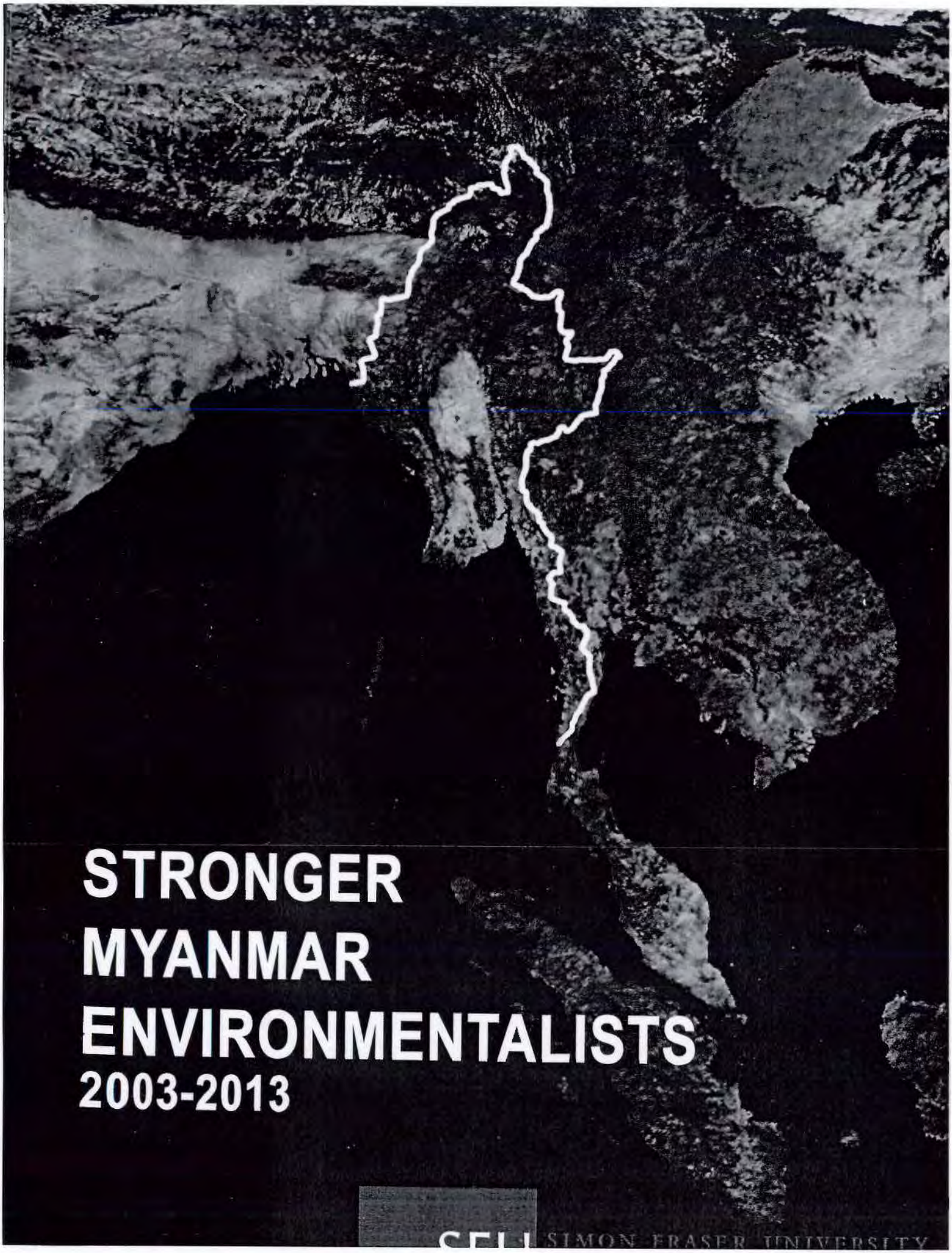

STRONGER MYANMAR ENVIRONMENTALISTS
2003-2013

SFU SIMON FRASER UNIVERSITY

INTRODUCTION and SUMMARY

This report is the history of a program of nominations in Myanmar and visits to meetings of the China Council for International Cooperation on Environment & Development. The purpose was to enhance the international experience and open high-level contacts for younger environmentalists. Now calling themselves the "China Council Fellows", small teams of university, ministry and NGO professionals had the chance for a few days in China of direct exposure to environmental research and policy advocacy and decision-making.

Their experience in China, then the relationships which emerged from it, formed a kind of network. That is how we started our important and informed conversations about environmental issues in Myanmar. This network enabled us to transcend the usual boundaries among professionals and disciplines and institutions. We are creating *a group of versatile individuals who can work independently, and at the same time add to the capabilities of an effective network.* This network desires to focus on the application of development research to policy making.

The subject of the meetings in China varied widely, from 'the innovative use of coal in industry' to 'the ecology of wetlands and their protection by regulation'. It was not always possible to match individual qualifications of younger Myanmar participants with China Council subjects. But since it was the purpose of these visits to stretch the participants a bit, that stretching was always achieved, in every case. The assumption of this project has always been that no one discipline or specialty is sufficient to match the complexity of the environment. We all have to stretch, and become versatile.

Over the years we visited a number of important sites, one was a huge pig-raising factory, just outside Beijing, to see how waste gas is used to produce electricity – we also went to meet with the pollution control bureau in the huge industrial city of Tianjin; our team went to study the famous wetlands of Guizhou province and also bamboo forests near Kunming. For the first time young environmentalists were checking out environmental hot-spots together, industrial and rural, outside their own country, and comparing reactions together. This is one objective of the project.

Note: when nominated to participate in the China Council for Environment and Development meetings, nominees were expected at that time to be between 30 and 40 years of age, should have completed an MSc, were expected to have an on-going commitment to professional engagement in environmental affairs in Myanmar, and should have some personal accomplishment in a specific field related broadly to the environment. All the individuals named in the list below have been participants in the meetings of the China Council. This is followed by the names of individuals who were kind enough to act as senior advisors to the project beginning in 2002.

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နိဒါန်း နှင့် အကျဉ်းချုပ်

ဤအစီရင်ခံစာသည် တရုတ်နိုင်ငံ သဘာဝပတ်ဝန်းကျင်နှင့် အပြည်ပြည်ဆိုင်ရာ ပူးပေါင်း ဆောင်ရွက်မှု ဦးစီးအဖွဲ့၏ ညီလာခံများသို့ တက်ရောက်ရန် ရွေးချယ်စေလွှတ်ခြင်းခံကြရသည့် မြန်မာနိုင်ငံသားများအတွက် အမည်စာရင်းပြုစုခြင်းနှင့် လေ့လာရေးသွားရောက်သည့် အစီအစဉ်တစ်ခု ဖြစ်ပေါ်လာပုံသမိုင်းကြောင်းကို တင်ပြထားပါသည်။ ယင်းအစီအစဉ်၏ ရည်ရွယ်ချက်မှာ သဘာဝပတ်ဝန်းကျင် ချစ်မြတ်နိုးသူ လူငယ်လူရွယ်များအတွင်း နိုင်ငံတကာအတွေ့အကြုံများနှင့် အဆက်အသွယ်ကောင်းများ ရရှိလာစေရန် ဖြစ်ပါသည်။ ယခုအခါ တက္ကသိုလ်များ၊ ဝန်ကြီးဌာနများနှင့် အစိုးရမဟုတ်သော အဖွဲ့အစည်းအသီးသီးမှ ပညာရှင် အစုအဖွဲ့ငယ်လေးများသည် တရုတ်နိုင်ငံ၌ ရက်အနည်းငယ်ကြာ သဘာဝပတ်ဝန်းကျင် သုတေသနလုပ်ငန်းများနှင့် မူဝါဒဆိုင်ရာ အကြံပြုဆွေးနွေးခြင်းများ၊ ဆုံးဖြတ်ချက်ချမှတ်ခြင်းများကို တိုက်ရိုက်ထိတွေ့လေ့လာခွင့်ရရှိခဲ့ကြပြီး မိမိတို့ကိုယ်မိမိ "China Council Fellows" (တရုတ်ပြည်လေ့လာရေးအဖွဲ့ဝင်များ) ဟု ခေါ်ဝေါ်လျက်ရှိကြပါသည်။

ၔင်းတို့၏ တရုတ်နိုင်ငံအတွေ့အကြုံများနှင့် ယင်းအတွေ့အကြုံများမှ ဖြစ်ပေါ်လာသော အဆက်အသွယ်များကို အခြေခံ၍ ကွန်ယက်တစ်ခုအဖြစ်ဖော်ဆောင်နိုင်ခဲ့ပါသည်။ ဤသို့ဖြင့် မြန်မာနိုင်ငံအတွင်းရှိ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ ကိစ္စအဝဝကို ဝိုင်းဝန်းဆွေးနွေးအဖြေရှာသည့် အရေးပါသော စကားဝိုင်းများ စတင် ဖွဲ့ဖြစ်လာခဲ့ကြပါသည်။ ဤကွန်ယက်အားဖြင့် ပညာရှင်များနှင့် ပညာရပ်ဝိုင်းဆိုင်ရာ နယ်နိမိတ်များအပြင် အဖွဲ့အစည်းများ၏ ထုံးတမ်းစဉ်လာ ကန့်သတ်ချက် ဘောင်များကိုပင် ကျော်လွန်၍ ခရီးတစ်ခု ပေါက်မြောက်သည်အထိ စွမ်းဆောင်နိုင်ခဲ့ကြပါသည်။ ကျွန်ုပ်တို့သည် မူဝါဒများ ချမှတ်နိုင်သည်အထိ ဦးတည်သော ဖွံ့ဖြိုးတိုးတက်မှု သုတေသနလုပ်ငန်းများကို တစိုက်မတ်မတ် အသုံးချနေမည့် စွမ်းရည်ပြည့်ဝ၍ ကာယဗဟု၊ လုံ့လ ဝီရိယအား ပါဝင်ပေါင်းစပ်ပေးနိုင်သော ဘက်စုံထောင့်စုံမှ အားကိုးထိုက်သည့် တစ်ဦးချင်း တစ်ယောက်ချင်း ပေါင်းစုစေကာ အကျိုးများစေမည့် ကွန်ယက် တစ်ခုကို တည်ထောင်ဖွဲ့စည်းလျက်ရှိပါသည်။

တရုတ်နိုင်ငံတွင် လေ့လာခဲ့ရသည့် အကြောင်းအရာများမှာ ကဏ္ဍစုံလင်ပေရာ စက်မှုလုပ်ငန်းများတွင် ကျောက်မီးသွေးအားဆန်းသစ်တီထွင်ပြီး မည်သို့သုံးစွဲနိုင်ပုံမှအစ ရေတိမ်ဒေသများ၏ဂေဟဗေဒနှင့် ၔင်းတို့အား အကာအကွယ်ပေးသည့်နည်းဥပဒေများ အဆုံးနယ်ပယ်ကျယ်ဝန်းစွာ ဘာသာရပ်များ များပြားလှပေသည်။

မြန်မာလူငယ် လေ့လာရေးအဖွဲ့ဝင်တို့၏ တစ်ဦးချင်း သင်ကြားတတ်မြောက်ထားသည့် ပညာအရည်အချင်းများနှင့် အမြဲတစေ ကိုက်ညီနေရန်မှာလည်း ဖြစ်နိုင်ခဲလှပါသည်။ သို့သော် လေ့လာရေးအဖွဲ့ဝင်တို့အား ပမာဏအနည်းငယ်ဖြစ်စေ အမြင်ပွင့်လာစေပြီး သုတနယ်ပယ်ကို ချဲ့ထွင်ပေးမည့် ရည်ရွယ်ရင်း ရှိခဲ့လျှင် အဖွဲ့ဝင်တိုင်း၌ပင် ထိုရည်ရွယ်ချက် အထမြောက်ကြောင်း အစဉ်တွေ့ရှိရပါသည်။ ဤစီမံကိန်း၏ ရှိရင်းစွဲ ခံယူချက်မှာလည်း မည်သည့်ပညာရပ်၊ မည်သည့်အထူးပြုလေ့လာချက်ကမှ သဘာဝပတ်ဝန်းကျင်၏ ရှုပ်ထွေးနက်နဲမှုကို ပြည့်စုံလုံလောက်စွာ ထပ်တူကျမည်မဟုတ်ကြောင်း ထာဝစဉ် လက်ခံထားပြီးဖြစ်ပါသည်။ ကျွန်ုပ်တို့အားလုံး အမြင်ကျယ်အောင် ချဲ့ထွင်ခြေဆန့်ရကြမည်ဖြစ်ပြီး နယ်စုံ ပယ်စုံတွင် ဝင်ဆန့် နားလည် တတ်ကျွမ်းအောင် စွမ်းဆောင်ကြရမည်သာ ဖြစ်ပေသည်။

ဤနှစ်များအတွင်း ကျွန်ုပ်တို့သွားရောက်လေ့လာခဲ့ကြသည့် အရေးကြီး နေရာမြောက်များစွာအနက် တစ်ခုမှာ ပီကင်းမြို့အတွက်ရှိ ဇရောမဝက်မွေးမြူရေးစခန်းကြီးဖြစ်ပြီး စွန့်ပစ်ဓာတ်ငွေ့များမှ လျှပ်စစ်ထုတ်ယူပုံ၊ ထိုပြင် တီယန်းဂျင်းစက်မှုမြို့တော်ကြီးမှ ပတ်ဝန်းကျင်ညစ်ညမ်းမှုထိန်းသိမ်းရေးဌာနနှင့်တွေ့ဆုံပွဲ၊ ကူမင်းမြို့အနီးရှိ နာမည်ကျော် ကွီဇူးနယ် ရေတိမ်ဒေသနှင့် ဝါးရုံမြေတို့ကိုလည်း သွားရောက်လေ့လာခဲ့ကြပါသည်။ ပထမအကြိမ်အဖြစ် သဘာဝပတ်ဝန်းကျင်ချစ်မြတ်နိုးသူ လူငယ်တစ်စုသည် မိမိနိုင်ငံပြင်ပရှိ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ အထင်ကရနေရာများ၊ စက်မှုလုပ်ငန်းများနှင့် ကျေးလက်ဒေသများကို အထူးအကွ စူးစမ်းလေ့လာခဲ့ကြသည့်အပြင် အချင်းချင်း အမြင်ချင်းဖလှယ်နိုင်ခဲ့ကြပါသည်။ ဤသည်ကား စီမံကိန်း၏ ရည်ရွယ်ချက် တစ်ရပ်ပင် ဖြစ်ပါ၏။

မှတ်သားရန်မှာ တရုတ်နိုင်ငံ သဘာဝပတ်ဝန်းကျင်နှင့် ဖွံ့ဖြိုးတိုးတက်မှုဆိုင်ရာ ဦးစီးအဖွဲ့၏ ဆွေးနွေးပွဲများသို့စေလွှတ်ရန် အမည်စာရင်းတင်သွင်းစဉ် ကာလကတည်းက သွားရောက်မည့်သူများကို သွားရောက်ချိန်၌ အသက် ၃၀ နှစ်မှ ၄၀ နှစ် အကြား၊ မဟာသိပ္ပံဘွဲ့တစ်ခုခုရရှိပြီးသူများထဲမှ ရွေးချယ်ပြီး မြန်မာနိုင်ငံ၏ သဘာဝပတ်ဝန်းကျင်ဆိုင်ရာ အဖြစ်အပျက်များတွင် ပညာရှင်ဆန်စွာ ပါဝင်ဆောင်ရွက်သွားရန် သံဓိဌာန် ချမှတ်ထားသူ၊ သဘာဝပတ်ဝန်းကျင်နှင့် ဆက်စပ်ပတ်သက်နေသည့် နယ်ပယ်တစ်ခုခုတွင် ပေါ်ကော်ပေါ်ကော်ရောက်ရောက်ရှိပြီးသူများဖြစ်နေရန်လည်း မျှော်မှန်းထားပါသည်။

ဖော်ပြပါ အမည်စာရင်းတွင်ပါဝင်သော လေ့လာရေးအဖွဲ့ဝင်များအားလုံးသည် တရုတ်နိုင်ငံ သဘာဝ ပတ်ဝန်းကျင်နှင့် ဖွံ့ဖြိုးရေးဆိုင်ရာဦးစီးအဖွဲ့၏ အစည်းအဝေးများသို့ တက်ရောက်ခဲ့ကြသူများဖြစ်ပါသည်။ သက္ကရာဇ် ၂၀၀၂ ခုနှစ်တွင် စတင်ခဲ့သော စီမံကိန်းအား အကြီးတန်း အကြံပေးပုဂ္ဂိုလ်များအဖြစ် မေတ္တာရှေ့ထား ဆောင်ရွက်ပေးခဲ့ကြသော လူကြီးမင်းအသီးသီးတို့၏ အမည်စာရင်းကိုလည်း ဆက်လက် ဖော်ပြထားပါသည်။ ဤစီမံကိန်းအား ၂၀၀၁ ခုနှစ်မှစ၍ သမိုင်းစဉ်အလိုက် ဘန်ကောက်မြို့ရှိ ရော့ခဖဲလား ဖောင်ဒေးရှင်း (Rockefeller Foundation)ရုံး၊ နယူးယောက်မြို့ရှိ ပွင့်လင်းလူအဖွဲ့အစည်းဌာနကြီး (Open Society Institute) နှင့် အမေရိကန်ပြည်ထောင်စု၊ ဗာဂျီးနီးယားဒေသ ရှားလော့ထ်ဗေးလ် အရပ်ရှိ အပြာရောင်လမင်း ရန်ပုံငွေအဖွဲ့ (Blue Moon Fund) တို့မှ ကူညီထောက်ပံ့ခဲ့ကြပါသည်။ ဤထောက်ပံ့ရက်ရောမှုတို့သာ မရှိခဲ့ပါက အလွန်တရာ နည်းပါးလှစွာသော စိုးစဉ်းမျှလောက်သာ ဆောင်ရွက်နိုင်ခဲ့မည်ဖြစ်ပါသည်။

၂၀၁၂ ခုနှစ်မှစ၍ ဤစီမံကိန်းအား အော်တာဝါမြို့ရှိ နိုင်ငံတကာ ဖွံ့ဖြိုးရေး သုတေသန ဗဟိုဌာန (International Development Research Centre, Ottawa) က ကူညီပါမည်။

၂၀၀၀ ခုနှစ်မှစ၍ ဤစီမံကိန်းအား ကူညီဆောင်ရွက်ပေးကြသည့် ရန်ကုန်မြို့ရှိ ကုလသမဂ္ဂဖွံ့ဖြိုးရေး အစီအစဉ် (UNDP) ရုံး အရာရှိ အရာထမ်းများအား ကျေးဇူးတင်စွာဖြင့် မှတ်တမ်းတင်အပ်ပါသည်။

ရောဘတ် အက်စ် အန်ဒါဆင်
ညွှန်ကြားရေးမှူး
ဖွံ့ဖြိုးရေး နှင့် ရေရှည်တည်တံ့ခိုင်မြဲရေး အစီအစဉ်
သဘာဝ ပတ်ဝန်းကျင် ဆိုင်ရာ မဟာဌာန
ဆိုင်မွန် ဖရေဇာ တက္ကသိုလ်

၂၀၁၃ ခုနှစ်၊ ဇန်နဝါရီလ

SFU SIMON FRASER UNIVERSITY
FACULTY OF ENVIRONMENT

NAMES OF INDIVIDUALS WHO ATTENDED MEETINGS OF THE CHINA COUNCIL FOR INTERNATION COOPERATION IN ENVIRONMENT AND DEVELOPMENT

SAW LWIN *(PhD Botany, University of Yangon)*

Managing Director of Myanmar Flora Company Ltd with a lab in Yangon where tissue culture research on orchids is conducted; has conducted numerous studies in forest ecology with specialization in orchid identification and conservation; was a Visiting Fellow at the Singapore Botanical Gardens in 2001.

MS. THAN THAN LWIN *(MSc Engineering & MBA Business, Korea)*

Deputy Director of Myanmar Fritz Werner Industries; was responsible for small engines and solar power projects in Ministry of Industry; has been team leader on technical missions abroad.

MS. KYU KYU THIN *(PhD candidate in forest ecology, University of Mandalay)*

Tissue culture expert on orchids, worked at Forest Research Institute, now doing doctoral dissertation research on teak forest ecology.

MYO AUNG *(M.Sc in rural development planning, AIT Bangkok)*

Worked on project in community forestry and rural reforestation on Myanmar-Bangladesh border 2005-2009, then in reconstruction projects in the Delta.

MS. SI SI HLA BU *(PhD in Ecological Parasitology, University Sains Malaysia)*

Pro-Rector of Yadanarbon University, Mandalay; previously Pro-Rector of Hinthada University, and faculty member of University of Yangon; has done extensive field research in various eco-systems, specialist on the ecological significance of bats and their habitats.

MS. THANDA KYI *(PhD Agronomy, Stuttgart, Germany)*

Director in the International Office of Ministry of Agriculture in Nay Pyi Taw, and formerly professor in Agricultural Economics at University of Agriculture, Yezin: she has extensive field experience studying crop cultures (e.g. sugar cane, rice, rubber) and household economies, particularly in the dry zone.

MS. NILAR THAN *(M.Sc Agronomy, Yezin)*

Deputy supervisor, Myanmar Sugarcane Enterprises, Mandalay. Conducted survey of rural conditions, investigates energy problems associated with private sector expansion in open forest and degenerated forest area, also studies waste disposal and pollution associated with alcohol distillation (related to sugar).

MS. SHWE SHWE SEIN LATT *(M.Sc Development Studies, Asian Institute of Technology Bangkok)*

Managing Director of Phat Tee Eain ("creative home") in Yangon; she was the first director of the Water Resources and Training Centre, Yangon (with head office in Netherlands), and then coordinator of the Capacity Building Initiative in Yangon from 2006 to 2011, helping environmental and rural development NGOs throughout Myanmar.

SAN WIN *(PhD forest ecology, Tsukuba University, Japan)*

Currently Vice Rector of University of Forestry, and in 2007-2011 was Director of the National Commission for Environmental Affairs and Joint Secretary of the Ministry of Forestry. While Director of the NCEA (until 2011) he organized national study committees to engage with UNEP issues (e.g. air quality), and to support the Myanmar delegation at the December 2009 Copenhagen Conference on Climate Change.

KYAW NYEIN AYE *(PhD bioprocess engineering, AIT Bangkok)*

Worked on chitosan (shrimp waste) and biofertilizers. Three days after returning from the China Council meetings in April 2008 the cyclone struck the delta in May 2008, so he formed a team of Myanmar experts using people in this network to make water-sample studies from sites around the delta. In 2012 Kyaw is involved in water and food R & D in both the private and voluntary sectors, while teaching in the Universities of Technology in Yangon and Mandalay.

AUNG MYO CHIT *(graduate student at James Cook University, Australia)*

Graduate student at James Cook University in Australia on an Australian Leadership Award. Has studied ecology of river dolphins and legally-protected areas on rivers, has been, since 2006, as an ecologist with Wildlife Conservation Society (an NGO in New York and Myanmar). In 2006 he was Humphrey Fellow at the University of California, and in 2012 became

MS. OHNMAR KHAING *(PhD agriculture and plant protection Kasaetsart University Bangkok, Humphrey Fellow Cornell University 2008)*

Coordinator of the Food Security Working Group, with field experience on the border areas and in the delta: she has conducted numerous field studies around ecology and food security. She is broadly interested in the land conflicts between agriculture and forestry, and was Humphrey Fellow at Cornell University, New York State in 2008.

MS. PAN KHET KHET *(PhD botany, University of Yangon)*

Has worked in technical botany with orchids, in the lab and in the field (where she identifies rare species). She is participated in workshops in Japan, Malaysia, and Thailand.

SAN OO *(PhD forestry, Goettingen)*

Officer in Environmental Conservation Department in the Ministry of Forests; previously faculty member of the University of Forestry, Yezin, specializing in silviculture and forest ecology. He is particularly interested in the greening of cities, maintaining as much tree cover as possible under urban conditions; e-address"sthandaroo@gmail"

PYI SONE NYEIN *(M.Sc computing science & development studies, Asian Institute of Technology, Bangkok)*

Trained in computing science and awarded a MSc in development economics at Yangon Institute of Economics; he has conducted numerous field studies of development and environment, and now works on organizational analysis and change for complex organizations, he is coordinator for the Capacity Building Initiative.

MS. NANG EI EI KHAING *(PhD architecture and city planning, University of Mandalay)*

Worked in the Ministry of Science & Technology in the renovation of its buildings and design of new ones. She is concerned with the layout and plan of medium sized cities (like Nay Pyi Taw) of which there are many in Myanmar.

Senior Advisors to the Project 2003-2013

MR. U OHN
Chairman, Forest Resource Environment Development & Conservation Association, Yangon

DR. SOE YIN
Elected member of Hluttaw (parliament), and former Rector, University of Yangon.

MS. YIN YIN LAY former Secretary of the National Commission for Environmental Affairs

MR. THAN NWAI Vice Chairman, Forest Development and Conservation Association

MR. SOE MYINT
Former Director-General, Energy Planning Department, and former Chair, Committee on Pollution Control, National Commission on Environmental Affairs (NCEA).

MR. TIN HTUT OO
Chairman of the National Economic and Social Advisory Council, and CEO of Myanmar Agritech Ltd; also former Director-General, Agriculture Planning Department and former Chair, Committee on Natural Resources Conservation of National Commission for Environmental Affairs.

DR. MYA MYA OO Rector, Yangon University of Technology, Yangon

DR. TIN TUN Rector, University of Yangon.

MR. SAW HTUN KHAING former Country Director, Wildlife Conservation Society

MR. TUN NAING former Programme Officer for Environment, UNDP Yangon

MR. THAN MYINT
Country Programme Coordinator, Wildlife Conservation Society, Yangon

MR. SOE NYUNT Chairman, Myanmar Bird & Nature Society, Yangon

Zoologist Si SI Hla Bu and ecologist Myo Aung discuss how to manage Caohai Lake in Guizhou Province with the wetland sanctuary guardians, in the company of China Council wetland advisor and zoologist Andrew Laurie in April 2004

***Engineer Than Than Lwin** (right) with China Council Energy Task co-chairs Ni Wei Dou (center), and Thomas Johansson (left rear), also Council expert Pat Delaquil (right rear) and Myanmar project director Robert Anderson (left). Ms Lwin was present in Guilin for discussion and drafting of the Council position paper on renewable and non-renewable energy sources.*

SAW LWIN

Saw Lwin, Managing Director, Myanmar Flora and Biotech Co., Ltd. (PhD Botany, University of Yangon); e-address "myanmarorchid@gmail"

"That trip taught me the importance of listening patiently to the advice of scientists and experts from the outside world"

Our trip to the China Council meetings in 2003 was impressive, thought provoking and eye-opening. We had a rare chance to be involved in a Task Force meeting on energy, and we could experience at first hand the preparation of the final report.

I observed exchange of knowledge and views on solar energy among the experts from China and other international bodies, Since Myanmar has so many sunny days, it has immense potential to develop solar energy industry. China could and should transfer some of their basic technology and application of solar and other clean energy technology to Myanmar. We must get ready for this.

In Myanmar, well-known and successful businessmen could be organized to support conservation and to build clean-energy sectors in Myanmar, relying on the renewable energy sector of China.

That trip to China year ago gave me food for thought, and showed me a pattern of development that in the long run Myanmar could adopt. This trip taught me the importance of listening patiently to the advice of scientists and experts from the outside world, wherever they come from. That advice which is such a benefit to the China Council would also be beneficial for us researchers and for our country.

We have to work at night too, when we return from the field. Here I am in 2010 engaging the kids and local adults on Mount Papa, encouraging them to identify varieties of orchid and locate them, noting their habitat carefully. This way they learn to protect them too. We cannot succeed without public support. (2010)

After my visit to China I started to build international relationships in my own special field of orchids and other floriculture, and I have continued ever since, not only in my field work but also building a tissue-culture lab in Yangon. I have presented many lectures and posters at Orchid and Flora Research Conferences and Symposiums including three World Orchid Conferences, Asia-Pacific Orchid Conferences and Symposiums. I have been able to travel widely in Myanmar, and was invited as guest scientist for flora survey in five Biological Expeditions in Northern Myanmar. Jointly sponsored and conducted by the Myanmar Forest Department and the US-based international NGO "Wildlife Conservation Society" from 1997 to 2005. I think *our orchid populations in Myanmar tell an important story* – if these rare, valuable, and delicate plants decline, then we know their habitat is under stress, even if we don't observe it directly. We know we've got to do something about that.

Without local experts our orchid survey work would be very slow. Here I am discussing orchids and their habitat with an elder leader in Putao who climbs regularly on the high mountain called Hponkan-razi.

In 2006, I was awarded the prestigious "Best Paper Award" for my paper "Ratten Survey in Hukaung Valley Tiger Reserve" at the Myanmar Arts and Science Academic Conference. I also served as Team Leader for two Orchid Survey Projects;" Orchid Status and Conservation in National Kandawgyi Garden," funded by Woodland Group of Companies and "Mt. Popa Orchid Survey," funded by Htoo Foundation between 2007 and 2011. I wrote and prepared two booklets for Myanmar Native Orchids for Botany Department, University of Yangon in 2007 and 2008. Starting in 2007, I have been conducting the Orchid Survey in Northern Myanmar with the cooperation of Dr. Hubert Kurzweil of Singapore Botanic Gardens up to the present. We are now writing and preparing to publish our book on "Native Orchids of Northern Myanmar" which should come out in 2014. I'm also trying to establish the new "Myanmar Orchid Society". I think *we need strong institutions in this field of environmental conservation*, and those institutions need a strong research orientation, so that is the objective for all my work.

THAN THAN LWIN

Deputy Director, Heavy Industry Enterprises, Ministry of Industry in Nay Pyi Taw:previously was General Manager (2011-2012) of the Solar Factory (in Yangon), Ministry of Industry; Masters of Business Administration, and Information and Computer Engineering (MBA – Seoul National University, Korea, 2000): e-address "ttlwin@gmail"

"Although we are in a competitive position, we know we are working together on a most important problem"

When I began working in the Ministry of Industry in 2000, I became a member of Technical Advisory Committees on many projects for technology in agriculture, small and medium-sized enterprises, and for large cities. This involved more than one ministry. My experience with the China Council task forcemeetings in 2004 on *new sustainable energy systems* was the first time I had personal contact with experts at the international level, so it made a big impact on my work.

I was team leader in export trade promotion and quality standards missions to Thailand, Singapore, and Malaysia.I also attended a select seminar at the Centre for Socio-Economic Development on "Productivity in Japanese Industry" in 2005. I then attended a seminar for Inspection & Quarantine procedures in 2007 in China which involved officials of ASEAN countries. Through this process I have come to know experts in neighbouring countries who work in my field, and although we are in a competitive position, we know we are working together on a most important problem, which is to make our industries sustainable.

Solar street lights installed by our Ministry of Industry on the new Yangon-Nay Pyi Taw Highway, 2011, reducing the need for electricity.

At that stage, in 2008I moved to new work and new positions, and then became Managing Director of the Myanmar Fritz Werner Co., Ltd within the Ministry of Industry in 2009-2011. I work on large vehicle projects, agricultural machinery, and solar power panels. Now that I have moved to Nay Pyi Taw I am able to give some sustainable direction to our industrial development.

These photo-voltaic cell panels are produced in our factory– I am convinced Myanmar has a bright future using solar power, and am pleased to see how the public is responding positively as the cost of the technology comes down.

KYU KYU THIN

Ms Kyu Kyu Thin (PhD candidate forest ecology, University of Mandalay), tissue culture expert on orchids, worked at National Kandawgyi Botanical Gardens and the Forest Research Institute; now doing doctoral dissertation on teak forests; e-address "kk.thnn@gmail"

"I started up a special project on environmental conservation for school children."

I attended the CCICED Working Group workshop on protected areas in China as an observer in April 2004, in Guiyang, Guizhou Province. We studied special problems occurring in the field around protected areas, and gained new knowledge and experience concerning the task of conservation in nearby communities. After returning from this workshop I started up two special projects in addition to my regular job: one was an exhibition on environmental conservation for school children; the other was ex-situ conservation for native orchids in Shan State. Both these activities were sponsored by the Botanic Garden Conservation International. The aim of the two week school exhibition in November 2005 was to create awareness of the importance of forests and plants for human livelihood among primary school students. Students were brought from primary schools around Pyin Oo Lwin to experience this exhibition, which included a programme with a video show about the facts of protected areas, and showed endangered and rare plant and animal species in Myanmar. I provided explanations for all the displays, and we colored the posters about "do and don't" in protected ecological areas.

In the right photo, I am explaining the value of the plants and animals in the protected areas; these school children were living in Pyin Oo Lwin (2005)

Collecting rare terrestrial orchids in Inle Lake Wildlife Sanctuary; they are used for teaching, public awareness, and preservation. I am the one without a hat.(2006)

I also worked on ex-situ conservation of native orchids from 2006 to 2007, when I was based in the Inle Lake wildlife sanctuary. Over 100 species of native orchids in eastern Shan State were explored and identified, and I systematically planted them in an orchid house in the wildlife sanctuary office compound.

MYO AUNG

Myo Aung (BSc in Forestry and MSc in Regional and Rural Development Planning, AIT Bangkok), has worked on project in community forestry and rural reforestation in the Dry Zone and on Myanmar-Bangladesh border 2005-2009, then in reconstruction projects in the Delta, including training sessions for new organizations; e-address "myoaung@gmail"

"This was a chance to learn how difficult it is to enforce forest law on the ground."

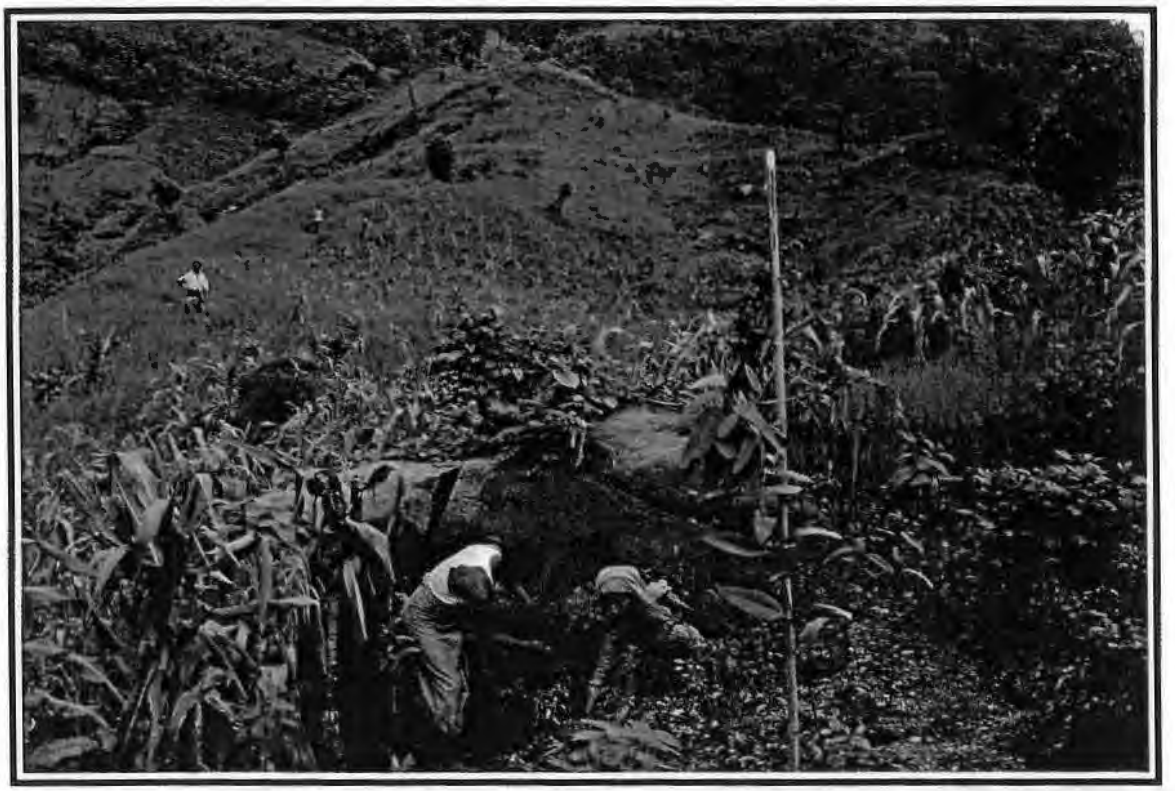
In April 2004 I went with the team which carried out a wetland conservation survey with the Protected Area Task Force in Guizhou. We worked with team members from China and other countries, and we made many useful field observations. We saw the benefits of conservation for indigenous endangered birds, recorded the increase and decrease in population numbers, heard about the problems of livelihood in villages near wetlands (e.g. income from vegetable cultivation). We realized the importance of having local peoples' participation in wetland conservation, as well as in the official practices of watershed area management.

When our survey work was done, we had well-organized discussions, with translation, involving all level of participants (practitioner, policy makers, donors, researchers, international consultants); the Task Force even asked the opinion of the observers, like me, from Myanmar. At the heart of this was a chance to learn how difficult it is to enforce Forest Law on the ground in protected areas. We could also saw the importance role of the Task Force's research activities for policy makers. I think we need to commit to a process of community forestry land certificates, forest harvesting permission, of solving land use conflict between communities and local authorities, including members of staff of Forest Department. We need something like the China Council here in Myanmar.

I developed this nursery for growing tree seedlings, northwest Myanmar 2007. When planted and spaced properly, these small trees will grow to community forests in thirty years and provide significant income.

After my return from the China Council Task Force meeting in 2004, I obtained a job in the *"Rakhine Rural Household Livelihood Security Project"*, operated by CARE International (Myanmar). Over the next five years, I established nearly 4,000 acres of community forestry for Muslims who have returned to Myanmar from Bangladesh camps. They were refugees there, are mostly are landless, and thus have no trees. These community forests we established were beginning to provide for their fuel-wood, timber harvesting, and minor forest products which can be sold to boost household income. My work there was to:

- Provide reforestation training (nursery establishment, land preparation & contour formation for rainy season, community forestry management, etc) to project staff; maintain relations with members of Community Forestry Management Committee (CFMC), and members of Community Forestry User Groups (CFUG) – all of whom are villagers.
- Produce a community forestry establishment and natural forest conservation manual, in order to strengthen capacity and capability of communities in northern Rakhine State.



Community forestry plantations near Maungdaw in Rakhine State, 2008; these plantations, initiated and designed by villagers with my assistance provide training for villagers in timber and firewood management; they also stabilize the slopes of hills in the heavy rainy season.

SI SI HLA BU

Si SiHla Bu (PhD in Ecological **Parasitology, UniversitiSains Malaysia, Penang, Malaysia) is currently a Pro-**Rector of the Yadanabon University at Mandalay, working for both administrative and student affairs **in the** university. She previously served as an Associate Professor of Zoology Department of the University of Yangon; e-address "drsisihlabu@gmail"

"we want to see a new atmosphere for doing ecological research"

I attended the workshop on Problem Analysis and Policy Recommendations for Ecologically Protected Areas held in Guiyang, Guizhou Province in September 2004. The workshop mainly focused on the regulations and administrative practices for the ecologically protected areas in China, and the problems faced plus the promising solutions based on the local experience. The workshop was an open sharing of knowledge, and channelled suggestions among the local and international participants. In the middle of the workshop itself, we all went on a field visit to the Caohai Wetland State Nature Reserve, and it gave me more understanding especially on management strategy, financial support. I met the top advisors to the government, We learned about chronic conflicts between the staff and the resident of the nature reserve, about keystone species within it related to severe environmental changes, the issue of tourism in the wetland areas, and ecological benefits of better watershed management.

My PhD students and I are doing a Bat Field Survey on Makhawdi Mountain in Wai Maw Township, in Kachin State, 2010

My experience gained in this trip gave a clear picture on the pronounced role of community awareness on environmental conservation and sustainable development, management strategy and organization of both governmental and non-governmental organizations. We could see the participation of local community and keen interest of the stakeholder groups around the wetlands. Based on the knowledge attained in China, we could begin to test new practices, including in my supervision of doctoral students who worked (and still work) on environmental impact assessment of fishing communities in Chatthin Wildlife Sanctuary, Sagaing Region. We have been studying Bat species assemblage in Myitsone area, in KachinState related to the proposed dam construction. We are also doing studies of the structure of bat communities in National Kandawgyi Gardens, PwinOoLwin Township in association with changes in the landscape; finally on changes to fish communities along the Mone River in Magwe Region, in relation to new hydroelectric dams.

Interviewing fishing community leaders, at night, on an aspect of Impact Assessment in Chatthin Wildlife Sanctuary, in Sagaing Region, 2006

Although I am focusing more of my time on administrative work, the research conducted by university faculty (like me) and students in various fields is being encouraged more and more. Publishing of articles in university research journals is organised, together with new university editorial boards, all driven to promote higher quality. There are now more chances for conducting workshops, seminars and talks in the university. We are seeing a new atmosphere for doing ecological research.

THANDA KYI

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"A shorter rainy season, less continuous rainfall, and more climate-temperature variability are coming in the future"

Eight years ago I was attended the Agricultural Rural Development Task Force meetings in August 2004 at Beijing. The task force was established in 2003 to produce a policy-oriented report with new ideas and recommendations to guide China's leaders to create a vision for agricultural and rural development, to make recommendations on policy change that are consistent with national goals of income growth/poverty reduction and to promote environmental sustainability. With the international experts, we studied the following questions; (1) what are the indicators to assess the impact of policy change (2) how to create a new role of China in the new Era (3) how to invest in agricultural and rural resources (4) what are the guidelines for the China's food security (5) what are the considerations for policy priorities for agricultural and rural development.

That was already 8 years back, and now I am a senior staff of the Agriculture Ministry, relating to bilateral and multilateral affairs. Last year (2011) I was awarded a support grant from SEARCA to finance a project about "Assessment on Vulnerability and Risk for Climate Change Adaptation of Rural Farmers in Central Dry Zone of Myanmar: Farm Level Case Study". I want to briefly explain this study because it indicates how climate change could affect our farmers.

Interview with farmers in Nyaung U, 2011.

We focused on the impact of climate change on the rural livelihoods of rural people in Nyaung U and Meikhtilar District in the middle of semi-desert region. Formal and non - formal interviews with farmers, key informants, and local authorities were carried out during the field survey. The objective of this research was to detect coping strategies in response to climate change. There were already signs of crop losses by 81.43% of farm households in Nyaung U and by 94.29% of farm households in Meiktila, over the past ten year, and in 3-4 years households are probably facing a crop loss in selected survey areas.

Drought years consecutively occurred twice in 1997 and 1998 and again in 2001 and 2009 in Nyaung U while drought occurred in 2003 and 2004 in Meiktila; one drought year is difficult to survive, but two years in a row was almost catastrophic. A shorter rainy season, less continuous rainfall, and more climate-temperature variability are coming in the future; these all represent major challenges for the population.

There were four coping strategies namely; (1) household level agricultural strategies (2) household level non-agricultural strategies (3) individual level adjustment (4) external and institutional support. Most of the households in Meiktila were using all the strategies, but coping strategy of individuals was being used only by some household in Nyaung U, perhaps because of a lack of knowledge or experience. The perceptions of households about adaptation were not obvious except that 68% of the households agreed to use compost in Nyaung U because farmers were resource poor. Although farmer's perception of adaptation techniques such as changing cultivars, changing sowing dates, increase irrigation requirements, changing crop patterns were very obvious in Meiktila., many of these adaptation measures were rare in Nyaung U due to lack of knowledge there.

So far the only adaptive strategy that is applied by the farmers is use of accumulated savings. The data revealed that about 66% in Nyaung U and 83% in Meiktila of the surveyed households were actually not saving, meaning that majority of their money was going to food and non food expenditures, which lead to low re-investments in agriculture. Asset loss was found to be 47% in Nyaung U and 57% in Meiktila respectively of sampled households; because of crop failure due to drought, sampled households in Nyaung U faced job losses leading to nutrient difficulties. We found a close relationship between these two indicators (job loss and difficulties in having food) in both study areas. The study proved that more than 50% of households in both areas faced an income shortage. Although in Nyaung U the seasonal economy is stronger due to the large number of tourists visiting the archaeological historic sites, at Meiktila there is no such economic cushion.

Our studies of the *current impacts of climate change* in the dry zone conclude that poor farmers need external support to effectively cope with and to adapt to current and future climate change, using both direct and indirect financial help from government agencies and policy changes. For example a more efficient and equitable marketing system would benefit farmers in the study area. By adopting inexpensive seasonal water harvesting practices such as roof water harvesting and water catchments, poor farmers would benefit. Educating farmers through workshops would be an important step towards efficient adaptation measures. The adaptation strategies of local farmers in the study areas teach us important lessons for future climate strategies both in Myanmar and elsewhere. I am very satisfied to be involved in this interesting field work which has such a practical application.

Interview with farmers in Meiktila, 2011.

SHWE SHWE SEIN LATT

Shwe Shwe Sein Latt is founding Director of Phan Tee Eain ("creative home") in Yangon, and was Team Leader, Trainer/consultant team in the Capacity Building Initiative, until 2009; MSc in remote sensing and GIS from AIT Bangkok; e-address "mishwelatt@gmail"

"Implementing rural development such as capacity-building and micro credit projects for rural women."

In 2005 I learned how the China Council Task force involved researchers in the process of policy advocacy to the Chinese government and how different stakeholders collaborate among government departments, research institutions and universities, NGOs, private sector, and community. This was a good opportunity for young professionals to improve their knowledge and skill in advocacy work, and the working sessions showed me how to promote transparency and accountability. Participants at the Council discussed constructively and openly across different status levels and ages. The whole process seemed like a kind of capacity building to me. I improved my knowledge on the movement to change agriculture and rural development of China but was also able to make the link with Myanmar, not only for advanced technology but also for appropriate technology in agriculture and rural sector development. We should have this kind of task force in Myanmar.

Organization development workshop for NGO working for Agriculture and Health sector in Putao, Kachin State, Myanmar (Nov, 2009)

On the other hand, I gained a lot of social benefits during the China Council exposure trip such as knowing different people, tradition, culture, food, and other local knowledge, and seeing the important changes in China. Visiting historical places in China inspired me to take responsibility in keeping and maintaining the heritage of our own history and to act as a good citizen.

I shared my China Council experience among NGOs colleagues in Yangon, and then I initiated a conference on integrated water resource management to encourage government officials to improve water resource policy, and to improve cooperation among different stakeholders involved in water sector in Myanmar. I organized the national level multi-stakeholder Water Seminar Forum and the WASTAN thematic group and supported to build strong network and trained many young people in enhancing their capacity related to water, rural and environment sector. I also jointly participated in translating the report of World Commission on Dams and gave it to the Irrigation Department; I also helped translating the Environmental Flow book.

We are discussing rural credit issues in Northern Myonmar (2008)

After that I became a team-leader at the Capacity Building Initiative in Yangon, developing curriculum related to community and rural development, and conducting training workshop to over 5000 development workers working around Myanmar, to make their work more sustainable and self-reliant.

I have been consulting for a number of local groups for their organization strengthening, and conducted the organization capacity-assessment of more than 20 Local NGOs and CBOs in order to build up the relationships among them. I then became an executive committee member of Myanamr NGOs Network, Women Organization's Network, Myanmar Ceramic Society and Envir-Klean Techno-Associates (EKTA), implementing rural development projects such as capacity building, micro credit project for rural women. I am a member of M-power water governance network, and Asia-Pacific social accountability network, and focal person for the Sphere project. And also I was selected as an advisor of Youth Empowerment Association and a founding member of Myanmar women professional group. I have established a group called Phan Tee Ein which began Primary Education project in monasteries, and now focuses on women's leadership and rights at the state and regional level in Myanmar; we support vulnerable women to create social enterprises to support their livelihoods.

SAN WIN

Pro-Rector, University of Forestry, Yezin: former Director of the National Commission for Environmental Affairs (NCEA, 2006-2010), PhD in Forest Management, University of Tsukuba (1998); e-address "sanwin.env@gmail"

"I took a leading role in staging a number of environmental events to raise awareness"

I was born in Amarapura just outside Mandalay and spent two years studying Mechanical Engineering at Mandalay Regional College, then switched to complete my BSc in Forestry in 1983 from University of Yangon. I first joined the Forest Department in 1984 and worked as Lecturer and Research Officer at University of Forestry and Forest Research Institute in Yezin; that is where I first did research on bamboo, a subject I have studied throughout my life. I got a scholarship to go to study in Japan and completed my doctorate, and on return I acted as Deputy Project Manager of the Bamboo Project in Myanmar, funded by the International Tropical Timber Organization, Yokohama, Japan, between 2003 and 2006. I became promoted as Deputy Director at the Planning and Statistics Department, Ministry of Forestry in 2006, and then became head of the NCEA shortly later.

Here I am in the summit meeting discussing climate change at the Rio + Twenty international meetings (2012)

I took part in lead role in developing National Sustainable Development Strategy (NSDS) in 2005, implementing Peat Land Assessment in Myanmar with Global Environment Center of Malaysia under the aid of AADCP, Environmental Performance Assessment, Myanmar (2009) with the aid of UNEP/RRC.AP, Project Director for Initial National Communication on climate changeunder UNFCCC in 2007-2010, and was Project Director for Ozone Projects(under the CFC phase out plan) and many others. During this period I went to the meetings of the China Council to observe how Chinese and international policies are negotiated. As director of the NCEA I took a leading role in staging a number of environmental events to raise awareness on environmental conservation in Myanmar through different government departments and NGOs, including being chairman of multi-department committees. I also was on the official delegation to the climate change negotiations at Copenhagen in December 2009, and Rio Plus Twenty summit meeting in 2012.

Since early 2011 I have been working at the University of Forestry as Pro-rector. There I have been publishing scientific forestry papers, a bamboo manual in 2005 and a new publication on bamboo propagation and planting techniques in 2012 both in English and Burmese. I am convinced that bamboo has a very big and bright future in this country. I decided to translate into Myanmar language the famous book by the late Nobel Laureate WangariMaathi called*The challenge for Africa,* a book which is just about to be published in Yangon; in it she clearly shows how with a new system of working, and with full commitment, extraordinary things can be achieved even when circumstances are adverse.

I think strong bamboo plants, if carefully selected, hold one of the keys *for the future of our country; here I am in my lab at the University of Forestry (2012)*

KYAW NYEIN AYE

Kyaw Nyein Aye (PhD bioprocess engineering, AIT Bangkok) worked initially on chitosan (shrimp waste) and biofertilizers. In 2012 he is involved in water and food R & D in both the private and voluntary sectors: e-address "kyawnyeinaye@gmail"

"Policy makers are faced with the need to introduce the concept of a low carbon economy."

In 2008, I was invited by the China Council to its annual meetings as an observer: I was inspired by the fact that there was now a new Ministry of Environmental Protection in China, and that it had been recently promoted from the Agency level. Here I learned about policy issues and the workshop concluded with recommendations that had implications from municipal to global levels and with a discussion of the key policy recommendations put forward the previous year, in 2007. This was followed by a discussion of climate change adaptation issues of particular relevance to the provincial and city level. Provincial and city level policy makers are faced with the need to increase awareness and knowledge about climate change and to introduce the concept of low carbon development. That will not only help achieve environment targets, but also benefit local economies. In my own research, I have begun to move in that direction, and to focus on water as the medium for most of my work.

The World Business Council for Sustainable Development introduced the idea of using existing technologies more wisely: I think this outlook is crucial for Myanmar. *"Most technologies needed for reducing emissions and enhancing efficiencies do already exist. Enabling policies for the deploying these technologies more widely are needed to fully realize their potential. Technology-transfer to a high degree takes place inside global companies. A competitive business-to-business framework for transactions that also includes management and capacity building measures can greatly enhance the deployment and assimilation of new technologies."* My hope is that business leaders will think seriously about this potential in Myanmar.

Shortly after my return from the workshop, Cyclone Nargis struck the coast of Myanmar (2 and 3 May 2008) and moved inland across the Ayeyarwady Delta and southern Yangon Region, causing many thousands deaths, destroying livelihoods, and disrupting economic activities and social conditions. The cyclone left the Delta with huge losses of natural habitats and environmental pollution. In order to solve these problems, the application of Effective Microorganisms Technology (EMT) for the remediation efforts was employed in the disaster areas by a concerned group of experts (like me) called Envir-Klean Techno-Associates (EKTA). During May to August in 2008, we visited these sites located in Mawlamyinegyun Township, sites which were among the most severely hit areas. Our purpose was to conduct microbiological and physical-chemical investigations on water samples from the selected Nargis Cyclone affected areas. The levels of water contamination were surprisingly found to be beyond the maximum tolerance of contaminant level (MCL) at selected points tested within a month after the cyclone. After monthly visits to the study areas, the microbiology and physical-

chemical contaminations were reduced to a certain extent due to natural effects, environmental factors and bio-treatment by effective microorganisms. The overall investigation on microbiology and physical chemistry proved that the bioremediation was successful as a countermeasure to the water contamination caused by tropical cyclone Nargis around the delta area of Myanmar. We need to create this kind of testing and water purification across the country.

I have come by this boat to the Ayeyarwaddy Delta Environmental Cleaning Project (Mawlamyainggyun Area) in May 2008, and I`m receiving water samples so we can check for communicable disease.

AUNG MYO CHIT

Currently doing graduate studies in marine ecology at James Cooke University in Australia. Previously MSc in computing science and physics, Yangon University of Technology; e-address "nkgmaymyo@gmail"

"One day in 2010, I was suddenly able to participate in the rescue of a dolphin stranded up Me Zar Creek."

I was an observer at the 2009 annual general meeting of the China Council in Beijing, and I learned how they set the meeting up to make policy decisions. Before and after this meeting, I met other organization INGOs and NGOs and shared knowledge and experience on conservation activities and policy-making in China. However, togive some background, I was Head of the Wildlife Department for the National Kandawgyi Gardens (the Botanical Garden) in PyinOoLwin (Maymyo) from 2002 to 2005.While working with the wildlife unit, and also served in the office of the General Manager for staff mana-gement, motivation, and welfare. In that position I networked with inter-national organizations like the Harrison Institute (UK), the California Academy of Science (USA), sur-veying and collecting samples on wildlife. I tried to keep the injured or orphaned captive animals as close to their natural habitat and life as possible and to maintain their normal diet and breeding opportunities. These included endangered birds and mammal species like Oak's pheasant, green peafowl, hornbillsspecies and Takin*(Budorcastaxicolorbedfordi)* and golden deer *(Cervuseldi)* and other waterfowl species. I designed and managed the first walk-in aviary in Myanmar and set-up an education program for visitors to the botanical gardens. Then I was awarded the Humphrey Scholarship to extend my knowledge and skills in protected area management and captive breeding programs at the University of California in 2005 – 2006.

I'm standing in the national botanical garden with a family of orphaned Takin. We established this sanctuary in 2005 and it is still functioning well.

From November 2006 I began to shift my focus from the botanical gardens to the Ayeyarwady River, serving as liaison between the Department of Fisheries, of the Myanmar government, and the Wildlife Conservation Society: I worked as a coordinator for the Irrawaddy dolphin project for six years in the Mandalay office, situated on the bank of the river. I created close coordination between the Department of Fisheries and local communities and officials along the river. I arranged meetings between the Ministry of Tourism, the Ministry of Livestock and Fisheries, Tourism industries, Boat associations and Guide associations to set-up rules and regulation for dolphin-watching tourism in Myanmar. Although dolphin watching tourism was not yet active in the area, I gave training to local guides and fishermen on the behavior of dolphins and behaviour of tourists, as thelocl community had little awareness of tourism practices.

I started to organize monthly research surveys in the Ayeyarwady Dolphin Protected Area between Mandalay city and Kyaukmyaung Township, and a yearly dolphin survey on the river between Mandalay going upstream to Bhamo. Whilel was writing articles in local newspapers and local journals to raise education awareness on the Irrawaddy dolphin, one day in 2010 I was suddenly able to participate in the rescue of a dolphin stranded up the Me` Zar creek' this was the best achievement for the Department of Fishery and the Wildlife Conservation Society on the conservation efforts for the Irrawaddy dolphin program in Myanmar, and proved that hundreds of people could cooperate quickly and skillfully in this delicate operation, because the dolphin was under severe stress.

It is difficult to photograph Irrawaddy dolphins as they rise to the surface only for a few seconds, and the water is quite muddy, so I have to be patient! (2011)

In September 2011, just before leaving for Australia, I gave a presentation about "Saving the Ayeyarwady River" because the Environmental Impact Assessment (EIA) on the Myitsone Dam didn't cover the multiple impacts of the downstream biological, physical, chemical, social and economic situation. Arranged by the Tun Foundation September 2011, the meeting invited all important layers of society such as ambassadors, ex-ambassadors, businessmen, education sectors and media. A series of journals and articles came out from the presentation, and then soon there were, public campaigns, as well as asigning-ceremony for the letter of appeal to the President of Myanmar about the dam. The result was that on the 30th September 2011 the Government of Myanmar suspended the Myitsone dam on the Ayeyarwady River until 2015, and also promisedthat they will do a proper EIA on both upstream and downstream.

OHNMAR KHAING

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"I began to wonder "are we doing the right thing or not? Can we create new policy recommendations for an environmental law?"

I attended the China Council annual meeting in Beijing in November 2009, where we heard and met leading speakers on international topics. There were a number of presentations and research report topics that particularly caught my attention, namely "rural development and energy; environment and climate change adaptation". Because these topics are related to Myanmar's rural situation, I began to wonder if "are we doing the right thing or not?" One interesting matter raised in a number of sessions was how the policy of China focuses on rural poverty and energy efficiency and how the Council's recommendation influences the Government's rules and regulations on the effectiveness of the country's development process.

Ohnmar Khaing as a consultant monitoring trip in Northern Shan State, interviewing farmer groups 2005

What was surprising was the high-level researchers' involvement from the international community in this CCICED. However, I wished that the meeting had also discussed cross-boundary issues related to China's development and its effects in Myanmar. I think international community should be concerned with this issue and discuss it attentively. It will be very interesting to see how international society could bring forward these cross-boundary issues in the coming years, and the how CCICED could work on this problem. This annual meeting made me very concerned about Myanmar's developmental efforts, rural-urban poverty and the urgent need to work for new policy recommendations. We need to catch up.

I feel the most important thing now is to convince the people and all stakeholders to give realistic and effective collective policy recommendations to policy makers. I would like to keep up the momentum of what we learnt from China Council and apply those observations in Myanmar via a small group or our networks. Can we bring a greater interest of International cooperation? Can we create new policy recommendations for an environmental law? I remain hopeful that we can bring about the "Myanmar Council for International Cooperation on Environment and Development (MCICED)".

Here I am in Wa State working with ex-opium farmers, helping them to diversify their crops – with the assistant of the UN World Food Programme (2006)

PAN KHET KHET

Pan Khet Khet completed her P hD in Botany at the University of Yangon in 2009, and now workd as tissue culture specialist and senior research officer at Myanmar Flora and Biotech Co. Ltd in Yangon. She is also a central executive member at the Myanmar Floriculturist Association, and co-supervises Doctoral and Masters desearch candidate at the University of Yangon:- e-address "pankhetkhet@gmail"

"Botanical records for Mount Popa show a decrease in many species due to habitat destruction."

I left in a rush for Beijing on the same day that I received my PhD at the university. I went to attend the China Council Working Group workshop on Energy, Environment and Development as an observer on November 2009, where I heard some key ideas about environmental issues. So after my return I began to focus on environmental matters and special activities in addition to my regular job. At that time I wrote that "my objective is to harmonize the relationship between energy & environment under 'the guidance of ecological civilization', as the China Council has pointed out. Therefore I want to emphasize the development and applications of new clean energy systems (biomass, solar, even wind) and increase the use of natural gas in Myanmar."

I began to work on ex-situ conservation of native orchid project in coordination with Forestry Department; the Htoo Foundation funded this project starting in 2009. I began to work at Mount Popa – located in our country's dry zone it is noted for its diversity of plant life, and its beauty. More than 100 species of native orchids on Mount Popa were explored, identified, herbaria sheet made, spirit bottled, orchid capsules collected – the objective is to finally publish field guide book to Myanmar orchids.

Here I am doing an Orchid Survey on Mt.Popa with Forestry staff

During this project I visited the Mount Popa forest area once or twice each month, with each trip lasting seven days, often staying overnight in the forest at Forestry Department camps. Before entering, we had to obtain the necessary permission from forest department and they usually arranged two or three service men to accompany us in the field as observers. The results of the trip have to be reported to the Forest Department. I am pleased with the progress of the project.

But comparison with previous botanical records for Mount Popa shows a decrease of many species, due to habitat destruction and over-collection. If the situation continues, many valuable orchids and other plants will be lost in the near future. Currently orchid capsules brought from MountPopa forest are still conserved in the lab. The aim is to increase the species population through seedlings culture.We inoculate the orchid seeds on the culture media to create a subculture, then transplant and record the results.Those seeds are then germinated in vitro and seedlings grown to maturity. Once a large population of seedlings is formed and established, they can be introduced back to their natural habitats, in order to restore the ecological system. But we also need to preserve or restore those habitats too.

In the tissue culture chamber in Yangon, we are developing and growing Orchid seeds (2011)

SAN OO

Deputy Director, Environmental Conservation Department, Ministry of Environmental Conservation and Forestry; formerly University of Forestry, Yezin; PhD Forestry, Goettingen University: e-address "sthandaroo@gmail"

*"In the classes, I explained my students **about the importance of** our nation's economic growth and the role of its environment at the same time."*

As a university teaching staff, I had manyundergraduate and postgraduate students in advanced forestry-related disciplines and statistical disciplines, andthere are a few environment-related subjects, for example, environmental forestry, protected areas management, environmental education and forest ecology.However, although there is indeed a need for a really practical experience at the higher education level in the age of globalization, both the teaching staff and the students had *very limited opportunities to gain direct experience* about the environmental issues in Myanmar.

Fortunately, I was offered a chance to observe the China Council Roundtable Meeting held in Shanghai, China, in March 2010.Prior to the event, our team from Myanmar discussed with Robert Anderson about the ecological footprint of large cities of Yangon, Mandalay and Nay Pyi Taw in comparison with the international examples using the literature at hand.The main theme of the 2010 meeting was "Low Carbon Transformation for Green Urban Development". Under the session objectives, policy recommendations and strategies were proposed and debated by the international and Chinese experts. Mayors of big cities responded, based on their experiences and conditions. The second session was aimed at energy efficiency and environmental challenges for urban development. The debate was about theenergy consumption in urban areas, which is causing acute pollution: alternative strategies were proposed by the international experts, and emphasizing the sustainable urbanization trends.

The students of the fourth year class are shaping their sample plot to inventory all life forms in the reserved forest near Le-wun village, Tatkon Township, Mandalay Division (December, 2011) (doing the measurements under the instruction of the teachers)

The teacher is instructing the students of the fourth year class about the thinning operation in the old teak plantation and how to select the teak trees to be thinned out in a teak plantation in Tatkon Township, Mandalay Division (December, 2011)(before practical operations)

The third session started with economic policies for green urban development. "Better City, Better Life 10" was an amazing plan for the people in Shanghai. The concept of green growth and constraints in implementing green issues were also intensively discussed by the Mayors, international experts, senior officials, donors, and interested embassies participating; we noticed immediately that there was an open and deep dialogue between the China Council members and research experts.My first experience in China was very interesting and impressive. I imagined that our policy-makers and professionals could arrange such magnificent occasions in Myanmar!Our earlier discussion of ecological footprint came in very useful in these discussions.

After my arrival from China, I shared my experiences with my family and my colleagues as well. In the classes, I explained my students about the importance of our nation's economic growth and the role of its environment at the same time. I told them that the word 'environment' is important in the lectures but more critical on the ground. In the final year class, every student has to prepare a term paper as their requirement for the Bachelor degree. Previously, they focused mainly on the forestry disciplines as their compulsory courses, not only in the classroom but also in their field projects; however, recently I noticed their interest is turning to the 'environment' through our knowledge- and experience-sharing and increasing awareness.

One month ago, in November 2012, I was transferred to the Environmental Conservation Department under the Ministry of Environmental Conservation and Forestry in order to strengthen the environmental conservation activities. I am very delighted to be this new position, because now I canbegin to shape my ideas and imagination into reality; it would be very useful and important for our country to put more stress in continuity in the ecosystem, in harmony between development and environment. This highlights what *the critically important thing* for the livelihood of mankind will be in the long run. We should more clearly see the picture from now on.

PYI SONE NYEIN

Managing Director, Myanmar Change Initiative, formerly with Capacity Building Initiative, Yangon; e-address "pyisonenyein@gmail"

"We need to create dialogues among all the people (not just experts)."

On March2010 I was invited to attend the China Councilmeetings on "Low Carbon Transformation for Green Urban Development in China" in Shanghai. I participated in a roundtable discussion on the ecological footprint of large cities, where we focused rapid urbanization and environmental programs implemented in Mandalay and Yangon. At the China Council we watched as policy recommendations and strategies were proposed and debated by the international and Chineseexperts. Mayors of big cities responded to these proposals based on their experience and the condition of their cities. They focused on low-carbon energy efficiency and environmental challenges; alternative strategies were proposed by the international experts who highlighted the global urbanization trends toward higher carbon footprint. Finally we reviewed the objective of a proposed plan for Shanghai called "Better City, Better Life 10", and the constraints in implementing green urban development were openly discussed. An important feature of this China meeting was the networking and social relationships which developed, the attendance of Mayors, international experts, China Council Members, donor institutions and embassies.

Through this experience I learned about the positive effects of public and private cooperation, how to organize and design meetings so that there is dialogue and exchange. I see the importance of the integrating both administrative and marketing policy, and the importance of integrating of cultural heritage with more advanced technologies, based on the example of Shanghai.

I am walking along with our trainees in the Chin village where we are doing

I am conducting Social Mobilization Training in Bogalay in the Delta in 2009, after Cycle Nergis. We are strengthening the capacity for local staff, in the transition period from emergency approach to normal development approach.

People in the Myanmar team were able to understand environmental policy inChina and to make network not only with international and Chinese experts.We do not often have such a chance to share our activities in our specificfields, and we found some points of action to do cooperatively. We engaged in good dialogues concerned with environment and development. I shared my views about these activities with local nongovernment organization concerned with environment, particularly at multi-stakeholder meetings, discussing the importance of public-private integration in Myanmar.

My response to these meetingsis;

(a) This kind of effective environment and development dialogue between the stakeholders is needed in Myanmar,

(b) New suggestions and research findings from the international experts are vital.

(c) Good meeting design and facilitation are vital to reach the desired goal of these meetings and dialogues. There should be facilitators to facilitate the meeting process, to get many voices to be heard, otherwise the achievement will be modest.

(d) I would like to work to communicate large group facilitation methods to all the people, from Government and private sectors because at this point such facilitation is only familiar to NGOs. We need to create dialogues amongall the people (not just experts), to join in activities concerned with environment in Myanmar, to share the importance of the Chinese cities.Finally I want to engage in research projects together with Myanmar scholars and publish the results.

I have recently set up my own company called Myanmar Change Initiative focusing on consultancy services for capacity training and organizational development. I became involved in the Certification Program for Peace and Diplomacy, organized by the Myanmar Development Resource Institute, and aimed at both political parties and civil society groups. I became involved in the transformation of the Cooperative College just outside Yangon into a full NEW Cooperative University, and have been helping write the new syllabus for the instructors. At this time also established hotels (such as the Kandawgyi Palace in Yangon) and new Myanmar companies are re-orienting their procedures for employees, and I have been involved in assisting them to create new organizational structures and policies for their staff.