This book was printed by IEREK, and by all means IEREK is responsible for this complimentary copy of this book, and the publishing will be done by ELSEVIER on ScienceDirect.com

Photocopying

Single photocopies of single articles may be made for personal use as allowed by national copyright laws.

Permission of the Publisher and payment of a fee is required for all other photocopying including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use.

Derivative Works

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution. Permission of the Publisher is required for all other derivative works, including compilations and translations.

Electronic Storage or Usage

Permission of the Publisher is required to store or use electronically any material contained in this book including any article or part of an article. Except as outlined above, no part of this publication may be reproduced, stored in the retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Publisher.

Notice

No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein.
Acknowledgements

IEREK would like to express its appreciation to all the members of the staff, scientific committee, chairpersons, and editors for contributing to the tremendous growth of this institution and for making the Green Urbanism (GU) conference what it is today. IEREK would also like to thank conference chairpersons, Professor Paolo Desideri and Professor Henry W. Richardson, who are the core reason as to why this conference was transformed from a mere vision into an on-ground success. This institution is greatly indebted to the conference guest editors, Professor Fabio Naselli, Professor Fabio Pollice and Professor Mahmoud Y. Ghoneem, your efforts and continuous support is what led to our success.

IEREK takes distinct pride in being an institution that amasses a highly qualified and competent team who restlessly worked for months to make this conference what it is today. With regards to the success of this conference, any step forward towards the ultimate goal of creating a well-rounded society was made possible by the highly reputable scientific committee that worked competently to prepare for and revise research papers. It would also like to give thanks to all the members of the Scientific Committee who made it their duty to help this institution spread knowledge to the masses.
Word from the Conference Chair

On behalf of the organizing committee, I am honored and delighted to welcome you to the International Conference on Green Urbanism (GU), Rome, Italy.

Our technical program is rich and varied with around 55 technical papers discussed throughout the conference sessions. Besides, there are 3 technical workshops. We also expect to provide technical demonstrations, and numerous opportunities for informal networking.

As a conference chair of the Green Urbanism, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing both the technical program and supporting social arrangements. In particular, we thank the Organizing Committee for their wise advice and brilliant suggestion on organizing the technical program; the Reviewing Committee, for their thorough and timely reviewing of the papers. Recognition should go to the Local Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs and social activities.

Professor Paolo Desideri,
Conference Chair of Green Urbanism
Word from conference Co-Chair

I am very pleased and honored that you will participate in the international Conference on Green Urbanism (GU) 2016.

In this conference, will be raised variant and various topics with the presence of a group of the most experienced professors throughout the world.

The conference is designed in such a way that it could be useful in scientific advancement of all activist groups seeking education and practical experience.

Sustainability professionals, urban planners and architects will be presenting the findings and experiences arising from their researches and practical works in around 56 papers, which will be presented in this conference.

Finally, I declare my special thanks to the Scientific Committee, the conference organizers, IEREK for research enrichment, and all academic colleagues and professors who were our friend and helper in this scientific movement.

Professor Henry W. Richardson

Conference Co-Chair of Green Urbanism
A Word from the Editor of the Conference

Now we reap the benefits of our efforts, and our continuous hard work for preparing for this International Conference on “Green Urbanism”.

I have participated in the selection of our reputable reviewing committee, where very special professors were attracted to this great event. We have followed a very specific and accurate system that helped in creating a very successful revision process. I thank the scientific committee that participated in preparing for this conference, and I can’t thank enough the reviewer’s committee who have reviewed many abstracts and so many full papers; they were the support pillar for this conference.

One of the main aspects that assisted in the success of this conference is the variety of the counters that participated in this event. Diversity is one of the main aspects that ensures the success of this conference. I could almost see the diversity in the ideas, the differences between each and every culture in every paper that was submitted to the reviewing committee to get reviewed, and it is when I realized that this is the success that all future conference should be aiming for.

The reviewing process might have been much harder than the writing process itself, but I cannot deny that I have honestly enjoyed reviewing the papers with my colleagues in the reviewing committee.

The revision process of this conference followed very high standards, organized, were the papers would be related to check if it’s eligible to fit in this conference standards, or not, once it passes it goes to a full revision process, that once a paper passes we ask of the author to apply the reviewers’ comments on the paper to increase its scientific value.

I give my thanks to the University of Roma Tre and its rector Professor “Mario Panizza” and Professor “Paolo Desideri” and Professor “Henry W. Richardson” The conference chairmen.

Special Thanks to IEREK’s team, who’ve made it easier for us to run the revision process, as I would also like to give my thanks again to the reviewers’ committee, and all the authors. I wish to meet you all on many future events.

Professor Fabio Naselli,
Guest Editor of the Conference
A Word from the editor of the conference

It is an honor to be a Guest Editor for the international conference on "Green Urbanism" that is hosted at the University of Roma Tre.

I am proud to be tasked by the university's chairman, and by IEREK to look after the editing of this great event.

I took it on myself to handle this responsibility, for I felt the sincerity and seriousness of this event, where I recognized its success, and I was never only scientifically involved, I was involved in all the details for the preparation of this event and the publication of its proceedings. For almost a whole year we've been preparing and planning for this event, by communicating with all of the representatives of the organizing committee to finalize the programme for this wonderful event, and include all of its details, and activities, whether scientific, cultural, or social.

I can't begin to describe the hard work, and effort that IEREK have exerted in the promotion and the organization of this conference, where they have proven their skills to manage and receive well with the scientific committee and the reviewers' committee.

I specially thank the University of Roma Tre's rector, professor Mario Panizza and professor Paolo Desideri & Professor Henry W. Richardson, the conference Chairmen for the full support that they've shown to this event. I also thank every one of my colleagues, professors, organizers and everyone who assisted and participated in helping this event.

My dearest thanks to all of the key speakers, and all the lectures, who have assisted in helping with this events. I thank the session moderators who managed to keep the conference strong by defining the aims and reaching them, they gave the conference its own character, and thank to thank to that we are here today, happy to contributing to this event.

Finally, I'd like to thank all the authors, audiences, and everyone who was interested in this event and couldn't make it, for they are a big part of our success, they are our success.

Sincerely,

Professor Fabio Pollice

Conference Guest Editor
A word from the Chairman of the Board of IEREK

I am honored and filled with joy to launch a conference in the Roma Tre University, Rome, Italy, which will be holding the “International Conference on Green Urbanism (GU)”, having Professor Paolo Desideri and Professor Henry W. Richardson as the conference chairs.

IEREK – International Experts for Research Enrichment and Knowledge Exchange is a startup institution that started its activities in 2013 and since then has been trying to achieve success and excellence in all its endeavors. Building international relationships with prestigious universities and institutions worldwide is one of the main goals that IEREK seeks to fulfill in order to spread knowledge and enhance research in its homeland, Egypt, and everywhere in the world through collaborating with trustworthy partners who share the same goals.

Through its scientific committee that includes distinguished professors and researchers from a wide variety of international universities, IEREK hopes to present to the world of research a successful conference that adds to the body of knowledge and gives the chance to scholars in the field to meet and find beneficial and creative solutions to the issues presented in the conference.

Personally, I hope that the conference succeeds in delivering its message to the world of professionals in the field of urban planning and sustainability so that the conclusions reached at by distinguishing researchers and the results of their work are put into effect. I also hope that a large audience of undergraduate and postgraduate students benefit the most out of this conference.

I am looking forward to meeting you all in this successful conference.

IEREK CEO

Mourad S. Amer
Green Urbanism Scientific Committee of reviewers

Prof. Fabio Pollice, University of Salento, Italy.
Prof. Fabio Naselli, Kore University of Enna, Italy.
Prof. Dean Hawkes, Cardiff University, UK.
Prof. Konstantinos Moraitis, University of Athens (NTUA), Greece.
Prof. Theodos Santanouris, The University of Athens, Greece
Assoc. Prof. Chahan Alalouch, Sultan Qaboos University, Muscat, Oman.
Assoc. Prof. Nabil Mohareb, Beirut Arab University, Lebanon.
Prof. Winifred E Newman, Fay Jones School of Architecture Design, United States
Assoc. Prof. Mahmoud Ghoneem, Helwan University, Egypt.
Prof. Mohsen Abu Bakr Bayad, Alexandria University, Egypt.
Prof. Lucia Della Spina, University of Reggio Calabria, Italy.
Prof. Abdurrahman Mohamed, University of Bahrain, Bahrain.
Prof. Ahmed Hosney Radwan, Helwan University, Egypt.
Assoc. Prof. Hesham El-Shiny, Faculty of Engineering, University of Pharos, Egypt.
Prof. Jagat S. Jawa, Delhi University, India.
Prof. Antonio Frattari, University of Trento, Italy.
Assoc. Prof. Antonella Versaci, University "Kore" of Enna, Italy.
Prof. Samer El Sayary, Alexandria University, Egypt.
Assoc. Prof. Kulsom Fatima, Jamia Millia Islamia University, India.
Prof. Mohamed Abdelkaki Mohamed, Ain Shams University, Egypt.
Prof. Antonio Messineo, Kore University of Enna, Italy.
Assoc. Prof. Abeer Elshater, Ain Shams University, Egypt
Dr. Raffaele Pernice, Liverpool University, UK.
Prof. Alexandru Balascescu, Simon Fraser University, Canada
Prof. Mario Paris Polytechnic, University of Milan, Italy
Prof. Khairy Hassan Abdelkareem, Assiut University, Egypt.
Prof. Nancy Clark, University of Florida, United States.
Prof. Yasser Mahgob, AUC and FUE, Egypt.
Prof. Frederico Canuto, Federal University of Minas Gerais, Brazil.
Prof. Ahmed M. Soliman, Alexandria University, Egypt.

Prof. Hosam Elborombaly, Effat University, KSA.

Prof. Ahmed M. Yousry, Cairo University, Egypt

Assoc. Prof. Anirban Adhya, Lawrence Technological University, United States.

Prof. Nordiash Ujang, Universiti putra, Malaysia

Dr. Indiy M. Shawket, Arab academy AAST, Egypt.

Prof. Anna Catalani, University of Salford, UK.

Prof. Ibrahim Maarouf, Alexandria University, Egypt.

Dr. Sofia-Natalia Boemi, Aristotle University of Thessaloniki (AUTH), Greece.

Assoc. Prof. Barak Asiliskonder, Abdullah Gül University, Turkey.

Assoc. Prof. Dr. Pinar Arabacioglu, Yildiz Technical University, Turkey.
Green Urbanism Conference Keynote Speakers

Prof. Paolo Desideri, *Roma Tre University, Italy*
Prof. Francesco Lo Piccolo, *Università di Palermo, Italy*
Prof. Nabil Mohareb, *Beirut Arab University, Lebanon*
Prof. Mieke Oostra, *University of Hanze, Netherlands*
Prof. Fabio Pollice, *University of Salento, Italy*
Prof. Michelangelo Russo, *University of Napoli “Federico II”, Italy*
Prof. Adolf Sotoca, *Polytechnic University of Catalonia, Spain*
Prof. Mario Pisani, *Second University of Napoli, Italy*
Introduction

The world is in the midst of a disturbance of a growing, consuming population, and environmental degradation, which produces many environmental challenges such as global climate change, excessive fossil fuel dependency and the growing demand for energy, all likely to be major challenges of the 21st century and one of the greatest problems facing humanity.

In this context, urban design is the fundamental principle of how to shape our cities. Because almost half of the energy consumed is used in cities and urban built-up areas, it is necessary to avoid mistakes in urban design at early stages in order to own more sustainable cities. The 1st international conference on Green Urbanism reflects upon practical strategies focusing on increasing sustainability beyond and within the scope of individual buildings.

The conference provides a context for a general debate about the regeneration of the city center and discusses how urbanism is affected by the paradigms of ecology.

This book is divided into 16 sections, each section discusses a manifesting problem that we are currently facing, appearing important enough to be discussed as one of the topics to be brought up in this edition. The 16 sections are to be discussed through this book cover all the required aspects of this issue categorizing it as a very important matter that needs to be discussed.
Chapter 01
Eco-Cities
Virtualization of Mae Wong National Park with respect to CHONG YEN for Publishing Conservation Green Natural

Rattanathip Rattanachai* & Sutthidet Sarue*

*Suan Sunandha Rajabhat University, Bangkok Thailand

Abstract

This research paper is the Virtualization Mae Wong National Park with respect to CHONG YEN in District of Pang Sila Thong, Kamphaeng Phet Province, Thailand. This software is useful for PR, to the natural education, to raise awareness in natural disasters, the love and cherish about the forest, wildlife, and plant, so when there is deforestation, it will have an impact on both humans and animals. Which implement to environment include wild animals, birds and local tree, using SketchUp, Blender, and C-Sharp to design models. Unity3D to create map function models, used C-Sharp and JavaScript to developed program. When testing and evaluating the quality of the system, Black Box testing was used to determine was satisfied by the performances of system as follows: Means were 4.48 respectively and standard deviation were 0.65 respectively. © 2017 The Author. Published by Elsevier B.V.

Keywords: Virtualization, Mae Wong National Park, CHONG YEN, Conservation, Green Natural

1. Introduction

Nowadays, the natural education, to raise awareness in natural disasters, the love and cherish about the forest, wildlife, and plant, so when there is deforestation, it will have an impact on both humans and animals, such as Mae Wong National Park is the aim of destroy for the dam building[1] and A Review of Thailand’s Proposed Mae Wong Dam, prepared for the IUCN National Committee for Thailand[2]. Mae Wong National Park (MW) is mountainous, there are 40-50 mountain peaks, one of the best places in Thailand, located at Pang Sila Thong District, Kamphaeng Phet province, Mae Wong District and Mae-Pan sub-district, Nakorn Sawan province, have three main rivers of...
which the Mae Wong River is the biggest drain the park. The famous places in the park are Mae Kraa, Mae Rusa, Mae Ki Waterfall. The remaining forest of the northern region, connects to the Khong Lan National Park, which an area adjacent to Nakorn Sawan province, while its southern part is next to the Huai Kha Khaeng Wildlife Sanctuary in Uthai Thani province, the world heritage site, for the publicize of natural resources conservation. Its western part connects to the Lumphang Wildlife Sanctuary, Tak province, it is one of the most abundant pieces of forest area of the Western Forest that stretches from Tak to Kanchanaburi province[3].

Chong Yen is situated at Km. 91, 28 kilometres from the National Park Office. It is the top of the Khong Lan-Lumphang Road with a height of 1,340 metres above sea level. With the highest peak, Khao Mo Ko Chu, it is one of highest mountain ranges in Thailand [4], [5].

There is always a breeze and fog covering the spot with cool weather throughout the year. The average temperature is 20°C. It can be considered as one of the most beautiful spots to admire the sunset. The general condition of the forest is the hill evergreen forest with rare species of orchids such as Sotus Krok Ta – Bulbophyllum spp., Maha Sadam – a kind of tree fern[6].

Camera traps from August 2011 released by DNP, Wildlife and Plant Conservation and WWF reveals that tigers are still around in Mae Wong, there are 9 tigers recorded. Some other existing mammals that can be found in the park are Asian black bear, Humpbacked leaf monkey, Golden Jackal, Lao Gibbon, and Malayan Tapir among many other[7], [8].

According some sources, with migratory birds counted 450 species of bird has been seen in the park[8], and rare birds such as Rufous-necked Hornbill, Plain-pouched Hornbill, Grey Peacock-pheasant, Barama Yuhina, Long-tailed Broadbill, Reddish ['',] and Greater Yellower notes, Coral-billed Scimitar Babblers, Mountain Hawk-eagle[5], [6] Bird watching in Thailand; Locations, Mae Wong National Park[9], [10]. Fig.1. shows a map of Mae Wong National Park, Kamphaeng Phet and Nakorn Sawan Province [10], [11]. This is to Assessment of Human's Attitude Towards Natural Resource Conservation in Protected Area in Thailand [12].

![Mae Wong National Park Map](image)

**Fig.1. A map of Mae Wong National Park, Kamphaeng Phet and Nakorn Sawan Province. (NTB: North Thailand Birding 2016)**

The purpose of research paper is a Virtualization Mae Wong National Park with respect to CHONG YEN for Publishing Conservation Green Natural. It useful for visitors to the natural education and PR, so that they can be visit to the real place for eco-tourism, natural conservation, relax, and for those who cannot travel to the place, in the location; To see the image clearly, such as height, shape, or size of the building, has designed three-dimensional map and simulations the rainy season weather. Another objective is to communicate to the public, what it knows Mae Wong is abundant forest, as can be seen from lichen, tigers and hornbills. Including the need to stop thinking of those who want to exploitation build a dam in the forest of Mae Wong, which makes the forest and wildlife to greatly destroyed. And most importantly, to use was instrumental in instruction for raise awareness and creating a young conservative generation to the preserving the natural environment.
2. Methodology

In this section, we present a methodology used for creating this software, which involves 11 steps of Simulation model. Fig. 2. shows the process of development software. Using SketchUp, Blender, and Gimp to design models, Unity 3D to create map function models, C sharp and JavaScript used to develop the program. Start by defining the problem & Real world problem, later construct simulation model, and continue to implementation. Fig. 3. shows the overview of system; we separate people into two groups of visitors and administrators. Are summarized below to the label of Mae Wong National Park entrance, location camp/lodge, and watching spot: tree, tiger, Banteng and bird.

![Diagram of simulation model methodology.]

The program consists of the trails of the national park in Mae Wong National area of the Chong Yen, for the simulations rainy season weather, the tent pavilion, bath room, house, and with the rotation of the sun, include wild animals and birds, there are five species, such as: tiger, Banteng, Rufous-necked Hornbill, Plain-pouched Hornbill, Grey Peacock-Pheasant, including forestry and local trees is Gnetochlamnus maewongensis R.M.K. Saunders & Chalermglun (Pauan Maewong) and Magnolia garrettii (Craft) V.S.kumar (Magnolia garrettii).
3. Model Development

Program development used by C sharp and JavaScript, to design models by SketchUp, Blender, and Gimp, and create map function models by Unity 3D, details are as follows: Fig. 4 shows creating of the signpost to the Mae Wong National Park and CHONG YEN, Fig. 5. Shows Lavatory and Cleaner place. Fig. 6. Shows walking trails and signs for Places “CHONG YEN”, Fig. 7. Shows Tent places and lodging. Which also includes other models such as the tree and wild animals.

Fig.4. (a) Signs for Place “Mae Wong National Park”; (b) CHONG YEN.

Fig.5. (a) Lavatory. (b) Cleaner place.

Fig.6. (a) Walking trails; (b) Signs for Places “CHONG YEN”. 
4. The results of this system

The research purpose is to develop a model in Virtualization of Mae Wong National Park with respect to CHONG YEN for Publishing Conservation Green Natural, and the evaluation tests of the system.

4.1. Developing the models

The development of this model by simulations in the rainy season. The forest is moist, getting started at that time to watch animals, Fig. 8 shows the Image of Tiger, Fig. 9 shows the Image of Banteng, Fig. 10 shows the Image of special trees: Magnolia grandiflora (Craib) and Goniothalamus maewongensis (Panou Maewong), and Fig. 11 to Fig. 13 shows the birds can tell the purity and integrity of the forest.
Fig. 10. shows the Image of special trees, Magnolia garrettii (Crake) and Conothalasius maewangensis (Panam Maewang)

Fig. 11. shows the Image of the Rufous-necked Hornbill

Fig. 12. shows the Image of the Plain-pouched Hornbill

Fig. 13. shows the Image of the Grey Peacock-Dharmant
4.2. Testing and evaluating the qualities of the system

When the results testing and evaluating the qualities of system, Black Box testing was used to determine were by the satisfaction with the performance of the program as follows: Functional requirement test, Function test, Usability test, Security test and Integrity test. The summary for means were 4.48 and standard deviation were 0.65 respectively.

5. Conclusion and future works

In this project, we presented the Virtualization of Mae Wong National Park with respect to CHONG YEN for Publishing Conservation Green Natural model, to disseminate information for student or juvenile so that can be aware of the treatment of forest and wild animals in Thailand. However, in terms of future experiments, we are looking forward to research about other new area and techniques to enhance this project.

Acknowledgements

The authors gratefully the financial subsidy provided by Suan Sunandha Rajabhat University, Bangkok, Thailand. Special thanks to Dr. Tatsanawat Utaasakul from Environmental Science Program, Faculty of Science and Technology; And Mr. Suchon Weingdaw, Chief of Mae Wong National Park, and all staff who helped and provided data collection throughout the study.

References