydro-meteorology, geodesy, and cartography; synthesizing

and unifying management of sea and island issues; and implementation of public services in areas under the jurisdiction of the department in the geographic area under its control.

Process for policy formulation and implementation

The process for policy formulation and implementation in MONRE can be seen in Figure 2. It can be described as follows:

DMHCC takes the lead and works closely with other related bodies under MONRE for climate change policy formulation at MONRE, as requested by the office of the NCCC. Key bodies that include DOST, ISPONRE, and IMHEN contribute to providing the necessary technical inputs for formulation. As at the national level, DOP and DOF play key roles in making sure that issued policies meet financial and planning regulations of the ministry. Other departments such as the General Department of Land Administration and Department of Water Resource Management may take part if there are issues of their interest and concern. PPC is mainly responsible for implementing policies provincially as assigned by the NCCC through the office of the NCCC. DONRE will implement under the instruction and supervision of both PPC and DMHCC on behalf of MONRE and report results to them.



SCCC: Steering Committee on Climate Change
DOSTE: Department of Science, Technology and Environment
DOP: Department of Planning
DOF: Department of Finance
DARD: Department of Agriculture and Rural Development at provincial level
IPSARD: Institute of Policy and Strategy for Agriculture and Rural Development
VAAS: Vietnam Academy of Agricultural Science

Fig. 3. Stakeholder mapping at MARD.

Stakeholder Mapping at MARD

A brief description of key stakeholders

The Steering Committee on Climate Change (SCCC) of MARD was established to instruct the design and implement the action program on response to climate change in agriculture and rural development and all other climate change response activities on ARD. The chairman of the SCCC is the minister of agriculture and rural development and the two vice chairmen are the vice minister and the director of DOSTE of MARD. The 17 other members of the committee are representatives from different departments and agencies under MARD. Some of them are the Directorate of Water Resources, Directorate of Forestry, Directorate of Fishery, DOP, International Cooperation Department, Department of Cooperatives and Rural Development, Crop Production Department, Animal Health Department, Department of Processing and Trade for Agro-Forestry-Fisheries Products and Salt Production, and VAAS.

DOSTE is an organization under MARD that has the functions of advising and assisting the minister in performing the state management of agriculture and rural development in the fields of science, technology, and the environment under state management of the ministry. The climate change office is based in the DOSTE of MARD and is responsible for supporting and assisting the chairman and SCCC in fulfilling their tasks.

IPSARD is an organization under MARD that has the functions of doing research and assessing the impacts of policies, strategies, plans, and programs in ARD; providing multi-dimensioned and multi-media information to support the decision-making process in management, production, trade, and investment relating to ARD; and implementing cooperation activities in research, technology transfer, training, consultation, and model development with domestic and foreign institutions and individuals.

VAAS is an organization under MARD that has the mandates of providing a comprehensive vision, strategic direction, and oversight of agricultural R&D programs; conducting basic and applied research and fostering the transfer of new technologies; and providing postgraduate and professional training.

DARD is a specialized agency of the PPC that has the function of advising and assisting the committees in performing state management in the geographic area under its control in the

fields of agriculture, forestry, salt, and fishery; irrigation and rural development; flood and storm protection; food safety; and implementation of public services in areas under the jurisdiction of the department in the geographic area under its control.

Process for policy formulation and implementation

The process for the formulation and implementation of CC policies in MARD can be seen in Figure 3. It can be described as follows:

Under the instruction of and request by the SCCC, DOSTE and the climate change office will take the lead in policy formulation and collaborate with other related stakeholders to gather all necessary technical inputs to formulate policies and regularly update the SCCC about progress. Key input providers include IPSARD and VASS. DOP and DPI are involved as advisers and commentators in terms of planning and financial aspects, respectively. For climate change policies on crops in general and on rice in particular, there must be involvement of the Crop Production Department, Plant Protection Department, and Water Resource Directorate. Others may include the International Cooperation Department and the Department of Cooperatives and Rural Development depending upon the specific concerns of policies.

To implement policies, the SCCC will ask for the cooperation of related PPCs in mainstreaming and implementation. DARD is the key one that is responsible for implementing policies at the provincial level under the supervision and instruction of both PPC and MARD (through the CC office).

Findings from Stakeholder Mapping

In principle, the policy formulation process at both the central and ministerial levels requires the engagement of many stakeholders, including technical, financial, and planning ones, to ensure the effectiveness and efficiency of policies.

Policy formulation follows the top-down mechanism and there is almost no policy consultation with community and mass organizations locally at the designing stage.

The existence of the office of the NCCC nationally and the Climate Change Office at MARD signals a strong interest of the government and MARD in climate change issues. However, these offices have limited power because they are not independent organizations. Rather, they are housed within DMHCC and DOSTE, leading to limited influence on the policy formulation process. Moreover, although tasks assigned among stakeholders are well defined, enforcement

is weak. Therefore, many are involved in principle but in fact many of them do not actively contribute to the formulation process, which may result in ineffectiveness and inefficiency of policies. No agency is responsible for evaluation and monitoring activities of policy formulation as well as implementation results.

Stakeholder Survey

Methodology

As part of the activities listed under "Setting the stage," a stakeholder survey took place in Vietnam from August to December 2014. This survey was implemented to (1) gain expert opinions on stakeholder perceptions of climate change and food security issues, (2) understand the need of stakeholders for climate information, and (3) better understand the current preparedness of institutions to face climate change challenges. Data were collected from local and national stakeholders in Vietnam. Respondents to the questionnaire varied in affiliation from government offices to international NGOs, farmers' groups, research institutions, universities, and private companies. The respondents to the questionnaire were considered expert stakeholders on climate change and food security issues in their respective countries and were identified by IRRI's local partner IPSARD in Vietnam. Results from the expert stakeholder questionnaire are to be used in subsequent years to inform site-specific decisions on data collection, policy needs, distribution of information, and ultimately feasible policy recommendations.

Vietnam Local Stakeholder Survey

Twenty-five people responded to the local survey of expert stakeholders in Vietnam. The respondents represented government agencies, extension services, and researchers. Most (n = 24) of these respondents reported that their areas had been affected by climate change. In general, reported impacts of climate change were most often related to water (Table 1) as flood, drought, and salt intrusion were all of concern. Respondents also reported that, although climate change was affecting their areas, less than half (n = 11) had a specific division or staff member within their organization that worked specifically with climate change issues. This could be because even though 21 of the respondents reported that there were climate change policies at the local level, they also reported that the majority of policies were the result of a top-down approach with national development and local implementation of climate change policies. Most

national campaigns were well known among the local stakeholders, with 24 of the respondents answering that they were familiar with the IPM campaign; 20 were familiar with the three reductions, three gains campaign, the SRI campaign, and the one must do, five reductions campaign; and 18 were familiar with the one must do, six reductions campaign.

Table 1. Reported climate change impacts for local stakeholders, Vietnam.

Climate change impact	Count
Flood	16
Drought	10
High temperature	7
Salt intrusion	6
Disease	6
Storms	5
Extreme events	4

When stakeholders were asked to rank how important they believed information to be regarding future climate-related challenges on a scale of 1 – 4 (1 = not important, 2 = less important, 3 = important, and 4 = very important), almost all climate-related challenges were considered important (i.e., greater than 3), with the exception of salinity-prone areas. The top three ranked climate-related challenges were flood (μ = 3.68), drought (μ = 3.56), and rainfall (μ = 3.29). When stakeholders were divided by type of institution, there were only minor differences in how they perceived the importance of the climate challenges (Fig. 4). The CCA measures considered most important for coping with these climate-related challenges by respondents were improved varieties (n = 20), changes in the cropping calendar (n = 16), water management (n = 9), and climate information training (n = 5).

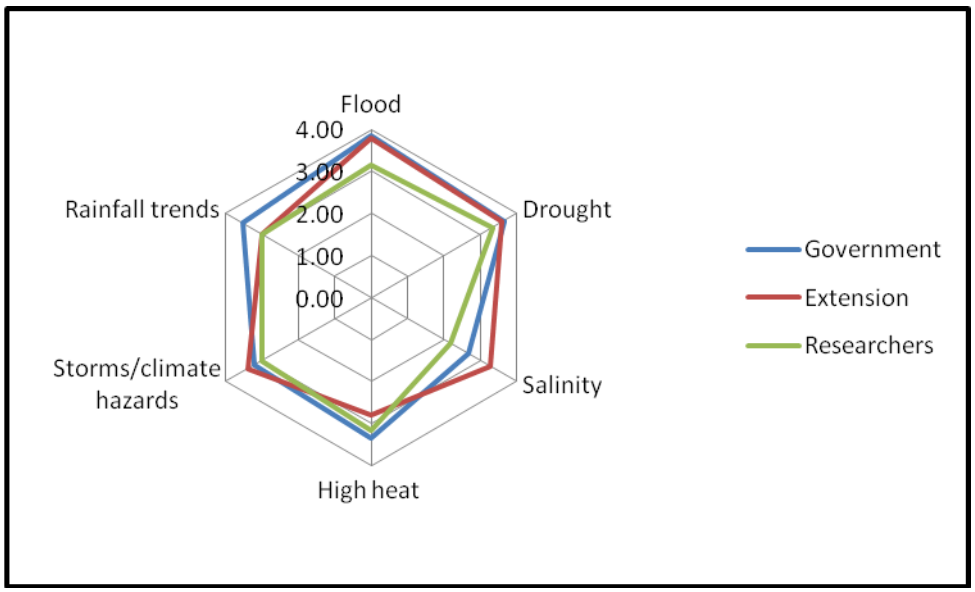


Fig. 4. Importance of information by type of institution in Vietnam.

Respondents reported that the key training areas they considered important for improving the skills of the institutions in making policy decisions on climate issues were training on communication skills (n = 24), GIS mapping (n = 19), economic modeling (n = 17), and cost-benefit analysis (n = 16). In addition, respondents stated that the best way for institutions to distribute climate information to raise public awareness was through blueprints for media releases in local languages (23 favorable responses), training materials on participatory approaches (20 favorable responses), and local community meetings (18 favorable responses).

Vietnam National Stakeholder Survey

There were a total of 25 respondents for the national stakeholders' survey. The respondents represented government institutions, NGOs, research institutions, and universities. National survey results revealed that 17 of the respondents had been involved in policy formulation in the past and 16 had used climate information in policy formulation. The most common involvement among the respondents was the National Strategy on Climate Change, with a total of five respondents indicating that they had been involved in formulating this policy. There are currently several campaigns related to climate change and rice production in Vietnam. These campaigns—the IPM campaign; three reductions, three gains SRI campaign; one must do, five reductions campaign; and one must do, six reductions campaign—were all very well known among the respondents. The most known campaigns were IPM and three reductions, three gains, which 23 of the respondents indicated being familiar with. The least known was one must

do, six reductions, which still had 18 of the respondents indicating being familiar with the campaign.

Having a climate change office or division within the surveyed institutions appears to be common, with 19 of the respondents reporting that their institution has an office or division specifically for climate change issues. More than half (n = 17) of the respondents reported that they currently use economic models when formulating policy. In addition, just over half (n = 14) of the respondents are also working with a financial office in policy formulation. However, most (n = 23) of the respondents reported that their institutions did not have power to set budgets for policy implementation.

Table 2. Reported importance of climate challenges by national stakeholders, Vietnam.

Climate-related challenges	Rank	Mean
Salinity-prone areas	1	3.50
Flood-prone areas	2	3.23
Drought-prone areas	3	3.14
Storms/climate hazards	4	2.91
Rainfall trends	5	2.77
High heat-prone areas	6	2.59

When respondents were asked how important climate factors were regarding rice production on a 4-point scale (Table 2), salinity was reported as the highest concern (μ = 3.5). The respondents were also asked to report on a 4-point scale what climate-threat information was most important to them. On average, information on sea-level rise was found to be the most important (μ = 3.44), followed by salt-water intrusion (μ = 3.42). Both of these problems are most relevant to the deltas of Vietnam. Figure 5 shows information importance by institution type. Research institutes and universities found floods, storms, sea-level rise, and salt intrusion to be the most important information areas. This is in contrast to governments and NGOs, which found this information less important. Information considered most important in relation to climate response was water management (μ = 3.55) and quality seeds (μ = 3.30) (Table 3). Furthermore, the CCA measures most cited by respondents as being important for rice production were production practices (n = 9), cropping calendar change (n = 6), water management (n = 6), and varieties with high tolerance (n = 5). Both water management and seeds were cited by respondents in multiple responses and are relevant to earlier stated demand for information on sea-level rise and salt-water intrusion.

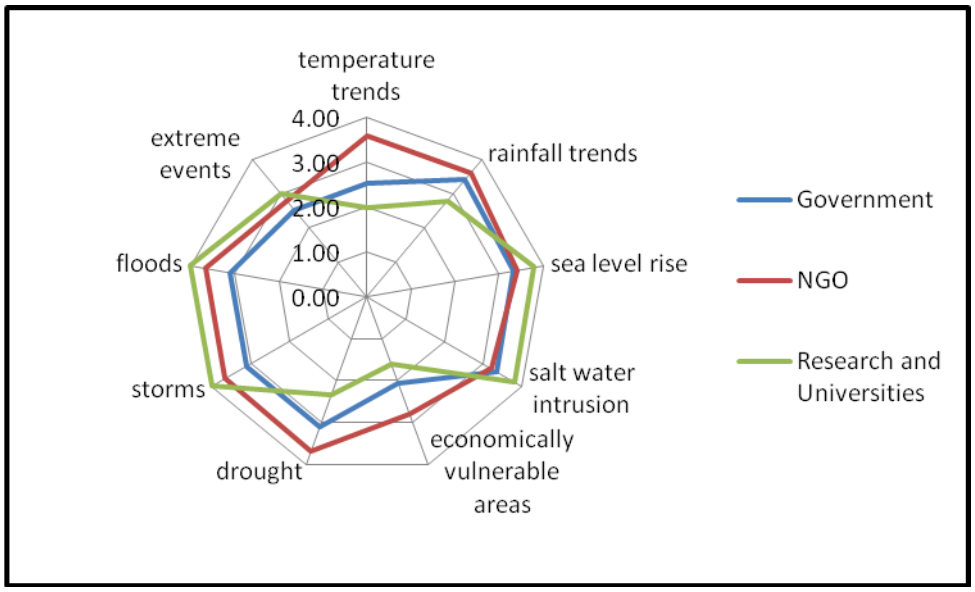


Fig. 5. Perceived importance of information by institution type, Vietnam.

Table 3. Reported importance of information packages by national stakeholders.

Information package	Rank	Mean
Water management	1	3.55
Quality seeds	2	3.30
Integrated nutrient management (fertilizer use)	3	3.20
Land preparation and crop establishment	4	2.85
Crop health (disease, insects)	5	2.85
C&B for farmers and marketing/market access for farmers	6	2.84
Harvesting	7	2.65
Mechanization	8	2.50
Drying	9	2.45
Milling and processing	10	2.45
Storage	11	2.30

The preferred methods of receiving climate-related information for decision making in agriculture varied across institution type (Fig. 6), but, on average, the most popular forms of information were maps (n = 17), report documents (n = 14), and tabular information (n = 13). But, disaggregating by institution type, it is easier to develop user-specific information packages. Figure 6 reveals the differences in information needs by different institution types. There does appear to be some disconnect in the way in which the surveyed institutions like to receive information and how they find information to be best distributed. Respondents reported that the

best way to distribute climate information to raise public awareness was through blueprints for media releases in local languages (23 favorable responses). Conversely, only eight of the respondents reported that they liked to receive information from media outlets.

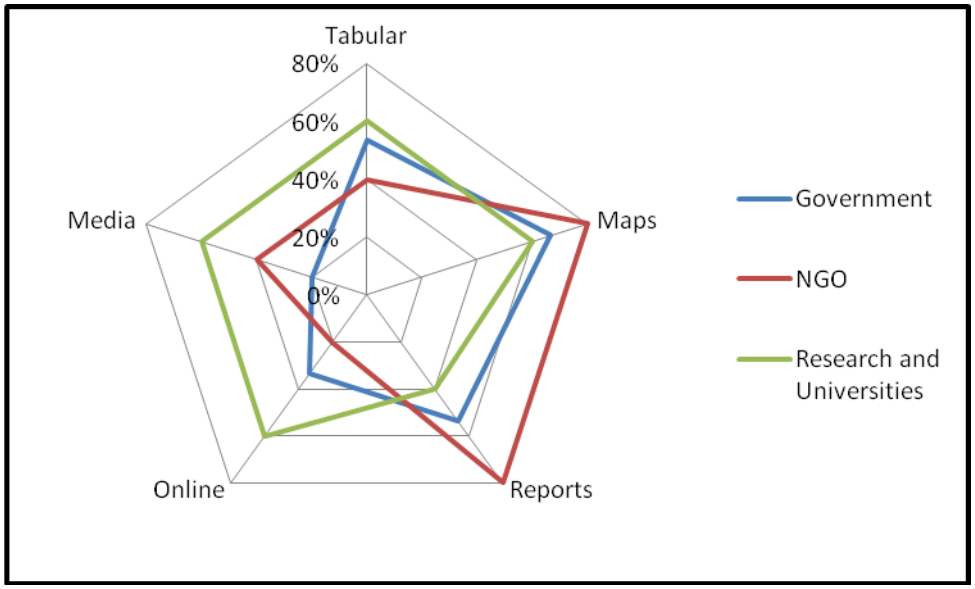


Fig. 6. Preferred method to receive information by institution type, Vietnam.

Conclusions

Policy formulation in Vietnam follows a centralized, top-down approach, which does not achieve proper engagement of local stakeholders. The lack of proper engagement can lead to financial and planning issues, which may lead to improper implementation of climate change policies at the local level. Challenges in policy implementation stem from a lack of financial and human resources for policy implementation as well as low awareness among the general population because policies are not location specific and there is limited consultation locally. Results of the stakeholder survey support these hypotheses as the most cited opinions about climate change measures and policies in Vietnam are that there is low awareness among the general population and that the implementation of these policies is weak. Other critiques include that climate change policies lack financial and human resources, lack of consultation at the local level, and policies are not location specific.

Major concerns about climate change in Vietnam differed among local and national stakeholders. Nationally, increased saline in the soil was reported by stakeholders as the most concerning impact of climate change. Locally, the top three concerns were flood, drought, and rainfall. Although there is some disconnect in the responses, it is common that the major concerns are all related to water issues.

Moving forward, special attention needs to be given to site- and user-specific information packages for climate change policies. Not only were there variations in the climate change threats, desired information packages, and current preparedness observed by stakeholders from the local and national level, so too did these vary among the type of institution. The differences by institution are most pronounced nationally, as seen in Figures 5 and 6. These figures indicate that not only do institutions perceive climate information differently but they also have varied preferences on how to receive climate change information. In addition to user-specific information, it is important to remember that the implications of climate change will have spatial variance across stakeholders. The consideration of this spatial variance is likely to be one of the larger challenges in the implementation of climate change policies as Vietnam currently follows a top-down approach with limited input from local stakeholders.

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Appendices

Appendix 1. List of stakeholders participating in Myanmar and Vietnam.

The authors express their sincerest appreciation for national questionnaire participants in Vietnam from the following institutions/offices/organizations:

- Ministry of Science and Technology
- Ministry of Natural Resources and Environment
- Ministry of Agriculture and Rural Development
- National Agriculture Extension Center
- Institute of Meteorology, Hydrology and Environment
- Directorate of Water Resources
- Cuu Long Rice Research Institute
- South Can Tho University
- Hanoi Agricultural University
- Mekong Delta Rice Research Institute
- Vietnamese Farmers' Union
- World Bank in Vietnam
- Winrock
- Oxfam
- SNV

The authors express their sincerest appreciation for local questionnaire participants in Vietnam from the following institutions/offices/organizations:

- Central Committee for Flood and storm control in Nghe An Province
- Research Center for Rural Development in An Giang University
- Agricultural extension offices in
    - Dong Thap Province
    - Nghe An Province
    - An Giang Province
    - Thanh Binh District

- Department of Agriculture and Rural Development
    - Dong Thap Province
    - Nghe An Province
    - An Giang Province
    - Thanh Binh District
- Department of Natural Resources and Environment
    - Dong Thap Province
    - Nghe An Province
    - An Giang Province
    - Thanh Binh District
- Farmers' Unions
    - Dong Thap Province
    - Nghe An Province
    - An Giang Province
    - Thanh Binh District

Appendix 2. Sample Questionnaire: Vietnam National.

POLICY INFORMATION AND RESPONSE PLATFORM ON CLIMATE CHANGE AND RICE IN ASEAN AND ITS MEMBER COUNTRIES Project (PIRCCA)

Background

PIRCCA is one of the flagship project funded by Climate Change, Agriculture and Food Security (CCAFS) with the overarching goal to enable policy makers in ASEAN countries to make informed decision on (1) food security policies focusing on the supply and availability of rice, (2) climate change adaptation policies, and (3) gender action plans. ASEAN member states have committed to act as one community in improving their capacity to adapt and mitigate the effects of climate change in their respective countries. However, these initiative are hampered by limited access to relevant data, information and scenarios that could help them deciding on R&D approaches/methods in addressing climate change challenges at different scales. The proposed platform will bridge the gap between science and policy makers and also establish informal and operational links with other stakeholders such as private sector.

In setting the stage of the project, we are conducting this survey to policy makers and key stakeholders in ASEAN member countries in order to review their information need for decision making in addressing climate change challenges.

PIRCCA Survey Questionnaire on Information Need for Addressing Climate Change Challenge
National Level

Date:	Country:
Name of Respondent:	
Affiliation:	

General Instructions: *Please write the appropriate answers to questions with blanks. ForYes/No Questions, please check the corresponding answer.*

1. Have you/your institution ever been involved in policy formulation?
☐ Yes ☐ No *(proceed to 2)*

If yes, please list three (3) main policies and identify your roles and estimate the duration of your involvement.

Seq	Name of policy	Your roles	Duration of your involvement
1.1			
1.2			
1.3			

2. Have you/your institution used climate information for decision making in the past?
☐ Yes ☐ No *(proceed to 2.2)*

If yes:

2.1a What was the primary source of the climate information that you used?
_____

2.1b What was the most important decision made using this information?
_____

2.1c Was the timing you receive information appropriate for a decision?
☐ Yes ☐ No

2.1d Did you trust that the information provided is based on credible data?
☐ Yes ☐ No

2.1e Did you ever find obvious errors in the information provided?
☐ Yes ☐ No

2.1f Did you ever feel confident making decisions based on the information received?
☐ Yes ☐ No

2.1g If asked to validate your assessments, did your colleagues accept this information as valid to support your decisions?
☐ Yes ☐ No

2.1h Have your colleagues ever complained to the validity of the information?
☐ Yes ☐ No

2.2 If no, did you have access to climate information but do not use it in your decision- making?
☐ Yes ☐ No

2

PIRCCA Survey Questionnaire on Information Need for Addressing Climate Change Challenge
National Level

3. How would you rate your information base on climate related challenges in rice production?
(1 = not important, 2 = less important, 3 = important, 4 = very important)

Climate related challenges	Rating
3.1 Flood prone areas	
3.2 Drought prone areas	
3.3 Salinity prone areas	
3.4 Heat prone areas	
3.5 Storms/climate hazards	
3.6 Rainfall trends	
3.7 Others (*please specify*)_____	

4. Please rank the level of importance of the following climate-related information you need for making policy decision in agriculture. *(1 = not important, 2 = less important, 3 = important, 4 = very important)*

Climate related information	Ranking
4.1 Information on temperature trends	
4.2 Information on rainfall trends	
4.3 Information on sea level rise	
4.4 Information on salt water intrusion	
4.5 Information on poverty level and vulnerable areas	
4.6 Information on drought	
4.7 Information on storms	
4.8 Information on floods	
4.9 Information on extreme events	
4.10 Others (*please specify*)_____	

5. In what format do you prefer to receive climate-related information for decision making in agriculture?
☐ Tabular ☐ Websites/emails
☐ Maps ☐ Media (conference, workshops, talk shows…)
☐ Report documents ☐ Other materials (*please specify*)_____

6. Please rank the level of importance of the following information packages that you are interested in for decision making in rice production.
(1 = not important, 2 = less important, 3 = important, 4 = very important)

Decision making on rice production activities	Ranking
6.1 Quality seeds	
6.2 Water management	
6.3 Integrated nutrient management (fertilizer use,…)	
6.4 Land preparation and crop establishment	
6.5 Mechanization	
6.6 Crop health (disease, insects,…)	
6.7 Harvesting	
6.8 Drying	
6.9 Storage	

Decision making on rice production activities	Ranking
6.10 C&B for farmers and marketing/ markets access for farmers	
6.11 Milling and processing	
6.12 Others *(please specify)*_____	

7. Do you use some economic models when formulating policy decision?
☐ Yes ☐ No

8. Do you work with the financial unit when formulating policy?
☐ Yes ☐ No

9. Do you have power to set budget for policy implementation?
☐ Yes ☐ No *(proceed to 10)*

If yes, please list 3 main policies in which you had power to set the budget and identify your roles and estimate the duration of your involvement.

Seq	Name of policy	Your roles	Duration of your involvement
9.1			
9.2			
9.3			

10. Does your institution have a division/section/department/unit/staff that takes care of climate change issues?
☐ Yes ☐ No

11. What do you consider the key training area for improving the skills of your section/division/department/unit in making policy decision on climate issues?

☐ Implementing economic modeling
☐ GIS mapping
☐ Conducting cost-benefit analysis
☐ Communication skills
☐ Other
(*Please specify*)_____

12. How can climate information be delivered to raise public awareness?
☐ Blueprints for media release (in local languages) (TV, radio, newspaper, calendar, ...)
☐ Training materials on participatory approaches
☐ Local community meetings.
☐ Other (*please specify*)_____

13. Basing on your experiences, what are the 3 most important CCA measures in rice production.

Seq	Name of CCA measures	Brief description (what/when/where/...)
13.1		
13.2		
13.3		

14. Open question: What do you think of current CC policies? *(Please use a separate sheet if necessary).*
15. Open question: What are the weak points in CCA measures? *(Please use a separate sheet if necessary).*

THANK YOU VERY MUCH!

Your participation in this survey will be much appreciated and should help us to generate and package relevant information.