

# Pacific Geographies

Research | Notes | Current Issues from the Asia-Pacific Region



## **Marine Protected Areas**

A New Conservation Tool?

## **Cambodia**

Sustainable Buildings for People?

## **Book Review**

Living with the Mekong

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## EDITORIAL

Dear readers,

Pacific Geographies #48 has gathered for you fascinating articles about Pacific Ocean governance and its effects on regional geography, a 3-piece series about architecture and urbanization in Cambodia and the review of a new book that looks at urbanization and water management in the Mekong Delta. With her ongoing PhD research about large-scale marine protected areas (LSMPA) in the Pacific Ocean, Marlène Dégremont presents the results of her investigation into the governance processes in the two French overseas territories of New Caledonia and French Polynesia and their effects in profoundly transforming the geography of the region by turning Small Island Developing States (SIDS) into Large Ocean Island States (LOIS).

Our mini-series of 3 articles focuses on urban issues in Phnom Penh, Cambodia. In the first piece, German architect Susanne Bodach and co-author Michael Waibel introduce the famous New Khmer Architecture (NKA) movement pioneered by the recently deceased architect H.E Vann Molyvann who ingeniously combined modernist vernacular architecture with traditional elements of Khmer culture. The authors urge that bio-climatic principles applied by NKA should not be neglected but rather re-discovered and implemented as part of the on-going construction boom of Phnom Penh City. The second article discusses various approaches and measures to promote sustainable buildings in Cambodia and concludes that successful policies towards increasing sustainability need to be less technocratic, less top-down, more inclusive thereby taking into account the behavioural dimension of the urban citizens. Our small series is capped off with an essay by Paulette Chheav who reflects on the soul of Phnom Penh City.

And APSA member Helmut Schneider contributes a review of the publication "Living with the Mekong - Climate change and urban development in Ho Chi Minh City and the Mekong Delta" by Dutch architect and journalist Joep Janssen.

Have you seen the new look of our website? You can still find all the great content from our journal online at [www.pacific-geographies.org](http://www.pacific-geographies.org). We sincerely hope you like our new interface and that you enjoy this issue of Pacific Geographies.

The managing editors, Michael Waibel & Matthias Kowasch

# Pacific Geographies

Pacific Geographies (PG), ISSN (Print) 2196-1468 / (Online) 2199-9104, is the peer-reviewed semi-annual publication of the Association for Pacific Studies. From 1992-2012 it was labelled Pacific News (ISSN 1435-8360). It is published through the Department of Human Geography of Hamburg University, Germany.

It is an open access journal, all articles can be downloaded for free. There are no submission or APC charges. The authors retain copyright. Copyright & Licensing: CC BY-NC-ND.

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In order to uphold scientific standards, the PG is implementing a peer-review process. Articles marked as „scientific papers“ have been peer-reviewed by two external reviewers. Articles marked as „research notes“ have been peer-reviewed by one external reviewer and a member of the editorial board. All other articles have been reviewed by the editorial board. Scientific papers and research notes receive a Digital Object Identifier (DOI).

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### COVER PICTURE

Construction Worker, Phnom Penh,  
Kingdom of Cambodia

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# Large-scale marine protected areas: a new conservation tool for the oceans?

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DOI: 10.23791/480410

**Abstract:** Since the 2010s, large-scale marine protected areas (LSMPA) have thrived in the Pacific Ocean and have profoundly transformed the geography of the Region. More than anywhere else in the world, in the Pacific region they have turned Small Island Developing States into Large Ocean Island States and generated a significant political shift on the regional and international level. This research note presents a new exploration of the ongoing political construction of the ocean. An anthropological approach is used to investigate the governance processes that involve many actors and shape marine environmental policies of two French overseas territories, New Caledonia and French Polynesia. Based on fieldwork focused on the Parc naturel de la mer de Corail and the Tai Nui Atea large management area between 2014 and 2016, this research interrogates socio-environmental dynamics and governance issues in the francophone Pacific and offers an overview of current structural changes that occur in Oceania.

**Keywords:** marine protected areas, governance, New Caledonia, French Polynesia, Oceania

[Submitted as Research Note: 25 June 2017, Acceptance of the revised manuscript: 10 October 2017]

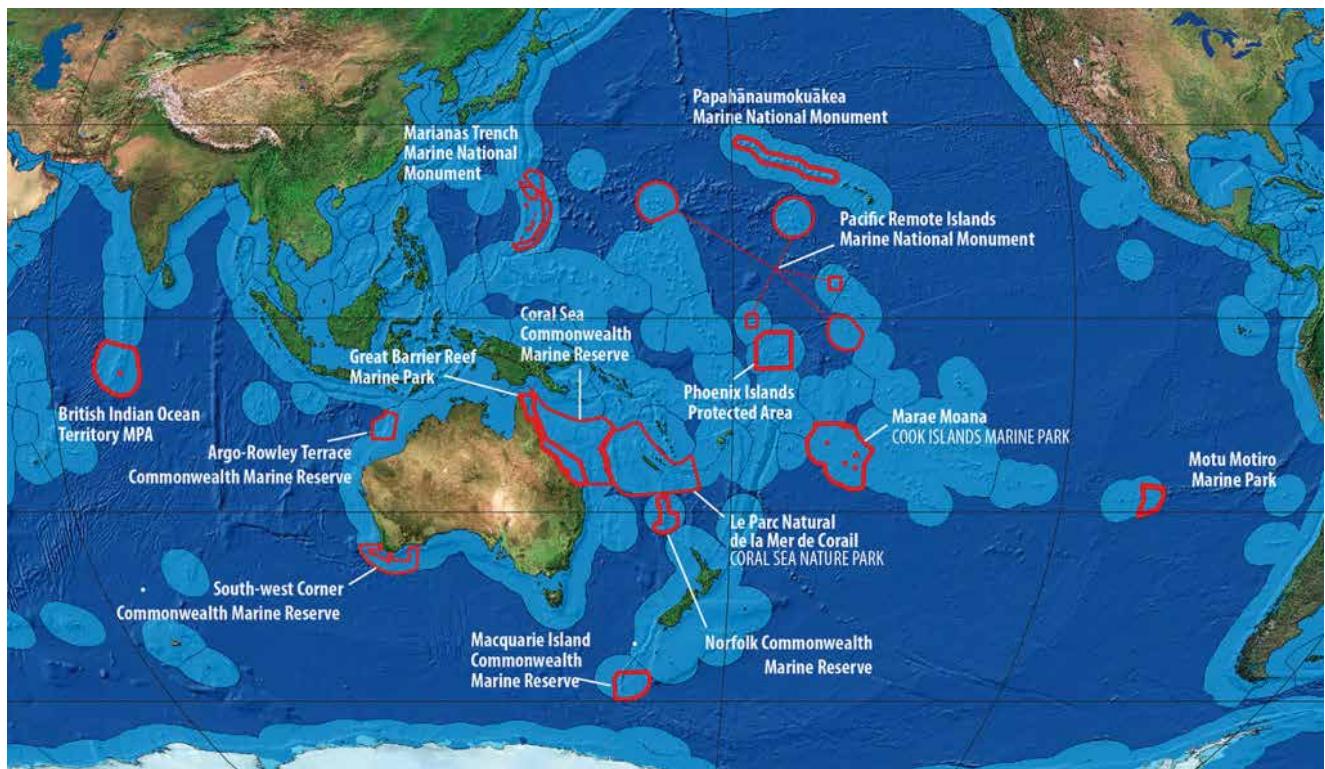
Over the past decade, the Pacific Ocean region has been experiencing an expansion of large-scale marine protected areas spreading over vast ocean areas with a myriad of actors aboard. Associations, private and public sectors and big international conservation NGOs (BINGOs) interact, confront and negotiate new norms shaping the maritime world hitherto invested mainly by offshore fishers and shippers.

In New Caledonia, the Parc naturel de la mer de Corail was founded in April 2014 following the inscription of the exceptionally rich lagoons to the UNESCO World Heritage List. The creation of the Parc naturel marks a turning point in the economic future of the country, which over the last decades has been exploring potential alternatives to nickel exploitation, an industry that is profoundly linked to the colonial history of this South Pacific Territory.

In French Polynesia, the turning point is more recent. The announcement in September 2016 by the President of the local government at the IUCN World Congress in Hawaii about the establishment of a large-scale managed marine area (LSMMA) had a resounding effect. Until now, the French Marine Protected Area Agency and the Pew Charitable Trust—a powerful conservation NGO—were the key stakeholders involved in ocean conservation in French Polynesia. They ran two large marine protected areas projects over the Marquesas Archipelago and the Austral Islands, which together represents more than 700,000 square kilometres of ocean surface. With the announcement of the implementation of a LSMMA over the entire exclusive economic zone (EEZ), the French Polynesia government thrusts these two near-completed projects into uncertainty.

Source: Kowasch, 2012

Figure 1: Lagoon of Ouvéa island, one of six clusters classified Unesco World Heritage site in New Caledonia



Source: Big Ocean, Naitā 2014 (<http://bigoceanmanagers.org/14-member-sites-help-protect-7-2-million-square-kilometers-of-ocean/>)

Figure 2: The fourteen member sites of the Big Ocean large-scale marine protected areas network.

Through these case studies, this research note explores the emerging issues that arise from environmental policies, between new territorialities and the social perceptions of the oceans. Based on the author's doctoral research in anthropology, the analysis focuses on the issues underlying these marine governance dynamics, which are meaningful to understand the ongoing geographical, political, environmental, social and cultural processes that are currently underway in Oceania. The examples of two large scale marine areas, the Parc naturel de la Mer de Corail in New Caledonia and the Tai Nui Atea in French Polynesia, illustrate the processes through which the Pacific Islands are reshaping new territories and governance models.

After a short presentation of the methodological framework, I will explain the international context in which the LSMPA conservation tool is developed. Then I will focus on two cases of large marine areas to highlight the governance processes that lead to the implementation of this new management framework of natural resources. The final section will question the contemporary issues intertwined with the Pacific Ocean and how the French Overseas Territories are experiencing the emergence of LSMPA beyond the only environmental purpose.

### Methodology and Framework

I began fieldwork on these issues in New Caledonia in 2014, the year the Parc naturel de la mer de Corail was established. My multi-sited fieldwork in New Caledonia and also in French Polynesia lasted until the end of 2016. I conducted interviews with members of public institutions, customary authorities, and professionals from the private sector, NGOs, environmental associations as well as local management committees related to marine resources and biodiversity. I participated in workshops and meetings concerning management plans for LSMSPAs' governance. Furthermore, I conducted several interviews at different steps of the marine park creation with the members of the management committee and the persons who chaired the management structures at a political and technical level. The fieldwork aimed to investigate the arena formed by the configuration of actors involved in the marine governance process at multiple scale, from the local level to the global level. Based on the assumption that the ocean gives rise to new centers of power (Abélès, 2008), I investigated how environmental issues are tightly woven to sovereignty, cultural and also identity claims.

### Oceans (re)invested

Since concerns about the environment has become a global issue, as illustrated by the COP 21 on climate change, large-scale conservation programs have multiplied. Following the Rio Conference, the Convention on Biological Diversity has indeed promoted large networks of increasing numbers of protected areas worldwide (Adams, 2004; Leenhardt, Cazalet, Salvat, Claudet, & Feral, 2013).

Moreover, the recent dynamics of maritimisation of the world emphasizes the economic, strategic and/or military high potential of the oceans in the 21st century (Bennett, Govan, & Satterfield, 2015; Hannigan, 2016; Marroni & Asmus, 2013; Schöttli, 2015; Steinberg, 2001; Vigaric, 2004). As a result, there is a new form of reinvestment of the world's maritime spaces, thirty years after the establishment of the EEZs by the Montego Bay Convention on the Law of the Sea.

As the most widespread conservation tool, the protected area intensively extends towards marine environments. The percentage of ocean areas covered has risen from 3.5% in 2014 to 14% in 2016 (UNEP-WCMC & UICN, 2016). Aichi Target 11, ratified during the Conference of the Parties in 2010 to protect 10% by 2020, is the main springboard. It confirms a dynamic initiated since 2006 for which the



Figure 3: Lobster fishing in northern New Caledonia (west coast)

Pacific Islands are at the forefront (Gruby & Campbell, 2013; Jupiter, Mangubhai, & Kingsford, 2014). Fifteen of the seventeenth LSMPAs of the world are located in the Pacific Region (Lewis et al., 2017).

### The Parc naturel de la mer de Corail, a political weight for New Caledonia

In this rush for ocean conservation, New Caledonia took the lead. Four years after the adoption of the Strategic Plan for Biodiversity 2011–2020, the Parc naturel de la mer de Corail has become one of the biggest marine protected areas in the world. Covering the entire Exclusive Economic Zone (EEZ), the marine park encompasses more than 1.3 million square kilometres of coral reefs, islets and seamounts. Its main objectives, detailed in the proposal document published by the French Marine Protected Area Agency in 2014, follow the principles of sustainable development which recommend reconciling economic development and environmental conservation in an integrated management policy.

The management committee of the natural park is a collegial entity

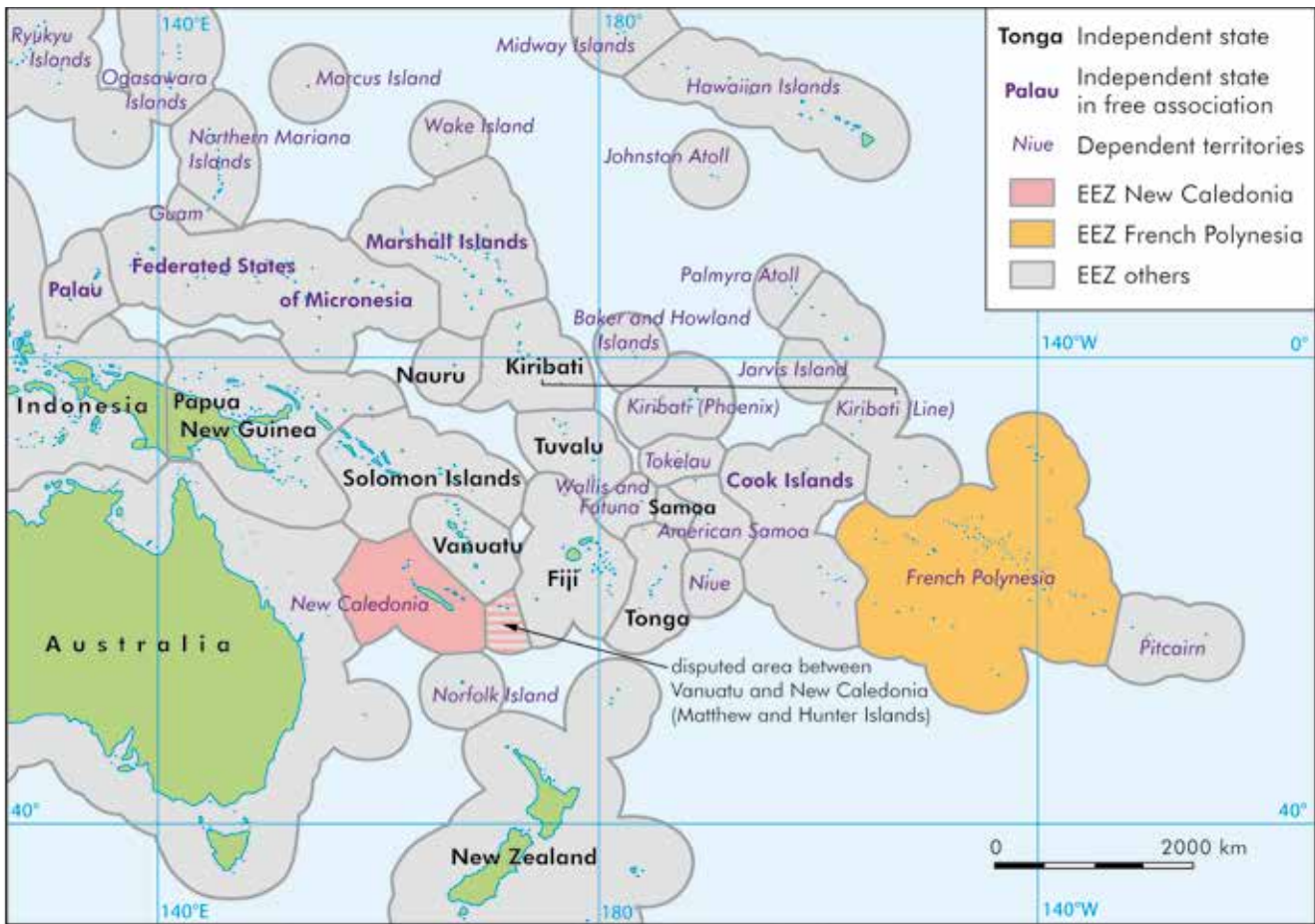
and involve a representative range of stakeholders including: institutional actors (State services, provinces, government); customary authorities (from the eighth customary areas); socio-professional (private sector); and civil society (associations, NGOs). Stakeholders met monthly, sometimes weekly, over the three years following the creation of the natural park, to argue their position regarding the development of extractive activities, no-take areas or sustainable fisheries. The management committee of the natural park has an advisory role and is entrusted to define the management plan. After three years of consultation, the management plan is submitted to the New Caledonia government for approval. Although the EEZ of New Caledonia is legally attached to the French State, it is under the jurisdiction of the local government, which is the final decision-maker.

The technical and institutional support provided by the main actors of the project offers a wide range of opportunities for the Government to lead its maritime policy. The management tools conveyed by the environmental NGOs and based on

IUCN standards, as well as marine spatial planning approaches developed by state agencies, represents a high innovation potential in terms of ocean governance.

The management committee is made up of 22 members resulting in a wide set of strategies with many interests and issues at stake. Hence, the Government of New Caledonia benefits from an experimental tool dedicated to serve many purposes. In the context of the institutional transition organised after the Noumea Accord signed in 1998, and the coming referendum for self-determination, the Parc naturel de la mer de Corail can be seen as a political instrument.

The quasi-intact natural resources contained in the EEZ are considerable wealth for the economic future of the archipelago. The minerals, ecological or halieutics resources enable the tourism, fishing or mining industries to develop. They represent a significant development potential for a decolonized country. However, the mining history and its impacts, the active role of environmental associations and NGOs, and the still low profitability remain obstacles to deep-sea mining.



Design: Claus Carstens, Department of Geography, Hamburg University; Source: Kowasch, 2017.

Figure 4: Pacific island countries with EEZ (exclusive economic zone)

At the beginning of the marine parks' creation process, deep-sea mining was considered to be a main issue by the management committee members, especially the civil society (composed of environmental associations and NGOs). The opposition between environmentalists and representatives of the mining industry was at the core of the discussions until they decided to stop attending the committee meetings. The mining industry sector is also present in other organisations dedicated to marine spatial planning, such as the maritime cluster of New Caledonia. This Cluster, which gathered the economic actors of the private maritime sector since 2014, contributes to promote economic activities and maritime development such as transportation, wind farm or yachting.

Since the management plan has not yet been approved, the Parc naturel de la mer de Corail is an hollow shell but already attracts financial funds from national, regional or international programs dedicated to run the implementation and management framework process. Since the announcement of the

establishment of a large-scale marine protected area, New Caledonia has gained political visibility. The natural park also represents an opportunity to strengthen the regional integration and increase its influence at international meetings.

### A Polynesian way of governing resources

In French Polynesia, large-scale marine protected areas emerged as a conservation tool in the early 2000s. This French overseas territory located in the middle of the Pacific Ocean is composed of 118 islands and atolls and is divided into five groups of islands. The northern archipelago of French Polynesia is the Marquesas Islands and the southern archipelago is the Austral Islands.

The Marquesas Archipelago has been on the tentative list of UNESCO World Heritage in the 'cultural landscapes' category since 1996. From 2003, the UNESCO Marquesas application progressively extended from terrestrial areas to the creation of a large-scale marine protected area covering the over 700,000 square kilometres of the entire archipelago. The French Marine

Protected Areas Agency is the main player in this project, in a partnership with a Marquesan association called Motu Haka. There are both involved since 2009 in the UNESCO application to coordinate the local committees.

In April 2014, another large-scale marine protected area project emerged in the Austral Islands with the intervention the NGO Pew Charitable Trusts (Salvat, Bambridge, Tanret, & Petit, 2015), mainly known for its international program Global Ocean legacy that aims to establish large marine parks worldwide. This powerful NGO is mostly active in the Pacific Region, including New Caledonia. In the Austral Islands, the NGO planned to implement a large-scale marine protected area, including a vast no-take zone, all over the entire archipelago, which corresponds to 1,000,000 square kilometres.

Like New Caledonia, French Polynesia holds an autonomous status and obtained administrative competencies in 2004, including the management of environmental and natural resource within its 5.5 million square kilometres exclusive economic zone. Since early 2016, the government



Figure 5: Place which local people call "sharks strait" in the lagoon of Ouvéa island. A face of a monkey can be seen in the form of the rock.

has opted for the development of a coherent maritime policy framework on an EEZ-wide scale. With the aim of regaining control of the EEZ, the government decided to create a large-scale managed area named Tai Nui Atea, which includes the five islands groups of French Polynesia and effectively suspends the two ongoing large-scale marine projects in Marquesas and Austral Islands. By establishing this large-scale managed area, the local government expresses its willingness to implement a global coherent framework regarding its maritime policy. The Marquesas and Austral Islands waters will be subject to the same regulations as the other archipelagos.

Although the announcement tends to crystallize the tensions between Tahiti and the island groups, the current Polynesian government fills the gap of a disorganized maritime strategy related to the political instability of successive governments since the early 2000s.

By adopting a large-scale marine managed area, the Polynesian government aims to distinguish itself from conservationists and the French

Agency. This opposition underlies a conflict of legitimacy regarding actors who are supposed to provide technical support. The French Polynesia government and some of the island's mayors and local representatives want to gain control over the marine territory. The members of local government are also founding the Tai Nui Atea project by proposing a model considered closer to local conceptions of the human-nature relationship. With the objective of developing marine economic activities, such as pelagic fishing in remote areas of the EEZ, which are under-exploited according to fishery stock assessments. The president of the Polynesian government argues that a managed area, rather than a protected area, allows adjudicating between conservation and resource exploitation such as the rahui, a traditional management system of resources. The rahui is a temporal ban over delimited space or resource and ruled by a traditional authority who authorizes access depending on seasons or for a particular event (Bambridge, 2015). The rahui traditional rules are usually implemented in coastal or lagoon areas at a village or communal scale.

This traditional system has been restored on several islands in French Polynesia since the recent movement to reconnect with local culture and identity.

In this context, the government members in charge of the large marine managed area (Ministry of Culture and Environment and the Ministry of Blue Economy) seek to develop an alternative framework for the management of vast ocean areas. This position thus requires redefining the concept of LSMPA and questions the international standards of environmental conservation.

Followed by the Cook Islands in this dynamic of reshaping the classic conservation tools, the French territories of the Pacific hold an active role in the reappropriation of the Pacific Ocean as a common space for the islands countries.

### Reshaping Oceania

The Polynesian approach echoes the regional concerns about the recognition of traditional knowledge and culture linked to the ocean emphasized by Tongan writer Epeli Hau'ofa (Hau'ofa, 1998) who invites us to consider the





Source: Kowasch 2012.

**Figure 6: Humpback whale in the southern Caledonian lagoon**

Pacific Ocean as a place of ancient uses and practices. In his approach, he also suggests that we rethink Oceania in terms of large ocean states instead of small island countries. During regional and international meetings, Pacific leaders are now referring to Hau'ofa's perspective to assert their sovereignty over the ocean space. Although Oceania is composed of a mosaic of countries with various political status, the recent movement related to ocean governance and the emerging issues offers opportunities for the Pacific countries to elaborate new standards regarding contemporary issues. From New Caledonia to French Polynesia, the strong and ancient connection to the ocean is mobilized by customary authorities and political leaders as an argument to legitimize their positions. Throughout the seafaring practices and history, the ocean formerly connected the islands from West to East (D'Arcy, 2006; Kirsch, 2010) and is still a part of the community's daily life.

While in New Caledonia, the large-scale marine protected area is used to redefine the complex relationship with the metropole state and offer an opportunity to draw a new management

framework adapted to the territory-specific issues. cultural concerns shared by the Pacific communities is also a key feature of the Parc naturel de la mer de Corail.

The recent rise of large-scale marine protected areas at the global level takes different forms in the Pacific region. The revitalization of culture and the identity claim is strongly tied to recent interest in the oceans by different actors at different scales (local, supra-local, national or international). The cultural dynamics and the political claims experienced by the Pacific Ocean countries stemming from the new scramble for the ocean from a political, economic, ecological, social and cultural standpoint. These dynamics are shaping new territorialities that contribute to transform the complex relationships between humans and the ocean, or possibly between the humans themselves and their approach to administrate and govern the oceans. In a global, regional and local fast-changing context, the ongoing territorial construction of the Pacific Ocean is a synthesis of former practices and representations, and contemporary issues faced by Pacific islanders.

## Conclusion

While the Ocean becomes a subject of political and sovereignty claims that tend to redefine the relationships between different countries, islands and their metropole states, the interplay of actors involved in the governance process reveal new strategies which differ from the environment standards of marine protected area. In New Caledonia and French Polynesia, the political use of large-scale management tools appears to be an instrument of development and economic emancipation. As a state member of the Conference of Parties that ratified the Aichi Target, France supports this initiative and must consider this new feature in its political relationship with its overseas territories. Furthermore, the strong and old connections between Pacific Islander and the ocean strengthen the legitimacy of local actors to govern marine territories newly reinvested. In this context, the rise of LSMPAs as a new tool stemmed from conservation models promoted by BINGOs that widely thrive in the global world, appears as a main lever to political, social and cultural changes, far beyond



Source: Kowasch, 2012

Figure 7: Lagoon of Ouvéa Island, one of six clusters classified Unesco World Heritage site in New Caledonia

the initial environmental purpose. The multiple actors involved at each stage of a LSMPAs implementation and the complex configurations of ocean governance arenas need to pool social science research on this phenomenon and investigate new centres of power shaped by the craze for LSMPAs establishment.

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# New Khmer Architecture: Iconic vernacular buildings under threat?

*Susanne Bodach & Michael Waibel*

New Khmer Architecture (NKA) is an architecture style from Cambodia combining modernism with elements of traditional Khmer culture thereby incorporating aspects of vernacular design. It became prominent after King Norodom Sihanouk declared Cambodia's independence in 1953. The New Khmer architecture movement created highly innovative and aesthetically pleasing pieces of architecture works and soon became an important tool of Cambodia's nation-building. Nowadays some of the major works of NKA are still intact, but others suffer from neglect and are in danger of demolition.

## Introduction

New Khmer Architecture has its roots not only in the modernist architecture movement but also draws on vernacular and ancient Khmer styles as well as colonial heritage from Europe. The driving force behind the movement was King Norodom Sihanouk, who had the vision to modernize Cambodia after its independence in all relevant sectors. He promoted the design and construction of many new public buildings across the kingdom, bringing together talented young Cambodian architects and international experts. The Cambodian architects of the time were trained in France and influenced by the intellectual life of post-war Paris where they learned the importance of critical thinking. Back in Cambodia, they searched for their own roots and architecture style. They found it in the synthesis of modern architecture and Khmer traditions. The predominant colonial architecture style at that time simply copied designs from Europe

without consideration for the hot and humid climate of Cambodia. In contrast, the New Khmer Architecture took the spirit of the Cambodian culture and successfully integrated elements of tropical design.

The most famous representative of the New Khmer Architecture movement was the Cambodian architect Vann Molyvann (23/11/1926-28/09/2017), whose professional career lasted from the mid 1950s till the early 1970s before the Khmer Rouge took control of the country in 1975. Vann Molyvann was one of Cambodia's first licensed architects, and King Norodom Sihanouk took great care to nurture his talent. Immediately after his return from France, Vann Molyvann became responsible for enormous building and urban design projects where he could quickly show his skills and capacity.

The following information on some of his major works mostly comes from the excellent web site of the

Van Molyvann Project (<http://www.vannmolyvannproject.org/>).

## Chaktomuk Conference Hall

The Chaktomuk Conference Hall is Vann Molyvann's first noteworthy building and was inaugurated in November 1961. This design reinterprets several indigenous Khmer elements, bringing them into a modern context. The conference hall has a triangular concrete structure that is suspended from beams. These beams are arranged in fan shape around one central point (Ross & Collins 2016: 15). Being a massive building for hosting events of up to 850 people, the suspended design gives the impression of lightness similar to the floating Khmer houses along the canals and rivers of the country. Beside the innovative structural design, the building integrates a number of vernacular Khmer features such as the pointed roof or the free space under the building. Vann Molyvann



Source: Waibel 2017

Figure 1: Chaktomuk Conference Hall (Vann Molyvann, 1961)

reinterpreted such traditional elements in a way without looking like an imitation. Acoustic design, crucial for the functioning of the building, was given careful consideration (Ross & Collins 2016: 15). Bio-climatic features of the building can be seen in the elevated ground floor, high gable roof and the shading provided by the curved veranda.

Originally used as public conference and cultural event hall, the building was privatised and refurbished in 2000 (Ross & Collins 2016: 15). Therefore, the Chaktomuk Conference Hall is one of the few well preserved and actively used examples of New Khmer Architecture and, at the moment, in no danger of demolition.

### The National Sports Complex

A Vann Molyvann-led team of international architects and engineers designed the National Sports Complex completed in 1964. Some experts regard it as his masterpiece. Overhanging concrete roofs provide shade and the whole complex is based on natural ventilation.

The unique structural design of the National Sport Complex would not have materialized without the genius ideas of the Russian engineer Vladimir Bodiansky. He brought Molyvann's idea to build a grandstand with a roof like a table standing on four legs into an exceptional structural solution with

only four columns supporting the canopy (Ross & Collins 2016: 95).

Nowadays the site is an extremely popular public place used for various leisure activities by thousands of urban citizens every day. However, the complex is being encroached upon as well as surrounded by high-rise condominium apartments. The exorbitant land values of this inner-city location put the whole site in immediate danger. Also, a new sports complex is currently being planned in the urban periphery making the use of the National Sports Complex potentially superfluous.

### The Teacher Training College

The design for the Teacher Training College (today called Institute of Foreign Languages) began as early as 1965 but it was not inaugurated until after Vann Molyvann fled Cambodia for Switzerland in 1971.

Influences from Angkor Wat, in form, style and building design are referenced throughout the whole college complex. Features of bio-climatic architecture are implemented in terms of cross-ventilation, indirect lighting and water management. Concrete double roofs provide thermal insulation and screened skylights allow filtered day lighting.

The site is still very much in use and is regarded as another masterpiece of Vann Molyvann.

### White Building

Originally called Municipal Apartments, the White Building is one part of the large Bassac Riverfront Project, an ambitious public urban development project located on reclaimed land of the Tonle Sap River (Henning 2015). It is part of a low-cost housing programme initiated by the Municipal Won Planning and Housing Department aiming to provide affordable living space to the average and small-income families in Phnom Penh (Ross & Collins 2016: 18).

The building was designed by Lu Ban Hap under the supervision of Vann Molyvann (Henning 2015: 16). The White Building has an elongated building layout of more than 300 metres. It consists of six different blocks that are joined by open staircases. The building users could walk through the whole building complex and easily access the landscaped park along the building. As a typical feature for climate-adapted design of New Khmer Architecture, the building's ground floor is elevated and all apartments are cross-ventilated (Sereypagna 2015: 102-103).

Although the White Building has an extraordinary and unique history of architecture and community life, preservation efforts were not successful. Demolition of the building began in July 2017; it will be replaced by a 21-story mixed-use development.



Figure 5: National Sports Complex, known as Phnom Penh Olympic Stadium (Vann Molyvann, 1964)



Figure 2: White Building



Figures 3+4: Institute of Foreign Languages (Vann Molyvann, 1971)



Sources: picture left: Waibel 2016, pictures middle & right: Chheav 2016.

### Conclusions

The New Khmer Architecture movement should be considered as a magnificent contribution to the urban heritage of Phnom Penh. It made a major contribution to find innovative solutions for the challenges of rapid urban growth and experimented in the field of affordable housing. The movement deserves increased public attention and financial support for its preservation. Keeping those architecture moments in vivid use seems to be the most promising strategy to sustain those efforts.

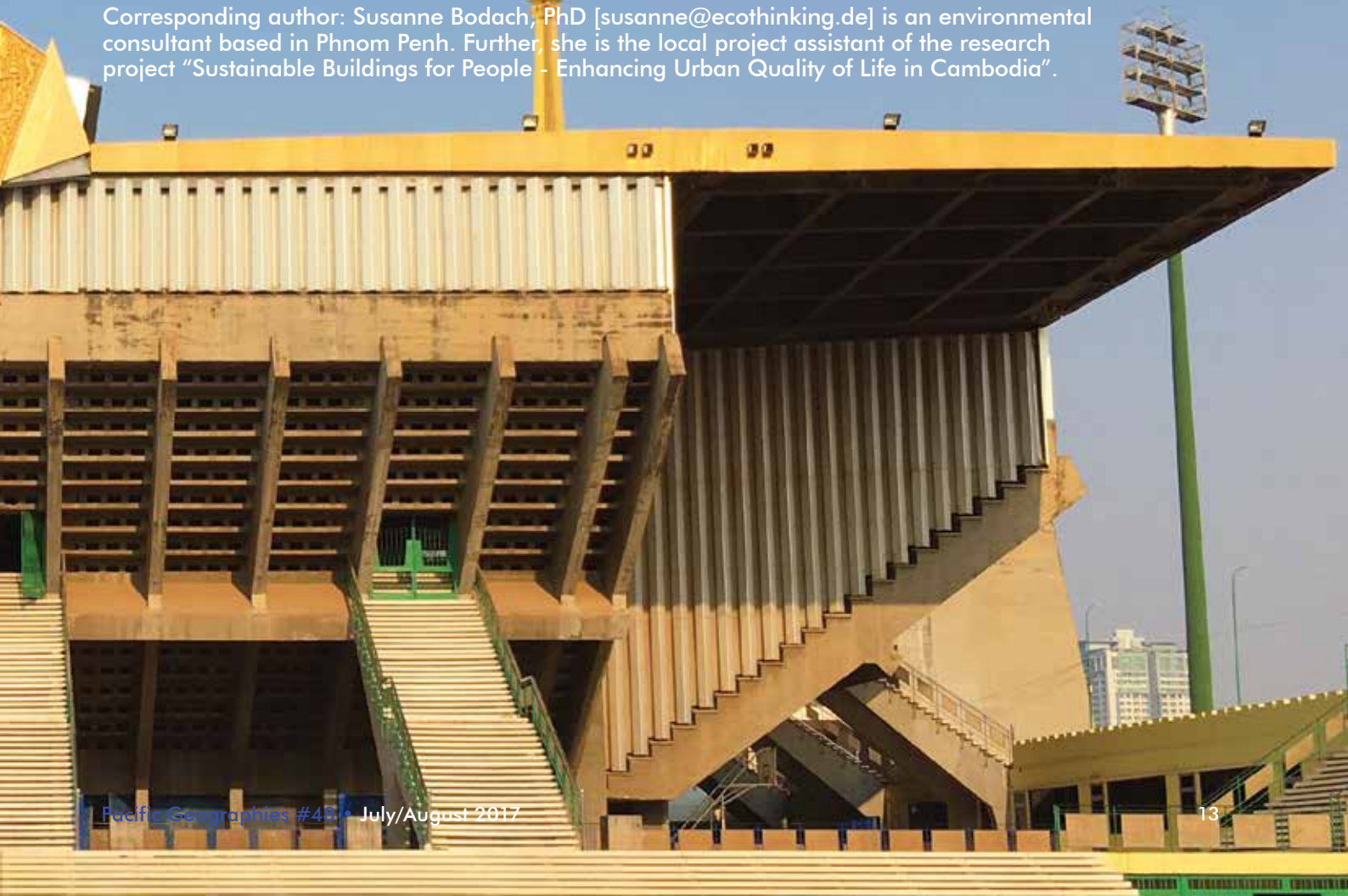
Buildings erected nowadays should be inspired by the tremendous values of New Khmer Architecture and particularly grasp their implementation of bio-climatic design.

It should not be denied that most NKA buildings with representative character were built with an extensive budget making them difficult to replicate today. However, modern carefully planned adaptations of New Khmer Architecture promise long-term pay-offs for bio-climatic and energy-efficient design that will outweigh the initial investment costs.

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# Cambodia: Sustainable buildings for people?

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DOI: 10.23791/481419

*Abstract: Although Cambodia has a long tradition of vernacular architecture where initial building practices took climate conditions into account, currently there is only limited knowledge and awareness about the subject of sustainable buildings among stakeholders of the real estate sector. The Cambodian city of Phnom Penh is witnessing a construction boom and the lack of attention given to sustainability issues threatens dire consequences in the not so distant future.*

*This research note discusses various approaches and measures to promote sustainable buildings in Cambodia. It will be concluded that successful policies towards increasing sustainability need to be less technocratic, less top-down, more inclusive thereby taking into account the behavioural dimension and aspirations of the urban citizens. To achieve a viable implementation with a sustained impact a trans-disciplinary and holistic approach incorporating innovative methods and expertise from various fields should be pursued. Thereby, the vision of “buildings for people” may serve as impetus to enhance the quality of life of Cambodia’s urban citizens.*

**Keywords:** Cambodia, Phnom Penh, sustainable buildings, sustainability, bottom-up approaches, people-centred approaches, sustainable urbanization, urban quality of life

[Submitted as Research Note: 02 July 2017, Acceptance of the revised manuscript: 16 August 2017]

Buildings account for nearly 40% of global energy consumption, the building sector should therefore play a key role in promoting sustainable urbanization (CCAP 2010). According to the IPCC, the building sector offers the largest low-cost potential for carbon dioxide emission reductions globally by 2030 (IPCC 2007). This is also the case in Cambodia. The International Finance Corporation (IFC) of World Bank Group has recently maintained during a presentation at EuroCham Cambodia that 50% of the buildings that will be standing in 2050 have not been built yet and that incorporating efficiencies into new design is up to 10x more cost-efficient than retrofitting later (IFC 2016). In China, for example, Richertzhagen et al. (2008) showed that the incremental costs for new energy-efficient buildings are rather low, accounting for 5-7% of the entire investment costs of a new building. Their analysis demonstrated that the costs for energy-efficient buildings are often overestimated and that not only households, but also key players in the real estate sector often misjudge the costs and benefits of energy- and resource-efficient buildings and are therefore reluctant to invest in sustainability (Waibel 2012).



Figure 1: Construction boom in the city centre of Phnom Penh



Source: Waibel 2017.

**Figure 2: Phnom Penh's affluent retreat to gated communities in the urban periphery: Borey Peng Huot, Mean Chey District**

### Background & Rationale

In 2016, the World Bank Group reclassified Cambodia up from the status of a „low-income country“ to the status of a “lower-middle income country” due to a significant reduction of poverty and a vivid economic growth (McGrath & Kimsay 2016). The reclassification is concurrent with a construction boom focussing on the capital city Phnom Penh (Sokhorng 2016). Building expansion is necessary because the Global Green Growth Institute, among others, anticipates a doubling of the urban population in Cambodia by 2030 and warns of housing shortages and an under-supply of infrastructure in this context (GGI 2016). In 2016, investment in Cambodia’s real estate and construction sector peaked with a total volume of 8.5 billion US\$ (Meng 2017). However, it seems doubtful if the erected building stock mostly targeting the high-end market will match the demand of a society profoundly polarized in socio-economic terms. Further, the buildings are overwhelmingly erected with imported steel, glass and cement (Runcie 2015) which are wasteful and use resource intensive conditioning modes. Only rarely are passive

energy saving potentials applied to building techniques. All this happens despite a surprisingly vast heritage of aesthetically pleasing representative and residential buildings from the modernist era (also known as New Khmer Architecture, see article of Bodach & Waibel within this issue) and from the colonial era erected with abundant measures of constructive shading (Kolnberger 2014; Waibel 2017). Indeed, modern sustainable buildings should integrate traditional concepts, adapt them into up-to-date forms and favour aspects of indoor environment, quality of buildings materials and use of renewable energies, among others (Schwede et al. 2015). Apparently, there is only very limited knowledge and awareness about the topic among the urban population and among stakeholders of the real estate sector. At the same time, the development towards a modern consumer society in Cambodia is resulting in more resource-intensive life-styles which also strongly effects the way buildings are designed, built and operated. As a result, electricity consumption per capita in Cambodia has almost quintupled within just 10 years from 67 kWh in 2005 to 328 kWh in 2015, according to the latest

figures from the International Energy Agency (IAE 2017: 62). While their energy consumption may seem low when compared with others in the region (PR China: 4,047 kWh and Vietnam: 1,534 kWh) it is expected to further rise in the future. Another major structural advantage to invest into energy efficiency in Cambodia is that electricity prices are among the highest in the region. The price of one kWh is about 0.25 USD. Investing in energy efficiency promises very good paybacks for efficiency improvements and may save hundreds of millions of dollars each year (IFC 2016). Yet another advantage will be to decrease energy import dependencies thus increasing the competitiveness of Cambodia’s economy (Renzenbrink 2013). However the usage of renewable energies is still negligible in the urban energy mix. For example, Cambodia hardly utilizes solar water heaters in contrast to other countries in the region such as China or Vietnam where this energy- and cost-effective method is ubiquitous.

Yet, up to now, surprisingly little research has been done in the field regarding how to promote modern forms of climate-adapted housing and energy efficient buildings in Cambodia.

### Sustainable approaches to promote sustainable buildings

Sustainability is a transversal issue. Just promulgating technocratic solutions and the pure transfer of high-tech technology from a developed country won't do it. It is not enough to merely promote energy-efficiency in this context. Sustainable building practices encompass a much wider array of measures than simply replacing clay burnt bricks by non-fired materials or importing a construction material with good insulation values, for example. To achieve sustained impact requires consideration of features such as climate-adapted design, the socio-economic conditions and the specific local culture.

To overcome institutional fragmentation it is essential to promote intensive interaction within a broad alliance of stakeholders from the national and local state, from the construction sector, from the civil society and from educational institutions. More horizontal cooperation is needed because sectorial approaches still dominate. It is fundamental to create platforms to bring those stakeholders together. Through this method, prevalent implementation gaps, lock-in effects and widespread silo mentalities can be overcome and public involvement in decision-making at different levels shall be increased (Waibel 2016). To bring stakeholders together, one option would be for establishing a Green Building Council,

which does not exist yet in Cambodia. Such a support structure would also help to minimize the general misperception that the additional costs for green buildings have to be borne solely by the developer rather than shared with the end-user, who is perceived as being the only party to reap financial benefits (SGSEP 2008).

Evidently, the promotion of sustainable buildings cannot only happen in the top-down manner of simply issuing regulations. Successful policies towards more sustainability need to be less top-down, more holistic, and more inclusive (Waibel 2014), with, for example, a balanced set of economic incentives to promote energy efficiency in the field of housing. Well-designed incentives (tax system, grants and rewards schemes) would not only kick-start behaviour change but could also support the dissemination of environmentally friendly construction materials, which currently suffer from a "vicious circle of low demand – high cost" (Lindlein 2012).

To raise the awareness about positive effects of sustainable buildings, a promising approach is to accompany and to offer consultation for innovative, pioneering domestic architecture offices during the design and construction phases of contracted buildings. This may also serve to disseminate international building certification labels such as EDGE, LEED or DGNB. Among the advantages of this procedure, one

is that this will enable researchers to carry out measurement campaigns and surveys, e.g. to quantify and monetize energy savings due to specific constructive measures, due to the use of sustainable building materials and due to specific actions. Houses erected with this kind of support shall serve as demonstration projects for sustainable buildings and can be replicated by others to achieve mass effects. The extensive measurement campaigns will also serve as a data basis for the development of guidelines, policies and standards to promote sustainable buildings on a regulatory level. By these means, innovative architecture offices will receive more credibility and visibility and as a result may receive further contracts to erect sustainable buildings in the future. Additionally, new green jobs will be created as part of a national green growth strategy.

Establishing a lighthouse project of green building design with a local school by providing consultation and guidance, and incorporating an "Education for Sustainable Development (ESD)" component to the school curriculum, supports transforming the way students gain knowledge about sustainability.

Finally, as a fundamental part of every programme to promote sustainable buildings, there needs to be a component of capacity building measures for institutions of higher education and training measures for professionals.



Source: Waibel 2017.

Figure 3: The erection of high-rise condominium apartments targeting the upper scale of the real estate market





Source: Waibel 2016.

Figure 4: Housing for the urban middle-class population: Dangkao District

### Advocating for the people’s perspective

In contrast to the predominantly poverty-led approaches implemented by donor organisations or NGOs in Cambodia, additional focus should be put on the so-called “new consumers”, a key group in terms of global sustainability (Myers & Kent 2003; Waibel 2009). Despite ongoing domestic political turbulence, significant improvement of the living standards is anticipated in Phnom Penh over the course of the expected boost of urbanisation in the next years. During this time, the urban middle-class population is expected to massively increase prompting a sharply rising ecological footprint due to consumption as a status symbol and increasing building demands, among other factors. Therefore, the urban middle-class values, norms and behaviour should be scrutinized. The urban middle-class population is expected to have specific demands in terms of urban health and urban quality of life. It is important to understand that the notion of “urban quality of life” is a multiple-dimensional concept that brings together “physical, psychological,

social and ecological aspects and takes into account both subjectively perceived well-being and objective conditions” (WBGU 2016: 86). It can be also considered the link between the level of building and the spatial level of the city regarding issues of urban green and of urban climate.

Analysing the needs as stated by the user and the urban citizens’ aspirations towards urban quality of life may serve as a normative aim and as a legitimization basis of specific activities. Such an analysis could happen through the field of environmental psychology, for example, which could also look for ways for increased public participation. Such a research approach may also set the basis for developing awareness campaigns with the aim of changing people’s mindset to overcome value-action gaps. A tool for this component could take the form of a “Handbook for Green Housing”. This tangible product would present in an easy-to-understand manner the range of measures covering all types of construction, design and building operations, and lifecycle aspects, as well the behavioural dimension. In general, the principles introduced

could be understood like a menu from which the end user choose according to their individual capacities, needs, and personal preferences (Waibel 2014). Such a handbook would also include information on how to rediscover the basic principles of bioclimatic architecture and further provide valid data on payback times of specific measures in this context (Waibel 2014; Schwede et al. 2015). Dissemination efforts should not only be done through established print media channels but also through social media channels, which are highly popular among the urban population in Cambodia.

To kick-start behaviour change and advocate implementation, a comprehensive approach of engagement, encouragement, enablement and exemplification could be followed (Jackson 2006).

To promote buildings for people it is more effective to convince people rather than to force them (Hesse et al. 2011; Waibel 2014). Nonetheless, it is necessary to keep in mind that people won’t be easily convinced to adopt environmentally friendly behaviour if top tier state representatives are not leading by example themselves.



Figure 5: Burnt clay bricks are still the dominant construction material in Cambodia

## Conclusions

Promoting sustainable buildings is always a challenge, particularly within Cambodia's fragmented institutional and politically insecure stakeholder landscape where the primary focus is on achieving of short-term profits without a long-term action-plan. Against this background, it would be recommended to first create awareness about the tremendous benefits of sustainable buildings, for the individual end-user, for the urban space of Phnom Penh, for the national economy of Cambodia and, last but not least, for the global climate. It is indeed possible to create win-win situations for the stakeholders involved, e.g. the developers, the construction companies and the homeowners. As people learn from the demonstration projects, and replicate these measures because they are convinced of their capacity to apply bio-climatic principles of architecture to their buildings, use energy-efficient technical equipment and good construction materials, engage in pro-environmental behaviour, there will be a significant impact and achievement of mass effects.

Further solution-based research and intensive advocacy and dissemination activities are needed. Changing people's mind-set takes time, involves a lot of communication and requires

inclusive procedures. To achieve a viable implementation with a sustained impact, a trans-disciplinary approach incorporating innovative methods and expertise from various fields such as environmental psychology should be pursued.

Finally, the vision of "buildings for people" may serve as an impetus and the legitimation basis to enhance the quality of life of the urban citizens of Cambodia.

## Acknowledgement

This research note summarizes arguments from a new research project entitled "Sustainable Buildings for People - Enhancing Urban Quality of Life in Cambodia ([www.buildpeople.de](http://www.buildpeople.de))" with the objective both to promote sustainable buildings and sustainable urban development. Within this project a multi-disciplinary team focuses on people's needs and aspirations and aligning their stated needs with tools to benefit and enhance their living. It is firmly believed that this will lead to major effects on urban sustainability through more energy- and resource-efficient buildings. The results sought after are no less than significantly lowered greenhouse gas and pollutant emissions, a better indoor environment, an increase of urban green, a healthier urban climate, raised awareness among decision

makers, modified behaviour among the urban population and an overall better quality of urban life.

The author would like to express his sincere thanks for the generous funding support from the German Federal Ministry of Education & Research (BMBF).

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## Letter to the editor Holiday in North Korea (PG#47)

Benjamin Kuck & Nils Christian Schwarz



In addition to that very interesting article, we would like to share some experiences from our 10-days-trip last winter: Our guides seemed to be a little less severe, so we had more freedom when taking pictures and filming clips while walking through the streets or during different visits. One of the guides spoke German impressively well.

We spent a lot of hours on motorways with very little traffic. These freeways are full of road holes, that our Chinese manufactured bus did not absorb well... we definitely had to get used to this... From time to time the engine went out at full speed but the driver always restarted it somehow.

The countryside presumably looked like China 30 years ago: a lot of cyclists everywhere. In Pyongyang we also saw numerous cars from international manufacturers. Interestingly, we could take a look at their own car brand in the National Industrial Exposition

Centre but our impression was: too heavy, too slow, and completely unable to match international competition.

When we were travelling far from the capital we sometimes saw street hawking along the roadside. We were surprised that this seemed to be tolerated, considering the strictly non-market economy. In the countryside, people seemed to be more interested when they saw us, even though there was no real interaction with anyone who was not integrated in our tourist program. In Pyongyang we felt very ignored by the crowds, especially in the subway, just as described in last issue's article.

It appeared to us that the living standard in Pyongyang was relatively high compared to the rest of the country. Albeit goods of any kind are often pretty rare here too, compared to our globalised consumption society.

In addition to the urban bus transportation system there is also

a tramway. In fact, it is the Prague Tram from the 1970s that they got at a cheap price. Public transportation is completely over-crowded, but the people seem to be used to it.

In general, we felt safe in North Korea in the sense that the regime has total control of public spaces.

When we looked around and down at the city from the 170 meters high Juche Monument, we became aware of how compact the city actually is: more than three million people live in a space that can easily be overlooked. We also drove along a planned boulevard with a total of 50.000 flats in gigantic apartment blocks. Pyongyang seems to be the last planned socialist city par excellence.

### Tip

At the Pacific Geographies web site there is a soft copy of this letter with additional visual impressions of our trip to North Korea.

Benjamin Kuck [benjamin-kuck@web.de] and Nils Schwarz [schwarz.vlg@googlemail.com] are APSA members who travelled to North Korea during the New Year 2017. Both work as secondary grammar school teachers in Germany.

## ESSAY

# Phnom Penh: The soul of the city

*Paulette Chheav*



Figure 1: The National Sports Complex is an extremely popular public place

From the hundreds of Tuk-Tuks to the thousands of Lexus crisscrossing the busy streets of the capital, Phnom Penh is a fast-changing city, which rarely fails to charm. Whether it's being stopped at every corner by street vendors, being stared at by random strangers, watching the locals driving or five people riding on a motorbike, all these characteristics are deeply anchored in the culture of this city.

While Phnom Penh still features numerous structures related to its history, seen in the ancient buildings and French colonial architecture such as the post-office, the Central Market, the old railways station or the National Sports Complex by famous architect



Figure 2: Tuk tuk transportation is a unique feature of Phnom Penh



Source of all pictures: Paulette Chheav.

Figure 3: The Mekong River plays a large role in people's daily life

H.E Vann Molyvann, the face of the city is constantly changing. There is an emerging side, more young and modern, which mixes into the soul of the city, making it more unique than ever.

The development of the city also integrates the emergence of a new world, sometimes in contradiction with the cultural and traditional aspects of the city: high-rise buildings, luxurious cars, modern clubs, bars, restaurants and coffee shops in a western-style.

Additional components that add to the soul of the city are the Mekong River and the Tonle Sap Lake, Boeung Kak district, formerly the largest urban lake in Phnom Penh but now filled in, Koh Dach (Silk Island), well-known for its silk weavers and more recently Koh Pich (Diamond Island), that links Phnom Penh with a bridge

to a modern and rich island in which real estate investors tried to make a paradise for wealthy people.

The true soul of Phnom Penh is a mix of various elements incorporating cultural and economical aspects but also a historical legacy that takes into account the tragedy of the Khmer Rouge regime and the scars it has left on a whole population in the past century. Tuol Sleng prison and the Killing Fields are touristic activities both locals and travellers still visit in remembrance of the atrocities committed to the Khmer people not so long ago.

The charm of Phnom Penh does not only lie in the aesthetic beauty of its cultural monuments, museums, colonial buildings or smiling people but embraces everything one can witness every day which is truly

unique and authentic: women walking in the markets wearing pyjamas, bikes transporting hundreds of boxes on the back of their vehicles, men and women holding hands when crossing the busy streets, old people exercising and dancing with funny postures at the Olympic stadiums early in the morning or lovers kissing each other on their motorbike parked by the riverside.

### Acknowledgement

This essay has first been published at the following publication:

*Waibel, M. (ed.) (2017) Phnom Penh: Capital City. Book series PAZIFIK FORUM of the Association of Pacific Studies; Volume 19, APSA Publishing House, Phnom Penh / Cambodia, 208 p. ISBN: 978-9924-9151-0-2.*

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Web: [www.baladesphotographiques.com](http://www.baladesphotographiques.com)

## BOOK REVIEW

# Living with the Mekong: Climate change and urban development in Ho Chi Minh City and the Mekong Delta, a travel report by Joep Janssen

*Helmut Schneider*

Dutch architect Joep Janssen has put together a special and rather interesting book about his exploration of Ho Chi Minh City, its surrounding areas and the Mekong Delta. Far more than the term „travel report“ in the subtitle implies, it is not a scientific publication in a strict sense either. Indeed, the reader has some difficulties on how to characterize it properly. Janssen reports on his talks to urban dwellers, to farmers and fishermen as well as to different professional and scientific experts in the book together with the author's own observations and considerations as well as further findings from the author's own readings.

Nearly one third of the publication is made up of photographs taken by Wytse van Keulen. Most of them are grouped together in two „photo-essays“ covering the two travel areas, Ho Chi Minh City and the Mekong Delta. The photos are not just an illustrative supplement, but are notably informative in their own right, giving a lively impression of people, their living conditions and urban (HCMC) or rural (Mekong Delta) surroundings. Especially revealing is the view on the booming megacity's poorer and less modern looking „water backyard“ made up by rivers and canals.

The book deals with two, strongly interconnected, main issues: urbanization and water management. Water

is of course a big issue in a delta and monsoon region that experienced rapid urban (and rural) change in the past decades. The challenges both issues pose are intensified by climate change. The consequences of climate change are already being experienced in the region with more rain, more floods and with sea level rising leading to the salinization of the lower reaches of the Mekong river in the delta including its side arms and tributaries. Because political and scientific dealings with urbanization and water problems, at least in the author's view, tend to be mainly about technical solutions and rarely about the people, the book tries to connect these worlds.

In several sections historical inform-

ation is added to elucidate present developments in the light of past experiences. Janssen refers to the French colonial period, but also to urban developments in the Netherlands during the so-called „Golden Age“ in the 17th century, when the city of Amsterdam was growing rapidly and the famous grid of canals (Grachten) was constructed. Although some historical plans and maps are included, the comparison of the two urbanization experiences from different ages, and their water management challenges, are unfortunately not done in a systematic way but rather remain somewhat sketchy and cursory. Likewise, the discussion of possible adjustments to climate change in the

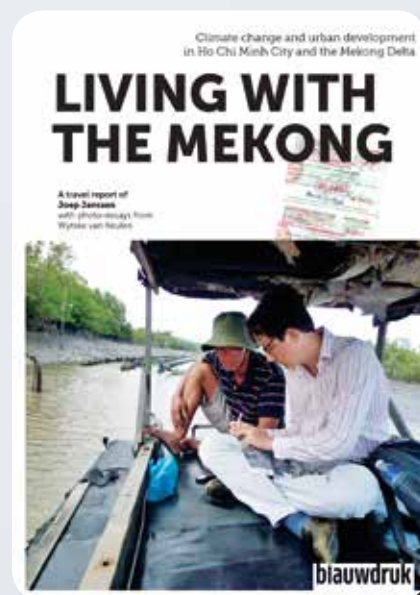
Mekong Delta and the Dutch Mekong Delta Plan for Vietnam (Chap. 6 and 7), misses the chance to be analysed in a more systematic and scientific way. Regrettably Janssen does not make use of the Dutch experience with urbanization and water management when considering the present day situation of Ho Chi Minh City and the Mekong Delta which still waits to be put in practice effectively.

The challenge of water management in HCMC is a result of rapid urbanization spreading to low-lying and water rich areas, the sealing of surfaces, which hinders rainfall to seep away quickly, but also of land subsidence mainly due to excessive withdrawal of ground water. Janssen states that bottom-up adjustments like elevating houses must be accompanied by a change in urban development, which has yet to become a policy issue. This is, based on the author's observations, also true for the Mekong Delta, where houses are built on floating platforms and farmers switch to shrimp instead of rice farming due to an increase in water salinity. But adjustments at the grassroots level have to be accompanied by measures on the regional and even the international level. To stress this argument, Janssen points to the Chinese dam building activities along the upstream Mekong river, which already reduced the water flow in the delta easing the intrusion of saltwater. But the idea to seal off the main estuaries with dykes and drainage sluices from the ocean, like it was done in the Netherlands, to cope with the flooding problem and to prevent saltwater intrusion, needs meticulous

consideration and research, because it could have very serious consequences for the ecosystems: "Don't opt for dykes to quickly", Janssen cites one expert.

To sum up, the book leaves the reader with mixed impressions. On the one hand it offers a rich patchwork of facts and figures, historical information and personal communications with common people as well as with experts. The fine and informative photos of Wytse van Keulen make up a lot of the value of the book. Many informative and illustrative maps and planning sketches are included (although some are reproduced too small to be readable, and in many cases they could have been commented in more detail). On the other hand, the presented pieces of the puzzle do not add up to a conclusive picture of how the people and the responsible administration of Ho Chi Minh City and of the Mekong Delta may cope with the challenges of urbanization and climate change. We are left with the impression of a compilation of a huge amount of very different and for itself interesting facts and information, but which would have needed more refinement and structuring to connect them in a systematic way. The book therefore seems to be somehow unfinished. The perplexing appearance of three text blocks in Dutch language (p. 149, 152-153, 156-157) apparently not connected with the English text adds to this impression. Maybe by investing a bit more time and structuring effort these important issues and a lot of informative and valuable material could be presented more convincingly.

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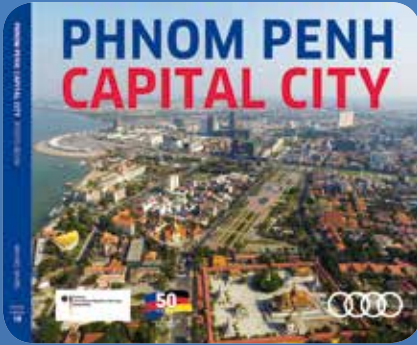


Source of all photos: Wytse van Keulen.

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**Greeting of Dr. Ingo Karsten, Ambassador of the Federal Republic of Germany to the Kingdom of Cambodia:**

Every day we observe the rapid changes in Phnom Penh. We are both fascinated and overwhelmed by the developments. We see well-appreciated buildings and homes disappear. Questions have to be answered on what should be preserved and what should move and be replaced in order enable development and improve living conditions. This is a challenge faced daily in most cities around the globe. The built environment - the space in which we live and work every day - is one of the key features of our cultural identity. The preservation and strengthening of cultural identities is considered as one of the most important objectives of the German External Cultural Policy. By being aware of what makes up our cultural identity we are better able to preserve it. Therefore, I am very happy that this book, which shows us everyday people in their everyday environment in Phnom Penh as well as changes which have taken place over time, has been published. I would like to invite you to join me on this exciting visual visit of the city and its inhabitants.

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