

CLIMATE CHANGE ADAPTATION PLANNING IN VIETNAM'S MEKONG DELTA

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Case Studies contain preliminary research, analysis, findings, and recommendations on previous long-term planning exercises. They are circulated to stimulate timely discussion and critical feedback and to influence ongoing debate on emerging issues.

All the interpretations and findings set forth in this case study are those of the authors alone.

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OVERVIEW

This case study summarizes the strategic climate adaptation planning for Vietnam's Mekong Delta. It provides an excellent example of how strategic adaptation planning can unfold in a context of substantial exposure. This case study largely focuses on the Mekong Delta Plan in Vietnam (Governments of Vietnam and the Netherlands 2013) and the subsequent Prime Minister Resolution 120 (Government of Vietnam 2017) because both constitute overarching frameworks for ongoing adaptation planning for all relevant agencies. However, we also will consider several sector plans and other efforts that informed the development of Resolution 120 as the cornerstone for climate adaptation planning in Vietnam's Mekong Delta.

CONTEXT SETTING FOR THE LONG-TERM PLAN

Climate change vulnerability and socioeconomic exposure

Climate change is affecting socioecological systems around the globe in several ways. Sea-level rise is for many coastal regions the most urgent concern, in particular for river deltas, where salinity moves up waterways, shifts fresh groundwater lenses, and accumulates in soils.

Vietnam's Mekong Delta is considered among the world's five most vulnerable deltas (Governments of Vietnam and the Netherlands 2013). It covers 3.9 million hectares and has an average elevation of 1 meter above mean sea level. Model-based predictions for the delta suggest an increase in sea level of up to 40 centimeters by 2050 (Church et al. 2014; Smajgl et al. 2015) and 75 centimeters by 2100 (MoNRE 2009). Many strategic assessments assume an increase of up to 1 meter by 2100 (Toan 2014). Ongoing observations have already recorded annual increases of 1.75–2.56 millimeters per year for more than two decades (Wassmann et al. 2004), which has caused rice productivity to decline across nearly all coastal communes and has forced farmers to consider land-use change (Smajgl et al. 2015).

Salinity in the Mekong Delta is exacerbated by upstream development (e.g., hydropower and expansion of irrigation) and land subsidence due to decades of groundwater pumping (Kuenzer and Renaud 2012). According to Philip

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Minderhoud and colleagues (2017, 1), “During the past 25 years, the delta sank on average ~18 cm as a consequence of groundwater withdrawal. Current average subsidence rates due to groundwater extraction in our best estimate model amount to 1.1 cm yr⁻¹, with areas subsiding over 2.5 cm yr⁻¹, outpacing global sea-level rise almost by an order of magnitude. Given the increasing trends in groundwater demand in the delta, the current rates are likely to increase in the near future.” Salinity intrusion coincides with worsening flood patterns (Dun 2011), which are accelerated by water infrastructure in the delta as dikes mitigate salinity intrusion but increase flood peaks and flood retention (Tran et al. 2018a).

Socioeconomic exposure is very high due to high population density: about 11 million people live in the Mekong Delta, utilizing most of the land area and most of the water for agricultural and aquaculture production (Le et al. 2018).

Sea-level rise, land subsidence, and flooding are likely to increase inundation frequency and depth of progressively larger

areas, leaving more than 30 percent of the delta permanently inundated by 2100 if no effective adaptation measures can be identified and implemented (MoNRE 2009).

Adaptation planning

Household-level adaptation strategies involve mainly land-use change and migration (Dun 2011; Smajgl et al. 2015). Governance employs increasingly coadaptation approaches, which recognize the importance of local knowledge and provide households with more flexibility (Gustafson et al. 2018; Lebel 2013; Tran et al. 2018b). Consequently, adaptation across the delta has become more diverse as it aims to respond to the local context instead of applying previous central planning panaceas (Tran et al. 2018b). So far, this has involved the identification of resilient crops and cropping strategies in collaboration with communities and provincial planners (Tran et al. 2018b; Smajgl et al. 2015; Son et al. 2018) or the development of resilient management practices for aquaculture involving trials with households in coastal communities (Gustafson et al. 2018).

However, adaptation efforts face a highly intensified food production system, with rice as the dominant monoculture, often involving two or even three crops per year. This process was catalyzed by the food security focus of the *Đổi Mới* policy program that introduced a market economy in 1986, and by the policy’s political goal of establishing self-sufficiency in rice production (Adger 1999). This approach created trade-offs, as barely any natural wetlands remained after canals were put in place to drain large areas, often triggering soil acidification (Kuenzer and Renaud 2012). As a result of this environmental degradation, adaptation options now face constraints (e.g., crop choice).

The complexity and urgency of the situation has triggered a variety of planning efforts, in particular since the publication of the National Target Program to Respond to Climate Change (NTP-RCC) in December 2008. The program was largely coordinated by the Ministry of Natural Resources and Environment (MoNRE), which developed its first UNFCCC climate adaptation assessments in 2003. In response to the NTP-RCC, the Ministry of Agriculture and Rural Development (MARD) developed multiple action plans for climate change adaptation in the agricultural sector for the period from 2008 to 2020.

Important for the strategic planning effort was the publication of Vietnam’s National Climate Change Strategy in December 2011 (Government of Vietnam 2011), which acknowledges the high level of climate-related vulnerability: “Climate change is the biggest challenge to human beings, causing deep impacts

and comprehensively changing the life on the globe. As one of the worst affected countries, Viet Nam considers the response to climate change a vital issue.”

Soon after, the National Committee for Climate Change (NCCC) was created to implement the strategy and coordinate the efforts in the various sectors. This cross-ministerial coordination was successfully achieved by linking the NCCC directly to the Office of the Prime Minister and integrating the Ministry of Planning and Investment into the panel.

Several governments supported Vietnam’s climate adaptation efforts by providing technical assistance, infrastructure investments, or loans. The Netherlands and Vietnam have had excellent diplomatic relations since the signing of the Paris Peace Accords in 1973. Climate change adaptation and water management are the top cooperation areas, emerging from decades of educational support for many Vietnamese water engineers at Dutch universities. This built long-term relationships in the area of hydrological assessment. Based on these scientific links, the Dutch government offered strategic planning support for climate adaptation in the Mekong Delta, which the Vietnamese government formally requested in 2009 (Seijger et al. 2017). The development of the Mekong Delta Plan started formally in 2011 and was finalized in 2013. The objective of the plan is to “develop a long-term strategic vision towards a safe, prosperous and sustainable delta, including policy recommendations and ways of solutions [sic]. As such, the Mekong Delta Plan is a reference document for the Vietnamese government in reviewing and where necessary revising its socio-economic development planning, spatial planning and sectoral master planning for the Mekong Delta as well as a guide future decision making, legislation and investments in the Mekong Delta” (Governments of Vietnam and the Netherlands 2013).

The Mekong Delta Plan specifies four socioeconomic scenarios (or visions), each describing a specific direction of socioeconomic development. The visioning process focused on 2050 and 2100, with the key input for development of these visions being a set of sectoral strengths, weaknesses, opportunities, and threats (SWOT) analyses. This assessment brought together several decision support agencies, including the Southern Institute for Water Resources Planning (SIWRP), the Mekong Delta Development Research Institute and Climate Change Research Institute of Cần Thơ University (DRAGON-CTU), the Division of Water Resources Planning and Investigation for the South of Vietnam (DWRPIS), and the Sub-institute of Hydrometeorology and Environment of South Vietnam (SiHYMETE). The four long-

term visions (2050–2100) are ranked according to their expected ability to cope with the effects of climate change:

◆ **Corridor industrialization**

This scenario assumes that urban and industrial development pressure will shift from the wider Hồ Chí Minh City area into the Mekong Delta, in particular toward and around Cần Thơ. The industrialization pressure will result from a lack of effective spatial planning and lead to further fragmentation of the delta’s landscapes. Contributing experts assume for this (undesirable) scenario unsustainable development and that population, economic growth, agricultural productivity, and environmental sustainability will decline.

◆ **Food production**

This scenario assumes that macroeconomic conditions will deteriorate and that policies will be unable to create effective stimuli. Consequentially, livelihoods in the delta will remain in agriculture, without meaningful industrial developments. Experts expect for this (undesirable) scenario a decline in economic growth, population, and agricultural productivity.

◆ **Dual node industrialization**

This scenario assumes very effective spatial planning, positive macroeconomic conditions, and successful economic programs, resulting in a highly diversified economy and excellent global trade links. It also assumes that policies are being implemented that effectively facilitate the growth of high-value agribusiness without further fragmentation of industrial areas; industries would be limited to the surroundings of urban areas of Hồ Chí Minh City and Cần Thơ. Experts expect this (desirable) scenario to result in an increase in population, economic growth, industrialization, agricultural productivity, and environmental sustainability.

◆ **Agribusiness industrialization**

This scenario assumes economic specialization in high-value food production, food processing, and related economic activities. This vision assumes that nonfood industries will not grow in the Mekong Delta. Experts expect for this vision that economic growth, agricultural productivity, and environmental sustainability will improve, while population will decline.

The process identified found the Mekong Delta status quo to be largely dominated by characteristics of the Corridor industrialization and Food production scenarios. The more desirable visions, however, would require investments toward the Dual node industrialization scenario and the Agribusiness scenario, largely focusing the first 15 years on no-regret strategies

as climate change unfolds and uncertainty remains high. The plan outlines principle investment strategies, including flood control measures, the abandonment of the triple rice policy (the political target of three rice crops per year), and investments in brackish aquaculture systems.

Considering the relevance of vulnerable groups in climate change impact assessments around the world, it is worth mentioning that the Mekong Delta Plan does not include a disaggregated view or strategy for most vulnerable groups; nor does it include a gender perspective. Mounting evidence suggests the importance of a gendered approach to effective design of climate change adaptation strategies (Resurreccion 2011; Smajgl and Ward forthcoming).

The Mekong Delta Plan was approved in June 2014 by the prime minister of Vietnam, creating an important foundation for cross-ministerial coordination. Several governments and international agencies offered substantial financial support for this planning effort. For instance, the World Bank provided an initial \$300 million and more recently another \$560 million in loans and credits, of which \$250 million is to support the (largely flood-focused) resilience of Cần Thơ and \$310 million for the resilience of rural livelihoods under the Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods project. Australia, Germany, the United States, and several other countries also made substantial financial contributions.

However, Vietnamese decision-makers perceived the Mekong Delta Plan only as a first stepping-stone without sufficient institutional integration down to the district and commune level, and with insufficient focus on action plans. Striving for improved cross-sector coordination and further specification of adaptation strategies, ministries mapped their sector-assessments and sector masterplans to the desirable scenarios of the Mekong Delta Plan. In November 2017 the next strategic planning step was realized when Prime Minister Resolution 120 was published to define the “Sustainable and Climate-Resilient Development of the Mekong Delta of Viet Nam.” This landmark planning document defines a 2100 vision, a set of objectives for 2050, a set of strategic “solutions,” and a series of concrete agency-specific tasks. MoNRE has been reappointed as the lead agency to coordinate the implementation of Resolution 120 for the Mekong Delta Plan, which sets the following objectives for 2050:

1. A highly developed region of the nation has an advanced level of social organization.

2. Per capita income is higher than the national average and people’s livelihood is secured.
3. Ecological agriculture is developed, with the high technology agriculture rate reaching over 80 percent.
4. Forest cover increases to 9 percent of national territory (compared to the current 4.3%).
5. Important natural ecosystems are preserved and developed.
6. Synchronous development of socioeconomic infrastructure, modern urban systems, and road and waterway transportation systems allows the country to avoid conflicts with irrigation and dyke systems.
7. Irrigation infrastructure develops in harmony with the transformational model of agricultural production, adapting to climate change especially in ecological subregions.
8. Natural disaster risks are reduced for the people and the economy.

THE DEVELOPMENT OF THE PLAN: INSTITUTIONAL ARRANGEMENTS AND PUBLIC PARTICIPATION

Five concurring factors contributed to the effective progression of strategic planning for Vietnam’s Mekong Delta. First, the prime minister provided his immediate approval of the Mekong Delta Plan in a context dominated by cross-sector disagreement about how to proceed with climate change adaptation in Vietnam’s Mekong Delta (Seijger et al. 2017; Smajgl et al. 2015). This step aligned ministerial planning efforts under a unified vision. Second, the visions provide broad directions accompanied by a set of recommendations partly drawn from sector-specific studies. This ensured a high level of consistency between ministerial agendas. Third, the evidence utilized during the underpinning SWOT analysis was approved by the Vietnamese government, which circumvents the risk related to official acceptability of data and assumptions. This scientific evidence was drawn from several scientific studies that were implemented in parallel. Fourth, the immediate provision of substantial funding by international development partners sidestepped national budget negotiations and shifted the focus on implementation actions. Fifth, the Mekong Delta Plan was only one of many adaptation-focused studies, which underscored the urgency of action and created substantial evidence-focused momentum. These five factors

have led to the emergence of the Mekong Delta Plan as a major stepping-stone for development of Prime Minister's Resolution 120, which defines the foundations of climate change adaptation planning in Vietnam's Mekong Delta.

It is important to remember when comparing case studies that the Mekong Delta Plan was not developed in a vacuum. Parallel (or earlier) processes included projects coordinated by the relevant research entities of Vietnam's line agencies, in particular the Institute of Meteorology, Hydrology, and Environment (IMHEN at the Ministry of Natural Resources and Environment, MoNRE), the Southern Institute of Water Resource Research (SIWRR at the Ministry of Agriculture and Rural Development, MARD), and the Southern Institute of Water Research Policy (SIWRP at MARD). Their efforts focused in particular on the impact of sea-level rise, assuming various scenarios. Assessments coordinated by MARD focused largely on the effectiveness of so-called hard adaptation options, which involve infrastructure projects, including the construction of dykes and sluice gates. One of the main assessments was focused on several large-scale sea dykes, such as the Cai Lon / Cai Be project and the Ham Loung / Co Chien project (Smajgl et al. 2015). Assessments coordinated by MoNRE focused largely on so-called soft solutions, including salinity-resistant crops and management strategies.

One of the key emerging recommendations was the effectiveness of shrimp and rice-shrimp rotation in coastal communities (Gustafson et al. 2018). In parallel, the Vietnamese National Mekong Commission participated in the Mekong River Commission (MRC)-coordinated process that aims to assess and mitigate transboundary trade-offs within the lower Mekong basin. This combined several international efforts with the initiatives of MARD and MoNRE. The political debate triggered by the Xayabury Dam in the Lao People's Democratic Republic led to the influential Mekong Delta project (MoNRE 2015), which assessed the combined effects of sea-level rise and upstream hydropower development.

Equally influential was the Australian-funded Mekong Delta Futures project—part of the Mekong Region Futures program, a regionwide assessment of the water, food, and energy nexus (Smajgl and Ward 2013). This program conducted a highly participatory process and introduced a strong socioeconomic assessment perspective (Smajgl et al. 2015), involving decision-makers and planners from district, provincial, and central government. Integrated assessment modeling was combined with participatory mapping to revise provincial land-use plans

and initiate policy changes related to rice production targets and the acceptability of shrimp and upland crops. A few projects continued these efforts, including a collaboration between MARD and the *Consultative Group on International Agricultural Research (CGIAR)* (Son et al. 2018).

These parallel efforts changed the planning environment through highly participatory techniques. Public participation was not part of the actual Mekong Delta Plan development. Instead, Vietnamese and international experts contributed to the visioning process and the underlying SWOT analysis. The postvisioning steps of the Dutch-funded project reverted to a less participatory approach.

The success of the Mekong Delta Plan and Prime Minister Resolution 120 in guiding adaptation across the Mekong Delta is evident as current planning processes clearly refer to both documents while considering recommendations regarding specific adaptation investment and planning options that originated from parallel assessments (e.g., IMHEN, SIWRR, Mekong Region Futures, or the Mekong Delta project).

SETTING QUANTIFIED TARGETS IN THE LONG-TERM PLANNING EFFORT

Prime Minister Resolution 120 specifies a set of specific (sector) targets, as listed above. Several of these targets have been specified and operationalized. This is an important improvement compared with the Mekong Delta Plan. These targets were developed in a cross-ministerial planning process and proposed during a conference in Cần Thơ on September 26–27, 2016, which was attended by the prime minister, all relevant line agencies, provincial governments, national and international experts, and development partners. The resolution utilized a wide range of scientific evidence and emerged from a vision-driven, cross-sector discussion, strongly endorsed by the highest levels of government.

SECTOR-SPECIFIC PATHWAYS

The Mekong Delta Plan references seven sector plans, including agriculture, transport, construction, and water management. However, the main aim of the Mekong Delta Plan is to provide a broader planning framework instead of a specific action list for particular sectors. Nevertheless, it proposed a list of specific programs that would promote the desirable visions. It emphasizes the relevance of value-chain analysis to improve agricultural livelihoods and promote economic growth. It also highlights the relevance of sustainable aquaculture for the Mekong Delta and the importance of investments in flood diversion projects. It broadly

maps these topics to the diverse areas, providing an important stepping-stone for more detailed planning at the provincial level. Additionally, the Mekong Delta Plan underscores the relevance of an effective institutional arrangement to ensure the coordination of implementation efforts. This involves the recommendation to establish a commission with a cross-sectoral mandate.

Prime Minister Resolution 120 defines a long list of sector-specific tasks for 16 line ministries and clarifies roles and responsibilities. While many of these tasks require further specification by the appointed agencies, the resolution is very effective in streamlining efforts based on the unifying visions of a “sustainable, safe and prosperous Mekong Delta” (Government of Vietnam 2017, 3).

IMPLEMENTING THE PLAN

Prime Minister Resolution 120 provided a robust plan for all line ministries and provincial planning agencies. Consequentially, all proposed investments are being debated in the context of Resolution 120 and its desired visions. Current implementation is unfolding as an organic process of sector- and province-specific planning and development. The list of sector tasks defined by Resolution 120 emerged from a long process of cross-ministerial debate and is therefore accepted, with sufficient detail for sector implementation. MoNRE coordinated the development of the resolution under the National Committee for Climate Change (NCCC). This process was supported by several international donor organizations.

Resolution 120 removed many diverging sector interests between central government agencies and provinces. Remaining trade-offs can be negotiated based on very clear definitions of roles and responsibilities, which removes an important barrier for the implementation phase. A remaining implementation barrier is the capacity at the household level. Households’ adaptation capacity involves the know-how to change management practices or to change crops and effective risk mitigation strategies. It also involves financing mechanisms, which are not always readily available. In addition, investments in the food processing industry are an important element of the vision, which requires incentives and regulatory adjustments for investors. These processes are unfolding through the various line ministries and supported by many development partners.

USING THE STRATEGY TO INFORM SHORT-TERM PLANNING

The prime minister’s endorsement of the Mekong Delta Plan and the more recent publication of Resolution 120 established a major framework for all short-term planning processes relevant for the Mekong Delta. The long list of sector-specific tasks provided by Resolution 120 offers a highly specific guide to short-term planning in all relevant line ministries and to province planners. Consequently, province-level plans that outline urban growth areas and specify cropping options for rural areas have been revised or newly developed to reflect Prime Minister Resolution 120. This affects provincial five-year development plans as well as more strategic provincial plans for periods until 2030. Several development partners also continue to support Vietnamese adaptation processes at the provincial level. Similarly, infrastructure proposals have been developed (e.g., by MARD and the Ministry of Planning and Investment) to promote the agribusiness industrialization vision.

CAPACITY, FINANCING, ENABLING ENVIRONMENT, AND RESOURCES FOR IMPLEMENTATION

Over the past two decades, Vietnam has developed a significant analytical capacity to understand climate change and related adaptation options. The availability of biophysical data and assessment models is very encouraging, while socioeconomic data and modeling are limited. Assessment capacity focusing on the most vulnerable is especially limited. However, this imbalance is common among countries, as climate adaptation is approached sequentially starting mostly with hydrological change. Overall, the decision to support capacity is well institutionalized and strong.

Governance is highly centralized and mainly involves top-down processes. This provides many effective mechanisms to implement strategic plans such as the Mekong Delta Plan and Prime Minister Resolution 120. At the same time, central government agencies have learned from the *Đổi Mới* experience and shifted their focus from efficiency to resilience-focused policies and planning. Evidently, several recent decisions have increased farm-level flexibility to allow for quicker and more context-specific adaptation (e.g., rice-shrimp rotation; see Gustafson et al. 2018).

Financial resources provided by international development partners have removed large adaptation barriers. However, financing mechanisms for farms and investment incentives to expand the food processing sector still require attention.

Farm-level capacity to adopt new crops or new farming practices requires substantial investment and guidance. Vietnam's agricultural extension system at the commune level is well organized to provide the necessary guidance.

PLANNING FOR THE TRANSITION

The Mekong Delta Plan did not involve stakeholder groups to include contributions by different ethnic minorities, the poor, women, and other vulnerable groups. Overall, the socioeconomic foundation of the Mekong Delta Plan is limited and will depend on the assessment of specific adaptation projects to identify impacts on different ethnic groups, the poor, women, and other vulnerable groups. The Mekong Delta Plan itself does also not provide assessments for the impact on income distribution for each of the four main development trajectories the vision process outlined. Prime Minister Resolution 120 involved more engagement with provincial and district-level governments.

Adaptation and development efforts have shown that many unexpected outcomes can emerge from large-scale interventions. For instance, resettlement can face substantial ethnic problems, which make the transition toward the desirable vision impossible. Irrigation can introduce larger economic returns for wealthier farmers, ultimately accelerating rural-urban migration and increasing urban poverty, which counteracts the transition toward the desirable future. Also, as mentioned, many development and adaptation investments cause a shift in livelihoods, which implies a shift in gendered time requirements and makes the desirable vision impossible to realize. Including different ethnic groups, poor households, and women in the planning process reduces the risk of maladaptive developments.

PROCESS TO REVIEW AND REVISE THE LONG-TERM PLAN

The Mekong Delta Plan has influenced the development of Prime Minister Resolution 120, which is now being embedded as a strategic directive for all sector and province development plans. Revisions will be made at the strategic level on a five-year basis and in coordination with socioeconomic planning for the Mekong Delta. This will be informed by the implementation efforts and the underpinning monitoring of development outcomes and adaptation achievements coordinated by each sector.

LESSONS LEARNED

One key lesson learned is that the combination of top-down and bottom-up initiatives can lead to very effective adaptation plans even if not entirely coordinated. Prime Minister Resolution 120 resulted from a wide range of largely independent efforts. Some of these efforts were top-down planning efforts that lacked participatory methods (e.g., the Mekong Delta Plan) while others were highly participatory and connected province planners and central government agencies (e.g., Mekong Delta Futures). Evidently, in the central planning context of Vietnam, top-down efforts can lead to very effective adaptation plans if a sufficient number of other processes employ participatory techniques. However, the implementation phase would benefit from increased participation on the ground to realize context-specific adaptation solutions. This lesson is mainly relevant for designing long-term strategies because parallel processes can rarely influence and inform each other if the focus is on short- or medium-term strategies. Short-term strategies require immediate coordination, while long-term planning provides more potential for uncoordinated processes to coevolve and inform each other.

Another important lesson is the relevance of champions at the highest level of governance. Evidently, the endorsement of the Mekong Delta Plan by the prime minister and the more recent publication of his Resolution 120 provided the necessary institutional significance to bridge cross-sector differences.

The third lesson learned relates to funding. It is often stated that the immediate provision of substantial development assistance helped establish the Mekong Delta Plan and led to Prime Minister Resolution 120 as the overarching adaptation planning framework. However, implementation at the provincial level would benefit from having a planning agency specifically focused on the Mekong Delta. Such an agency could also improve important links to the private sector, which will play a critical role in realizing the vision outlined in Resolution 120.

The fourth lesson learned is the relevance of scientific evidence during the planning process and the importance of robust science. The Vietnamese government embraced scientific assessments as a way to develop robust adaptation plans and developed strong in-country capacity. However, as in many other countries, the biophysical evidence needs to be converted into largely socioeconomic visions, which requires robust socioeconomic assessment capacity that considers impacts on the most vulnerable groups. Investing in such capacity sufficiently early would substantially enhance strategic planning and implementation processes.

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Previously he worked for the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and coordinated large-scale participatory research projects on the water-food-energy nexus in the context of sustainability, resilience, climate adaption, poverty and environmental outcomes in Southeast Asia (i.e. Mekong region, Indonesia). His work in Australia focused on water management in the Great Barrier Reef region and Outback regions. His background is in Environmental and Energy Economics and he holds a PhD from Münster University, Germany.

ABOUT THE LONG-TERM STRATEGIES PROJECT

World Resources Institute and the United Nations Development Programme, working closely with UN Climate Change, are developing a set of resources to help policymakers integrate long-term climate strategies into national policy making.



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This project contributes to the 2050 Pathways Platform and is undertaken in collaboration with the NDC Partnership.



This vision and direction of the project is guided by the project's advisory committee: Monica Araya, Richard Baron, Ron Benioff, Pankaj Bhatia (co-chair), Yamil Bonduki, Rob Bradley, Carter Brandon, Hakima El Haite, Claudio Forner, Stephen Gold (co-chair), Emmanuel Guerin, Ingrid-Gabriela Hoven, Dr. Martin Kipping, Carlos Nobre, Siddharth Pathak, Samantha Smith, Marta Torres Gunfaus, Laurence Tubiana, and Pablo Vieira.

For more information about the project, and to view the expanding set of resources, visit www.longtermstrategies.org.