



BOOK OF ABSTRACTS

1. SESSION DESCRIPTION

ID: B1

Title of session:

Marine Ecosystem Based Adaptation to Climate Change

Hosts:

	Title	Name	Organisation	E-mail
Host:		Luke Brander	University of Hong-Kong	lukebrander@gmail.com
Co-host:		Valia Drakou	University of Twente	e.drakou@utwente.nl

Session description:

Coastal populations globally are expected to be negatively impacted by climate change due to sea-level rise, and increasing frequency and intensity of storm events. In addition, climate change will impact the wellbeing of coastal communities through damage to coastal and marine ecosystems and the services they provide (e.g. fisheries, recreation, coastal protection). Aside from treating coastal and marine ecosystem services as an impact category, there is growing recognition and policy interest in the role of ecosystems as a means of societal adaptation to climate change. Coastal and marine ecosystems can potentially enhance coastal protection and buffer against storm damage, while reducing societal and ecosystem vulnerability to climate change and extreme events. Despite its localised



nature, ecosystem-based adaptation (EbA) has implications on the role of local and extra-local communities, social capital and distinct population groups (e.g. female fishers) in the decision-making and implementation process across a range of spatial scales.

This session aims to provide a platform for sharing research findings on the role of coastal and marine ecosystems in adapting to climate change. The intention is to stimulate the exchange of ideas and knowledge, and the establishment of new networks and research collaborations

Goals and objectives of the session:

The objective of the session is to bring together researchers from all over the world, who have an interest in coastal and marine ecosystem based adaptation. Thereby we aim at stimulating the exchange of ideas and knowledge, the establishment of new networks and research collaboration.

Planned output / Deliverables:

Knowledge on past or recent research activities is to be shared, including information on available case studies, data sets, ecosystem service models, valuation methods, assessment frameworks, and institutional and policy analysis. That will be shared through the Marine Biome Working Group platform and be further populated also by members who were not able to attend. In the aftermath of the conference, a journal publication on the state of the art on coastal and marine EbA may be considered.

Related to ESP Working Group or National Network:



BWG 1 – Marine systems

2. SESSION PROGRAM

Date of session: 12 December 2017

Time of session: 10:30 – 12:00

Timetable speakers

Time	First name	Name	Organization	Title of presentation
10:30	Luke	Brander	Introduction	
10:35	Paruthu- mmootil Jacob	Philip	Institute For Sustainable Development and Research (ISDR)	Societal adoptions to climate change: application of information and communication technologies for governing and sustaining coastal and marine ecosystem in Indo-Pacific and beyond
11:00	Thamasak	Yeemin	Ramkhamahaeng University	Assessing ecosystem services of coral communities in the Gulf of Thailand



ESP 9

WORLD CONFERENCE

● Shenzhen, China ● 11-15 Dec 2017

Ecosystem Services for Eco-civilization

Restoring connections between people & landscapes through nature-based solutions

Time	First name	Name	Organization	Title of presentation
11:25	Tien	Dat Pham	University of Tsukuba	Valuing mangrove ecosystem services using contingent valuation method in the context of climate change: a case study of Cat Ba Biosphere Reserve, Vietnam
11:50	Luke	Brander	Institute for Environmental Studies, VU University Amsterdam	Households' willingness to contribute to ecosystem based adaptation to climate change in Pacific island communities



3. ABSTRACTS

Type of submission: Abstract

B. Biome Working Group sessions: B1 Marine Ecosystem Based Adaptation to Climate Change

Households' willingness to contribute to ecosystem based adaptation to climate change in Pacific island communities

Author(s): Luke M. Brander

Affiliation(s): Institute for Environmental Studies, VU University Amsterdam

Other author(s): Chiara Franco, Laura Hughes, Liselotte Hagedoorn, Hanna Dijkstra, Ildiko Gilders

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In the context of climate change, small island developing states (SIDS) need to engage in adaptation efforts. These efforts are commonly implemented at a community level due to the rural and remote characteristics of these states and their communities. Therefore, the adaptive capacity of a community is an essential part of this process. This paper



provides a quantitative analysis of determinants of household intention to contribute to community adaptation projects, with a focus on the role of social capital using data from household surveys and discrete choice experiments conducted in four coastal communities in Micronesia and Melanesia. The study sites vary in terms of environmental context, economic diversification, access to markets, dependence on ecosystem services and exposure to the effects of climate change. The results reveal that income diversity and high resource dependency can reduce a household's willingness to participate in community adaptation; whereas greater expectation of climate change risks and sense of social capital both enhance adaptive capacity of the community. Participation in community activities and the perception that the social group in question is threatened are particularly important components of social capital in determining adaptive capacity. Policy makers, as well as awareness and behaviour change campaigns, can use these results to design and implement community adaptation projects in SIDS.



Type of submission: Abstract

[B. Biome Working Group sessions: B1 Marine Ecosystem Based Adaptation to Climate Change](#)

Valuing mangrove ecosystem services using contingent valuation method in the context of climate change: a case study of Cat Ba Biosphere Reserve, Vietnam

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Mangroves are considered to be the most important ecosystems on earth as they play an important role in mitigating the impact of climate change. However, these forests have suffered severe degradation due to its partial conversion to shrimp aquaculture. The mangroves restoration is expected to deal with climate change impacts, given their ability to reduce societal and coastal vulnerability



to tropical storms. This study attempted to value mangrove ecosystem services and to examine the factors influencing the willingness to pay (WTP) for mangrove restoration in the context of climate change in the Cat Ba Biosphere Reserve (CBBR) in Hai Phong City, located in the north of Vietnam. A contingent valuation method (CVM) was employed to estimate household WTP for mangrove restoration, drawing upon data from a survey of 205 respondents in a coastal commune of the biosphere reserve. The results showed that gender, education level, occupation, the participation of respondents in mangrove restoration activities, and the attitude of respondents toward future climate scenarios were significant factors influencing their WTP for mangrove restoration project. The estimation yielded a mean WTP at 192,780 VND (US\$8.64) and 712.3 million VND (US\$31,943) as the total annual benefit for the villagers in the study area. The results of this study may promote the implementation of mangrove conservation and restoration strategies in climate change mitigation approaches such as the United Nations' Reducing Emissions from Deforestation and Forest Degradation (REDD+) program. Our work also can provide significant comment regarding Payment for Ecosystem Services (PES) for developing regional and national blue carbon trading markets. As mangroves can significantly



contribute to mitigating climate change impacts by protecting dyke systems and easing the effect of extreme events, the central government should implement the necessary regulations and policies to conserve the mangrove ecosystems of the Biosphere Reserve.

Keywords: Cat Ba Biosphere Reserve, Hai Phong City, climate change, mangrove ecosystems, REDD+, willingness to pay



Type of submission: Abstract

B. Biome Working Group sessions: B1 Marine Ecosystem Based Adaptation to Climate Change

Societal adoptions to climate change: application of information and communication technologies for governing and sustaining coastal and marine ecosystem in Indo–Pacific and beyond

Author(s): Paruthummothil Jacob Philip, Kalpana Chaudhari

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Marine and inland fisheries are the fastest developing sector in the world and there is an increasing need for appropriate governance through information and communication technologies (ICTs) for its sustainable development in Indo–Pacific region. Due to the global climate change, coastal and marine pollution, rise in sea level which is causing adverse impacts on the Coastal



communities and all stakeholders in coastal and marine sector. Lack of information and communication facilities in coastal communities inhibits the social, political and economic empowerment of the majority of the population. ICTs played a significant role in all coastal community specially stakeholders of marine systems across the world since the dawn of civilization. ICTs play a crucial role for the development of the marine and inland ecosystem in our Indo-Pacific region.

This presentation deal with the role of coastal societies in marine systems practicing information and communication technologies in governance of coastal sector. The presentation aims at discussing the forms of ICTs which are being used across the globe in coastal and marine system for resource assessment to commercialization. This presentation is based on specialist applications of ICTs in coastal and marine sector for sustainable exploitation of the marine and inland resources. This presentation intends to focus the role of coastal communities in marine sector specially planners, managers, researchers and community workers functioning on interdisciplinary as well as multidisciplinary issue involved in conclave of adoption strategies and management, adverse impacts of climate



change on coastal and estuarine resources planning, coastal risk and vulnerability, social–ecological vulnerability and resilience in coastal region, human Pressures on coastal environments, land water–seawater interactions, economic issues and challenges related to Indo–Pacific aquatic resources.

Keywords: marine ecosystem based adaptation, climate resilience, coastal communities and social vulnerability, adoption strategies, societal and ecosystem vulnerability to climate change and extreme events



Type of submission: Abstract

B. Biome Working Group sessions: B1 Marine Ecosystem Based Adaptation to Climate Change

Assessing ecosystem services of coral communities in the Gulf of Thailand

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Coral communities provide many economic benefits, including tourism, recreational fisheries, fisheries production, shoreline protection and natural products. Many coral communities in tropical countries are associated with seagrass beds. Ecosystem services of seagrass and coral communities are widely threatened by various anthropogenic and natural disturbances,



particularly coral bleaching events and impacts from coastal development and destructive fishing. The aim of this study was to examine a number of case studies for assessing coral community and associated seagrass ecosystem services in Mu Ko Samui and Mu Ko Phangan, the Western Gulf of Thailand and Mu Ko Sichang in the Inner Gulf of Thailand with emphasis on linking coral community and seagrass conditions with various types of ecosystem services. The coral and seagrass communities in the Gulf of Thailand are categorized into several different groups depending on their threats and type of uses. Several coral and seagrass restoration projects have been carried out to maintain their ecological functions. The degraded coral communities which are used for tourism are the priority areas for coral restoration. The coral restoration plans have been concentrated on using passive restoration by reducing threats from tourism, water pollution, sedimentation and fisheries. However, the seagrass restoration plans and effective implementation in Thailand are urgently required. The major concerns are simple and cheap restoration methods, community involvement, high tolerant species to disturbances and multi-species transplantation. The future research should



focus on primary productivity in seagrass and coral communities, biogeochemical processes related to nutrient cycling, natural products and using coastal ecosystems as carbon storage. Managing coral reefs and associated seagrass communities in the face of climate change is crucial for maintaining their ecosystem services and benefits to national economics and coastal communities.

Keywords: coral community, ecosystem service, restoration, climate change, Gulf of Thailand