

The Hongkong Electric Co Ltd
香港電燈有限公司



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ORDINANCE, CAP. 499

ENVIRONMENTAL PERMIT NO. EP-201/2004

RENEWABLE ENERGY BY A WIND TURBINE SYSTEM ON LAMMA ISLAND

ECOLOGICAL BASELINE MONITORING

Report Title Ecological Baseline Monitoring Report

Date 18 January 2005

Certified by 

LEUNG Hip Yuen
Environmental Team Leader

The Hongkong Electric Co Ltd

Renewable Energy by A Wind
Turbine System On Lamma Island:
Ecological Baseline Monitoring Report

January 2005

Environmental Resources Management


21/F Lincoln House
979 King's Road
Taikoo Place
Island East, Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
<http://www.erm.com>

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Reference C2701 extension

For and on behalf of Environmental Resources Management
Approved by: <u>FREEMAN CHEUNG</u>
Signed: <u></u>
Position: <u>Executive Director</u>
Date: <u>17 January 2005</u>

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1.1

INTRODUCTION

The Hongkong Electric Co Ltd (HEC) has planned to commence the installation of a wind turbine of capacity ranging from 600 to 850kW at Tai Ling Tsuen, Lamma Island, under the project entitled "Renewable Energy by a Wind Turbine System on Lamma Island" (hereinafter referred to as the Project) in February 2005. ERM-Hong Kong Ltd was appointed for the Project to undertake the measures for protection of Romer's Tree Frogs (RTFs) under the requirement of Conditions 2.2 to 2.4 of the Environmental Permit No. EP-201/2004. Conditions 2.2 to 2.4 of the EP-201/2004 stipulates the following:

- 2.2 *At least one day-time and one night-time surveys for the Romer's Tree Frogs (RTFs) within the Project site shall be undertaken and completed no later than one week before the commencement of on-site clearance works to minimise impacts on the RTFs. The RTF surveyor shall actively search within the Project site, paying special attention to all possible microhabitats, including natural and artificial ones e.g. abandoned containers with water. All recorded RTFs (including adults, tadpoles and eggs) shall be collected by hand and translocated to the stream pools of middle course of Stream S4 near Lo Tik Wan (as shown in Figure 2 of this Permit), immediately after the surveys. The results of the surveys and recommendations on follow-up actions required shall be reported in the Ecological Baseline Monitoring Report as described in Conditions 2.4 and 3.2 of this Permit.*
- 2.3 *The Romer's Tree Frog (RTF) surveys, translocations, reporting of the results and recommendation on follow-up actions, as described in Condition 2.2 of this Permit, shall be undertaken by a qualified ecologist with at least five years of relevant experience.*
- 2.4 *The following details of the Romer's Tree Frog (RTF) surveys, the subsequent translocations and follow-up actions shall be reported in the Ecological Baseline Monitoring Report as described in Condition 3.2 of this Permit:*
 - (a) *The time of conducting the surveys and translocations;*
 - (b) *Methodology and results of the surveys;*
 - (c) *Methodology of collecting the RTFs (including adults, tadpoles and eggs), if found, within the Project site during the surveys;*
 - (d) *Procedures of transportation of the RTFs (including adults, tadpoles and eggs), if found, from the Project site to the receptor site i.e. stream pools of the middle of Stream S4 near Lo Tik Wan as shown in Figure 2 of this Permit;*
 - (e) *Recommendation(s) on any follow-up actions required for protection of the identified and translocated RTFs; and*
 - (f) *Photos and location plans to illustrate the results of the surveys and translocations.*

The shrubby grassland located within the Project Site for the Renewable Energy by a Wind Turbine System on Lamma Island will unavoidably be modified by the proposed construction works. A total of 3 calling males of protected amphibian species Romer's Tree Frog *Philautus romeri* were recorded within the Project Site during the EIA stage. All of the three individuals were found near a rain-filled plastic container and a discarded PVC U-shaped water pipe during wet season (May to June 2004). No tadpoles were recorded during the survey. In view of the generally poor vegetation cover and the dryness of the upland areas, it is believed that the Project Site, as well as the areas in the vicinity, do not provide optimal habitats for Romer's Tree Frog. In order to protect the Romer's Tree Frog, mitigation measures focus on translocating the Romer's Tree Frog, if any, before commencement of the construction within the Project Site was required under the requirement of Conditions 2.2 to 2.4 of the Environmental Permit No. EP-201/2004.

This *Ecological Baseline Monitoring Report* is submitted under the requirement of the Condition 3.2 of the Environmental Permit (EP-201/2004) to provide details on the time of conducting the surveys and translocations, methodology and results of the surveys, methodology of collecting the RTFs (including adults, tadpoles and eggs), if found, within the Project site during the surveys, procedures of transportation of the RTFs (including adults, tadpoles and eggs), if found, from the Project site to the receptor site i.e. stream pools of the middle of Stream S4 near Lo Tik Wan, recommendation(s) on any follow-up actions required for protection of the identified and translocated RTFs, and photos and location plans to illustrate the results of the surveys and translocations, as well as the qualification and experience of the qualified persons who were responsible for the survey and translocation works, as described in Conditions 2.2 to 2.4 and 3.2 of the Environmental Permit.

1.3

STRUCTURE OF THE REPORT

The report has been organised into the following Sections:

- *Section 2 – Survey & Translocation Specialists - Qualifications*
- *Section 3 – The Time of Conducting the Surveys and Translocations*
- *Section 4 – Methodology and Results of the Surveys*
- *Section 5 – Methodology of Collecting the RTFs (including Adults, Tadpoles and Eggs), if found, within the Project Site During the Surveys*
- *Section 6 – Procedures of Transportation of the RTFs (including Adults, Tadpoles and Eggs), if found, From the Project Site to the Receptor Site*
- *Section 7 – Follow-Up Action*

Two qualified ecologists with expertise in terrestrial and aquatic ecology, and amphibian identification have been selected to undertake the survey and translocation works. Both of them are thoroughly proficient in local ecology, field survey, wildlife capture and translocation with more than five years of relevant experiences. They have recently completed the translocation of amphibian species of conservation interest, including Romer's Tree Frog, Lesser Spiny Frog and Hong Kong Newt for the *Tung Chung Road Improvement Project*. *Curriculum vitae* of the two specialists are provided in *Annex A*.

Ecology Specialist and Survey & Translocation Team Leader: Terence Fong is a Senior Consultant with ERM's Water & Ecology Group specialised in the evaluation of vegetation, wildlife and ecological values of different habitats. Mr Fong has supervised and undertaken the wetland recreation, coral translocation, rare/protected plant species transplantation, amphibian (including Romer's Tree Frog, Hong Kong Newt and Lesser Spiny Frog) and rice fish translocation works. He has conducted extensive surveys on different habitats and the associated vegetation and wildlife for *Study in Terrestrial Habitat Mapping and Ranking Based on Conservation Value, SUSDEV21 Environmental Baseline Survey on Terrestrial Habitat Mapping and Ranking based on Conservation Value, Ecological Surveys at Tai O and Ngong Ping, EIA for Reclamation of Sai Wan Typhoon Shelter and Associated Engineering Works at Cheung Chau* and fishponds study in San Tin. He supervised tree surveys in the region of North-west New Territories for *Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 1 Sewers, Rising Mains and Ancillary Pumping Stations: EIA and TIA*. He has been involved in the specific baseline monitoring programme for the locally rare White-bellied Sea Eagles at Pa Tau Kwu, as recommended in EM&A Manual of the Theme Park EIA Study. Mr Fong is currently the Deputy Project Manager and prepared the revised Habitat Creation and Management Plan for the KCRC's Detailed Design for Wetland Re-creation. As the Ecology Specialist and Translocation Team Leader for the *Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha*, Mr Fong has recently completed the translocation of amphibian and fish species of conservation interest.

Herpetofauna Specialist: Dr Michael Lau is the Programme Coordinator of the Kadoorie Farm and Botanic Garden's China Programme with specialist knowledge in the design and execution of ecological surveys and conservation projects. Dr Lau has studied Romer's Tree Frog since 1991 and rescued over 200 individuals of the species from the Chek Lap Kok before construction of the new Hong Kong airport. He has undertaken ecological and herpetofaunal surveys focusing on fish ponds, agricultural fields, abandoned paddy fields, streams, forests, and shrublands in Hong Kong and in South China. He was previously involved in the Biodiversity Survey undertaken by the University of Hong Kong for which he carried out and coordinated a territory-wide survey of vertebrate species. He has published a number of articles on Hong Kong herpetofauna and co-authored Hong Kong

Amphibians and Reptiles. Dr Lau was Reserve Manager at the Mai Po Marshes Wildlife Education Centre and Nature Reserve responsible for the supervision of various projects including the establishment of the Mai Po Captive Wildfowl Collection and the execution of several habitat engineering works. As the Herpetofauna Specialist for the *Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha*, Dr Lau has recently completed the translocation of amphibian and fish species of conservation interest.

HEC has planned to commence the site clearance in February 2005. Permission for the collection of the protected fauna (Romer's Tree Frog) for the Project was obtained from the Director of Agriculture, Fisheries and Conservation on 31 December 2004 (permit attached in *Annex B*). The one day-time and one night-time surveys for the Romer's Tree Frogs (RTFs) within the Project Site were undertaken by the Survey & Translocation Team on 4th January 2005. As there was no RTFs found within the Project Site, no translocation work was undertaken. The results are presented in *Section 4*.

4.1 METHODOLOGY OF SURVEYS

In this study, survey and collecting techniques were used in a complementary manner. The day-time and night-time Romer's Tree Frogs surveys were undertaken on 4th January 2005. The existing conditions of the Project Site and the Receptor Site (middle course stream pools of Stream S4 near Lo Tik Wan) for the release of the captured individuals of the Romer's Tree Frog were also investigated during the surveys. The location plan of the Project and Receptor Sites is presented in *Figure 4.1*.

Romer's Tree Frog breeds in shallow water (ie stream pools and shallow water areas inside woodland/tall shrub) during the wet season (March to September), and usually lives on the ground or among fallen leaves within woodlands outside the breeding season. Adult males could be successfully located by listening for the calls during breeding season and tracing the individuals from the call, however, Romer's Tree Frog do not call outside the breeding season. Since January is not the breeding season of Romer's Tree Frog, surveys for the Romer's Tree Frog were undertaken only by active searching of the whole Project site. Some grasses restricting the access and searching were cut down to less than 10cm in height (if necessary) in order to facilitate the survey of Romer's Tree Frog. The EIA Report indicated that all of the three individuals of Romer's Tree Frog were found near a rain-filled plastic container and a discarded PVC U-shaped water pipe during wet season, any containers were therefore checked and surveyed carefully within the Project Site.

4.2 RESULTS OF THE SURVEY

Similar to the conditions stated in the EIA Report, the Project Site was mainly covered by shrubby grassland, and dominated by grasses and small shrubs, with a few small trees located at the fringe of the Project Site next to the 275kV Cable Route. However, the Project Site was found to be very dry and no water-filled containers were recorded during the surveys. The dryness of the site was indicated in the photographic records as shown in *Figure 4.2*. The day and night-time surveys confirmed that no Romer's Tree Frog (including adults, tadpoles and eggs) was found within or in the vicinity of the Project Site. The results were consistent with the finding of the EIA Report which indicated the Project Site, as well as the areas in the vicinity, do not provide optimal habitats for Romer's Tree Frog in view of the generally poor vegetation cover and the dryness of the upland areas.

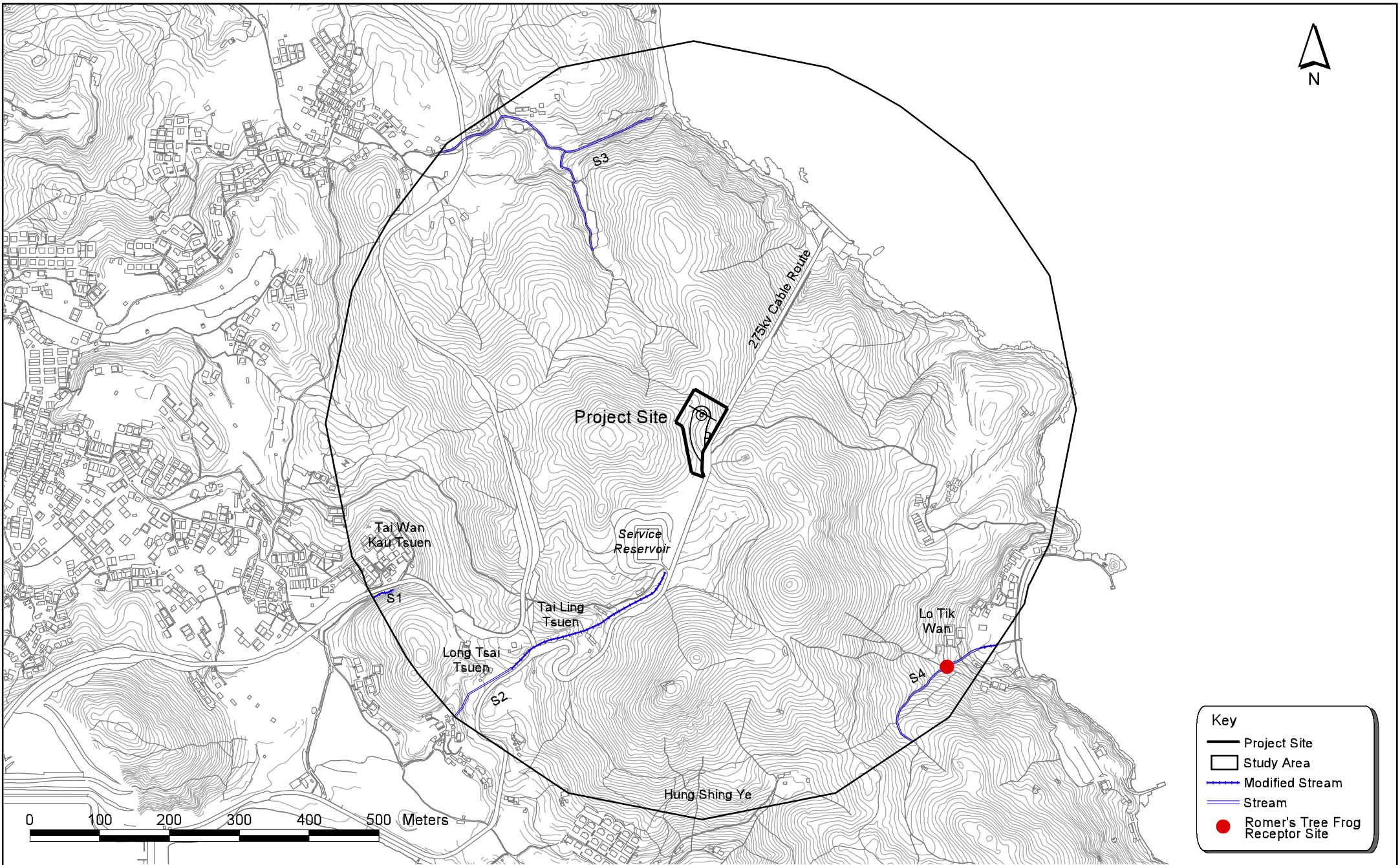


FIGURE 4.1

Location of Project Site and Receptor Site for the release of Captured Individuals of Romer's Tree Frogs

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Project Site - Overview of the Project Site and areas in the vicinity



Project Site - Most of the Project Site was densely covered by grasses and low shrubs.



Project Site - The groundcover was dry with soil surface exposed.



Project Site - Bare land was found within the Project Site and the habitats were dry and exposed.



Receptor Site - Existing condition of the middle course of stream S4 near Lo Tik Wan.



Receptor Site - No flowing water was found in the stream but the sand bottom was found to be moist.



Receptor Site - The riparian vegetation remained healthy during the survey.

Figure 4.2

Photographic Records of the Project Site and the Receptor Site (Middle Course of Stream S4 near Lo Tik Wan)
(Photographs taken on 4th January 2005)

METHODOLOGY OF COLLECTING THE RTFS (INCLUDING ADULTS, TADPOLES AND EGGS), IF FOUND, WITHIN THE PROJECT SITE DURING THE SURVEYS

All individuals of Romer's Tree Frog (including adults, tadpoles and eggs) seen during the survey, if found, are required to be captured using hands and hand net, and then put into acrylic terraria (60x40x40 cm) with lids lined with plastic mosquito netting for temporary storage. Captured adults, tadpoles and eggs shall be stored separately. A few wet, dead leaves shall also be added to provide shelter and increased the humidity. When putting the species into containers for transport, animals shall have suitable space (no 'stacking' should occur). For translocations, any frogs/tadpoles/eggs captured shall be moved to the receptor site (middle course stream pools of Stream S4 near Lo Tik Wan) on the same day or night of capture and released as soon as possible. Care shall be taken during the whole handling process in order to ensure no harm to the captured individuals. As there was no RTFs found within the Project Site during the surveys, no translocation work was undertaken.

PROCEDURES OF TRANSPORTATION OF THE RTFS (INCLUDING ADULTS, TADPOLES AND EGGS), IF FOUND, FROM THE PROJECT SITE TO THE RECEPTOR SITE

All captured individuals of Romer's Tree Frog (including adults, tadpoles and eggs) shall be stored temporary in acrylic terraria as specified in *Section 5*. Any Romer's Tree Frog (including adults, tadpoles and eggs) captured from the Project Site shall be moved to the receptor site (middle course stream pools of Stream S4 near Lo Tik Wan) on the same day or night of capture and released as soon as possible. As there was no RTFs found within the Project Site during the surveys, no translocation work was undertaken.

***RECOMMENDATION(S) ON ANY FOLLOW-UP ACTIONS REQUIRED
FOR PROTECTION OF THE IDENTIFIED AND TRANSLOCATED RTFS***

As there was no Romer's Tree Frog found within the Project Site during the surveys and no translocation work undertaken, follow-up actions required for protection of the identified and translocated RTFs are not necessary for the Project.

Annex A

Curriculum Vitae

Terence Fong

Ecology Specialist

Mr Fong is an Ecologist with ERM with over 10 years extensive experience in ecology, particularly in assessment and management of biodiversity. He is specialised in the evaluation of vegetation, wildlife and ecological values of different habitats. He is familiar with Hong Kong's ecology and has undertaken numerous ecological studies in natural and urbanized areas. Mr Fong has participated in the ecological assessment for numerous development projects including *Route 10 EIAs, EIA for Shatin Central Link, Northshore Lantau Development Feasibility Study, Construction of an International Theme Park at Penny's Bay EIA, Planning and Development Study on North East New Territories Study, Yuen Long and Kam Tin Sewage Disposal EIA and TIA Studies and EIA for Wind Turbine on Lamma Island*. Mr Fong is also experienced in ecology/ habitat enhancement and providing ecological advice on infrastructure studies including *Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha, Infrastructure for Penny's Bay Development: Contract 1 & 2 and West Rail*.

Mr Fong has supervised and undertaken the wetland recreation, coral tranlocation, rare/protected plant species translocation, amphibian (including Romer's Tree Frog, Hong Kong Newt and Lesser Spiny Frog) and rice fish translocation works. He has conducted extensive surveys on different habitats and the associated vegetation and wildlife for *Study in Terrestrial Habitat Mapping and Ranking Based on Conservation Value, SUSDEV21 Environmental Baseline Survey on Terrestrial Habitat Mapping and Ranking based on Conservation Value, Ecological Surveys at Tai O and Ngong Ping, EIA for Reclamation of Sai Wan Typhoon Shelter and Associated Engineering Works at Cheung Chau* and fishponds study in San Tin. He was supervised tree surveys in the region of North-west New Territories for *Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 1 Sewers, Rising Mains and Ancillary Pumping Stations: EIA and TIA*. He has been involved in the specific baseline monitoring programme for the locally rare White-bellied Sea Eagles at Pa Tau Kwu, as recommended in EM&A Manual of the Theme Park EIA Study. Mr Fong is currently the Deputy Project Manager and prepared the revised Habitat Creation and Management Plan for the KCRC's Detailed Design for Wetland Re-creation.

Mr Fong has conducted a number of biodiversity and conservation studies in different countries including Bermuda, Australia, Vietnam, Taiwan and China. As Mr Fong is specialized in wetland ecology and EIA, he has been invited to give lectures for undergraduates in the University of Hong Kong and Chinese University of Hong Kong since 1998, and also invited by East Asian Seas Regional Coordinating Unit, UNEP (United Nations Environment Programme) to attend "*The International Symposium on Protection and Management of Coastal Marine Ecosystems*" and gave a presentation.

Mr Fong has recently been appointed by State Environmental Protection Administration (SEPA), PRC as a member of the Expert Team for the UNEP/GEF project "*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*". There are seven countries participated in the project which involve six component, mangrove, seagrass, coral, wetland, overfishing and land-based pollution.

Fields of Competence

- Environmental Impact Assessment/Planning
- Wetland Ecology Management
- Natural Resources and Conservation

Education

- MPhil Wetland Ecology (1998), The University of Hong Kong
- Certificate of Tropical Marine Invertebrate (1995) Bermuda Biological Station for Research, Bermuda
- BSc (Honours) of Environmental Science (1993), University of Hong Kong

Professional Affiliations & Registrations

- China-Hong Kong co-ordinator and trainer of Global Reef Check survey
- Councillor of the Marine Conservation Society, Hong Kong
- Co-opt Council Member of the Marine Biological Association of Hong Kong
- Academic Member of the Hong Kong Mariculture Association

Languages

- English
- Chinese/ Mandarin

Key Projects

Mr Fong has involved a number of habitat compensation/recreation studies and was responsible for the ecological impact assessment and surveys for a number of infrastructure development projects in Hong Kong.

Rehabilitation & Compensatory Ecological Studies

- Detailed Design for Wetland Re-creation, for KCRC, 2000-2004.
- Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha: Vegetation Transplantation, for China Civil, 2004-ongoing.
- Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha: Translocation of Romer's Tree Frog, for China Civil, 2004-ongoing.
- Improvement to Tung Chung Road between Lung Tseng Tau and Cheung Sha: Translocation of Amphibian and Fish Species, for China Civil, 2004-ongoing.
- Infrastructure for Penny's Bay Development - Contract 1: Vegetation Transplantation, for China State, 2002 - 2005.
- Infrastructure for Penny's Bay Development - Contract 2: Translocation and Monitoring of the Rice Fish, for China State, 2002 - 2005.
- Coral Translocation Work and Monitoring for Cable Landing Station at Chung Hom Kok, GB21, 2001-2002.
- Ecological study on the conservation and community restoration of seagrass, AFCD, 1994-1996.
- Rehabilitation of seagrass at Tung Chung, North Lantau, AFCD, 1993-1994.
- Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand, UNEP/GEF, 2002-2003
- Formulation of a Strategic Management Plan for Guangxi Hepu State Dugong Natural Reserve, Guangxi Government, 2001
- Marine Biodiversity Conservation at Con Dao National Park, Vietnam, 1998-1999

Environmental Assessments

- EIA Study for North East New Territory Study, for PlanD, 1997-2003.
- Environmental Study for Drainage Improvement in Northern New Territories - Package B, for DSD via Mott, 2002-ongoing
- EIA for Shatin Central Link, for KCRC, 2003-ongoing.
- EIA Study for Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 1 Sewers, Rising Mains and Ancillary Pumping Stations, for DSD,

- 1999 - 2002.
- EIA Study for Drainage Improvement in Tsuen Wan and Kwai Chung -Tsuen Wan Drainage Tunnel - Investigation, for DSD via Mott, 2002-ongoing
- Terrestrial Ecological Study for Route 10 - North Lantau to Yuen Long Highway Investigation and Preliminary Design (Eastern Mainline Alternative Alignment, Northern Section and So Kwun Wat Interchange Additional Work) (HyD), 1998 - 2002.
- Feasibility Study of Animal Carcass Treatment Facilities, for EPD, 2001-ongoing.
- EIA for the Renewable Energy by A Wind Turbine System on Lamma Island, for HEC, 2004-ongoing.
- Environmental Consultancy for Shenzhen Line 4 (Phase 2), for MTRC, 2004-ongoing.
- EIA Study for Proposed Gas Pipelines from Shenzhen to Tai Po, for Hong Kong Towngas, 2002-2003.
- EIA Study for Northshore Lantau Development Feasibility Study, for CED, 1999 - 2000.
- EIA Study for Construction of an International Theme Park in Penny's Bay of North Lantau, for CED, 1999 - 2000.
- Terrestrial and Marine Ecology and Cultural Heritage Impact Assessment Works for EIA of 132kV Supply Circuit from Pui O via Chi Ma Wan Peninsula via Sea Crossing Towards Cheung Chau, for CLP, 2000-2002.
- Environmental Monitoring and Audit for Contaminated Mud Pit IV at East of Sha Chau, for CED, 1997-2002.

Ecological Surveys & Monitoring

- Study in Terrestrial Habitat Mapping and Ranking Based on Conservation Value (SDU), 2002-2003.
- Study on Sustainable Development for the 21 Century (PlanD), 1999-2000.
- Ecological Surveys at Tai O and Ngong Ping (EPD), 2001 - 2002.
- White-bellied Sea Eagle Baseline Monitoring Study, for CED, 2000.
- Proposed Residential Development in San Tin: Ecological Review, for a Confidential Client, 1999 - 2000.
- Dive Survey and Coral Monitoring Plan for the Proposed 132kV Cable Circuit from A Kung Wan to Sai Kung Pier, for CLP Power, 2001
- Coral mapping for the Proposed 11kV Cable Circuits from Pak Lap to Fu Tau Fan Chau. For CLP Power, 2002.
- Seabed Survey Work and Associated Environmental Services for the Proposed 11kV Cable Circuits from Tai Mong Tsai to Kiu Tsui. For CLP Power, 1999 - 2002.

Dr Michael Lau

Herpetofauna Specialist

Dr Lau is the Programme Coordinator of the Kadoorie Farm and Botanic Garden's China Programme with specialist knowledge in the design and execution of ecological surveys and conservation projects. Dr Lau has studied Romer's Tree Frog since 1991 and rescued over 200 individuals of the species from the Chek Lap Kok before construction of the new Hong Kong airport. He has over 15 years of post qualification ecological experience and undertaken ecological and herpetofaunal surveys focusing on fish ponds, agricultural fields, abandoned paddy fields, streams, forests, and shrublands in Hong Kong and in South China. He was previously involved in the Biodiversity Survey undertaken by the University of Hong Kong for which he carried out and coordinated a territory-wide survey of vertebrate species. He has published a number of articles on Hong Kong herpetofauna and co-authored Hong Kong Amphibians and Reptiles. Dr Lau was Reserve Manager at the Mai Po Marshes Wildlife Education Centre and Nature Reserve responsible for the supervision of various projects including the establishment of the Mai Po Captive Wildfowl Collection and the execution of several habitat engineering works. He has participated in a number of international conferences and has presented papers at the Second World Congress of Herpetology in Australia, the IUCN Chinese Reptile and Amphibian Specialist Group and the Third Symposium on the Conservation and Sustainable Use of Biodiversity in Kunming.

Education

- PhD, Habitat use of Hong Kong amphibians with special emphasis on the Ecology and Conservation of *Philautus romeri*, University of Hong Kong
- BSc (Hons) Zoology and Botany, Australian National University, Canberra, Australia

Professional Affiliations & Registrations

- Member of the World Wide Fund for Nature (Hong Kong) Mai Po Management and Development Committee.
- Member of the World Wide Fund for Nature (Hong Kong) Conservation Projects Committee
- Member of the IUCN Tortoise and Freshwater Turtle Specialist Group.
- Member of the Hong Kong SAR Government Country and Marine Parks Board.

Languages

- English
- Chinese

Key Projects

Kadoorie Farm and Botanic Garden, 1998-Present.

Employed as an ecologist in the South China Biodiversity Conservation Programme from 1998 to 2003. Responsible for carrying out and co-ordinating the survey of amphibians and reptiles in Guangdong, Guangxi and Hainan provinces. He is now the Programme Coordinator of the China Programme and is responsible for developing the strategy.

Detailed Design for Wetland Re-creation, Kowloon and Canton Railway Corporation (KCRC), 2000-2001.

Dr Lau was the Target Fauna Specialist of this study. The overall objective of this four-year Study is to compensate for the loss of ecologically-rich wetland habitat in the Kam Tin Valley through a habitat creation programme based on the guiding principles established in the HCMP. As the ecology of the Kam Tin Valley has been disrupted through the West Rail project, the guiding principles should facilitate the early establishment of ecological resources on commissioning of the re-created wetland habitat. With this overall objective in mind, broad principles will be applied for the expeditious wetland design and creation process.

University of Hong Kong, 1991-1998. PhD thesis on the Romer's Tree Frog, 'Habitat Use by Hong Kong Amphibians with Special Reference to the Ecology and Conservation of *Philautus romeri*' in the Department of Ecology & Biodiversity, University of Hong Kong with funding from the Royal Hong Kong Jockey Club.

The University of Hong Kong, 1996-1997. Involved in the Biodiversity Survey project which covered all the terrestrial and fresh water habitats in Hong Kong. Mr Lau was responsible for carrying out and coordinating the territory-wide survey of vertebrate species. He also assisted in the survey for invertebrates.

Biodiversity Working Group, China Council for the International Cooperation on the Environment and Development, 1993-1995. Mr Lau was employed as the project co-ordinator of the 'Studies of Wildlife Trade in Southern China including Hong Kong and Macau'.

World Wide Fund for Nature Hong Kong, 1987-1991.

Dr Lau was initially a field guide at the Mai Po Marshes Wildlife Education Centre and Nature Reserve and was later promoted to reserve manager. During his time working for WWF, Mr Lau collected plant and animal specimens and assisted in the developing of educational programmes. As reserve

manager he was responsible for the supervision of various projects including the construction of the Sir Peter Scott Field Studies Centre, the establishment of the Mai Po Captive Wildfowl Collection, the building of the Tower Hide, and the execution of several habitat engineering works. He was also responsible for the development of wetlands management training course for reserve staff from China and Southeast Asia.

Division of Water & Land Resources, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Canberra, Australia, 1985-1986.

Employed part-time in the division as technical assistant, responsible for sorting arthropods collected in an ecological field experiment into various taxonomic groups.

Conservation Agency, Rhode Island, USA, 1987.

Employed full-time as collector/co-ordinator in a two-month herpetological expedition carried out in Hong Kong and Guangdong, China. Responsible for organising collecting trips and collecting voucher specimen for Museum of Comparative Zoology, USA.

Division of Wildlife & Rangelands Research, CSIRO, Canberra, Australia, 1986-1987.

Employed part-time in the division as technical assistant, responsible for sorting arthropods. In December 1986, employed full-time, responsible for collecting vegetation and soil data in the field, sorting arthropods, and data entry.

Publications

- 1986 'Hong Kong Amphibians and Reptiles' Booklet
- As a co-author of 'Hong Kong Amphibians and Reptiles' which was published by Urban Council.
- 1993 'Notes on the feeding of *Enhydris bennetti* (Gray) (Reptilia, Squamata, Colubridae) in Hong Kong'
- As the principal author of the short note which was published in the Memoirs of Hong Kong Natural History Society.
- 1995 'Taxonomic status of the Hong Kong populations of the *Hemidactylus garnotii vietnamensis* complex (Gekkonidae: Reptilia)'
- As a co-author of this paper which was published in Zoological Studies.
- 1995 'Taxonomic review of the geckos allied to *Gekko chinensis* Gray 1842 (Gekkonidae, Reptilia) from China and Vietnam'
- As a co-author of this paper which was published in Tropical Zoology.
- 1995 'Cytoaxonomic studies of three ranid species (Amphibia: Anura) from Hong Kong'
- As a co-author of this paper which was published in Japanese Journal of Herpetology.

- 1996 'Notes on the herpetofauna on Neilingding Island in the Pearl River Estuary, China'
- As the author of this short article which was published in the Memoirs of Hong Kong Natural History Society.
- 1996 'Geographical variation in corroboree Frogs, *Pseudophryne corroboree* Moore (Anura: Myobatrachidae): A reappraisal supports recognition of *P. pengilleyi* Wells & Wellington'
- As a co-author of this paper which was published in the Australian Journal of Zoology.
- 1996 'Wildlife Trade in Southern China including Hong Kong and Macao'
- As the principal author of this report to Biodiversity Working Group of the China Council for International Cooperation on Environment and Development Project.
- 1996 'Amphibians in Hong Kong'
- As the author of this article which was published in Zoo's Print.
- 1997 'A brief herpetological excursion to Wai Ning Ding, Wanshan Islands, South China Sea'
- As a co-author of this short article which was published in the Asiatic Herpetological Research.
- 1997 'Chromosome polymorphism and karyotype of *Gekko chinensis* (Gekkonidae: Reptilia) from Hong Kong.
- As the first author of this paper which was published in the Journal of Herpetology.
- 1997 'A revised checklist of Hong Kong amphibians and reptiles'
- As a co-author of this checklist which was published in the Memoirs of Hong Kong Natural History Society.
- 1997 'Comments on the taxonomic status of the montane *Pareas* from Hong Kong (Squamata: Colubridae)'
- As a co-author of this paper which was published in the Journal of Taiwan Museum.
- 1998 'Karyotype of the Chinese Four-lined Skink *Eumeces quadrilineatus* (Reptilia: Scincidae), from Hong Kong'
- As a co-author this paper which was published in the Raffles Bulletin of Zoology.
- 1998 'Hong Kong Amphibians and Reptiles' Second Edition
- As a co-author of this expanded and up-dated edition of this field guide which was published by the Provisional Urban Council.
- 1999 'Composition and distribution of Hong Kong Amphibian fauna'
- As the principal author of this paper which was published in the Memoirs of Hong Kong Natural History Society.
- 2000 'Conservation and trade of terrestrial and freshwater turtles and tortoises in the People's Republic of China'
- As the principal author of this paper which was published in Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia.
- 2000 'Trade and conservation of turtles and tortoises in the Hong Kong Special Administrative Region, People's Republic of China'
- As the principal author of this paper which was published in Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia.
- 2000 'Turtle trade in northeast Asia: regional summary (China, Hong Kong and Taiwan)'
- As a co-author of this paper which was published in Asian Turtle Trade: Proceedings of a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia.
- 2001 'A new record of the Vietnamese Five-lined skink, *Eumeces tamdaoensis* (Reptilia: Scincidae), from Hong Kong, China, with special reference to its sexual dimorphism'
- As a co-author of this paper which was published in the Natural History Journal of Chulalongkorn University.
- 2004 'Wild Animal Trade Monitoring at Selected Markets in Guangzhou and Shenzhen, South China, 2000-2003'
- As a co-author of this report which was published by the Kadoorie Farm & Botanic Garden.

Annex B

Permission for the
Translocation of Romer's
Tree Frog

漁農自然護理署署長

九龍長沙灣道三〇三號
長沙灣政府合署五樓



**DIRECTOR OF AGRICULTURE,
FISHERIES AND CONSERVATION**

Cheung Sha Wan Government Offices
5th floor, 303 Cheung Sha Wan Road
Kowloon, Hong Kong

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來函檔號 Your Ref. :
電 話 Tel. No. : 2150 6600
電郵地址 E-mail Address : mailbox@afcd.gov.hk
圖文傳真 Faxline No. : (852) 2311 3731
For Enquiry : 2150 6922

31 December 2004

**Translocation of Romer's Tree Frog for the Project
"Renewable Energy by a Wind Turbine System on Lamma Island"**

Permission is given to:

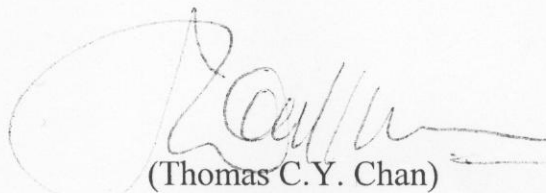
Michael Wai Neng LAU, Terence FONG and Regine LEUNG and their accredited assistants on behalf of the Environmental Resources Management (ERM) Hong Kong Ltd. for the project "Renewable Energy by a Wind Turbine System on Lamma Island" to collect and possess Romer's Tree Frog (*Philautus romeri*) by hand or hand nets, subject to attached conditions of this permit.

"Accredited assistant" is defined as the staff or contractors of the ERM Hong Kong Ltd. for the project "Renewable Energy by a Wind Turbine System on Lamma Island" to assist in the collection and translocation of Romer's Tree Frog.

The permission is given in accordance with:

Section 15
The Wild Animals Protection Ordinance Cap. 170

This Special Permit expires on **1 February 2005**.



(Thomas C.Y. Chan)

Director of Agriculture, Fisheries and Conservation

Miss Regine Leung,
Environmental Resources Management,
21/F., Lincoln House,
979 King's Road,
Taikoo Place, Island East,
Hong Kong.

**Conditions of Permission for the
Translocation of Romer's Tree Frog for the Project
"Renewable Energy by a Wind Turbine System on Lamma Island"**

1. This permission is given to Michael Wai Neng LAU, Terence FONG and Regine LEUNG and their accredited assistants on behalf of Environmental Resources Management-Hong Kong, Ltd. to collect and possess Romer's Tree Frogs (*Philautus romeri*) for the project "Renewable Energy by a Wind Turbine System on Lamma Island".
2. This permission should be limited to the collection and possession of Romer's Tree Frogs in the project area as specified in figure 2 of the Environmental Permit No. EP-201/2004.
3. The permit holders should carry out the collection and translocation of Romer's Tree Frogs in accordance with Condition 2.2 of Environmental Permit No. EP-201/2004.
4. The permit holder should handle Romer's Tree Frogs in a way to avoid suffering of the animals.
5. The permit holder should produce this Special Permit for inspection by any officer of this Department or police officer on demand.
6. The permit holder has to send one copy of each of the publications produced as a result of this project to this department for record.
7. This Special Permit expires on 1 February 2005 and the Director of Agriculture, Fisheries and Conservation reserves the right to recall or cancel this permission at any time.

- end -