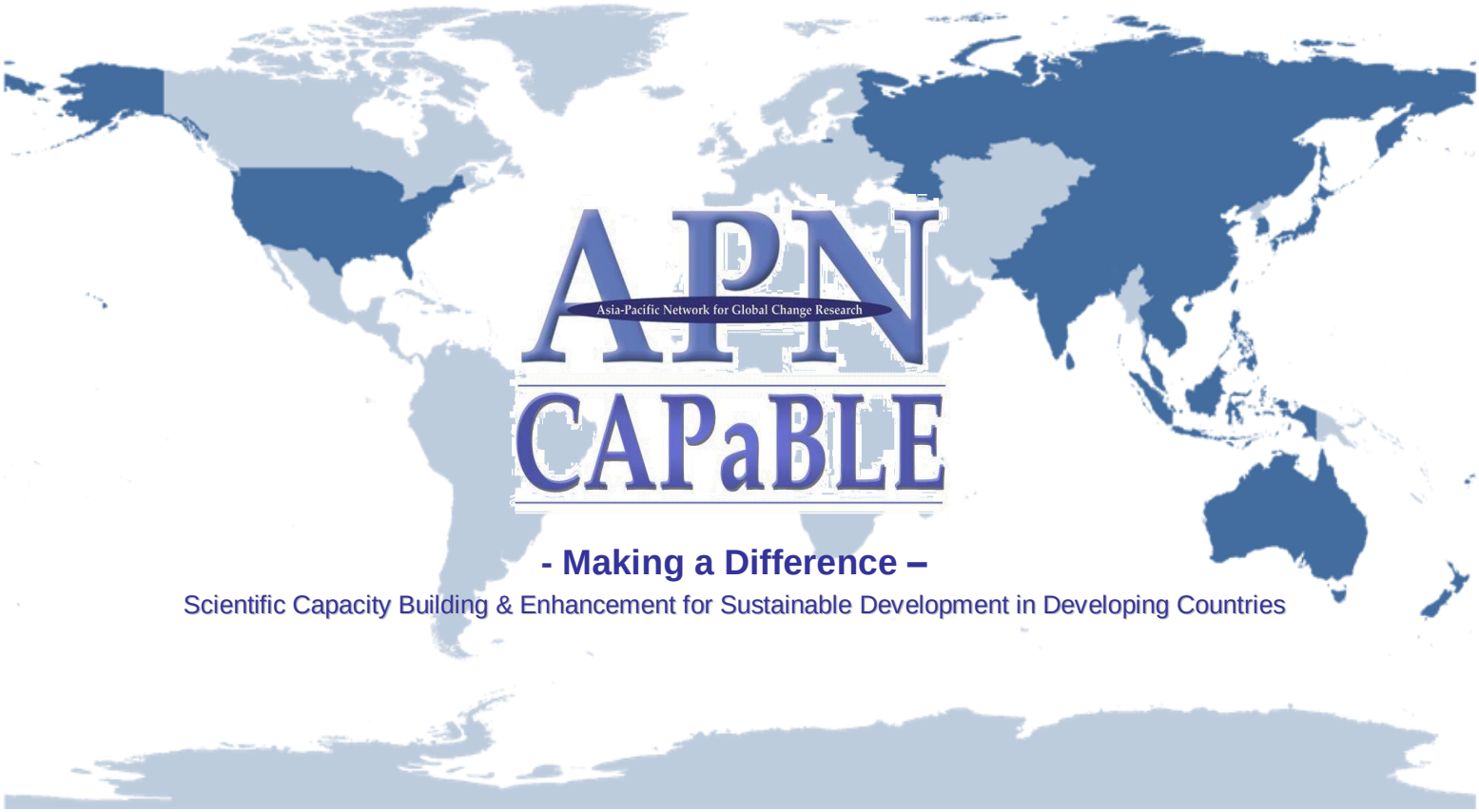
FINAL REPORT for APN PROJECT

Project Reference Number: CBA2011-04NSY-IHDP

IHDP Training Workshops on Asian Development Pathways in the context of transitions towards a "Green Economy"



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IHDP
International Human Dimensions Programme on Global Environmental Change

CNC-IHDP

IHDP Training Workshops on *Asian Development Pathways* in the Context of Transitions towards a "Green Economy"

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OVERVIEW OF PROJECT WORK AND OUTCOMES

Non-technical summary

Against a background of increasing intensity of economic growth coupled with a rapid population increase and unprecedented urbanization processes in developing Asia, the International Human Dimensions Programme on Global Environmental Change (IHDP) organized the 'IHDP Training Workshop on Asian Development Pathways in the Context of Transitions towards a "Green Economy"'.

The workshop, which discussed one of the central themes of the human dimensions of global environmental change (GEC) was held over a week (17th – 21st October 2011) in Nanjing, China, and provided ample opportunities for interaction among the participants, senior scholars and key policy experts. Each training day began with a series of lectures given by renowned scientists and experts in the science-policy interface. In the afternoons, participants formed working groups to address particular aspects of the Green Economy. While participants came from various professional backgrounds, including the scientific, public and private sector, particularly young regional researchers were enabled to take part in this capacity-building event. Accordingly, the workshop offered a great example of regional capacity building with international outreach and of the integration of local stakeholders into existing international research and policy networks.

Participants identified goals of a Green Economy, such as equity, inclusiveness and compatibility amongst other important social and political values, while considering which developing pathways are most feasible or desirable on the road towards a Green Economy, with particular regard to the rapid economic development in Asian countries.

As a result of their investigations, the workshop did not only raise the participants' critical understanding of the human dimensions of GEC but also increased their capacity to conduct research on topics relevant for the development of the Asia-Pacific region.

Objectives

The main objectives of the project were:

1. Enhance awareness and understanding of the human dimensions of GEC, particularly related to the themes of the "United Nations Conference on Sustainable Development" UNCSD 2012 (Rio+20), with a focus on transitions toward a Green Economy
2. Strengthen the human dimensions research community in the APN region and help establish contacts and networks with the international research community, as well as policy communities, e.g. build on and broaden the research network built by IHDP's core project Industrial Transformation project (IHDP-IT) – especially in the context of UNCSD 2012
3. Promote communication between science and policy and develop capacity to engage in science-policy dialogues as an interactive two-way process
4. Support the development of participant research proposals, as well as the production of policy briefs and background documents in the context of UNCSD 2012

Amount received and number years supported

The grant awarded to this project was:
US$ 60,000 for Year 1

Activity undertaken

The IHDP Secretariat (UNU-IHDP) planned a series of events and deliverables to contribute substantial scientific input for the international process of the upcoming UNCSD 2012. These events included the 'Workshop on Asian Development Pathways in the context of transitions towards a "Green Economy"', which was built around the central question of how to transform the basic economic sectors of Asian countries in a way that allows for their sustainable future with significantly less burden on the environment.

The IHDP Secretariat took over the responsibility concerning the overall organizational management. It received support from its Chinese National Committee (CNC-IHDP) as well as from APN. While CNC-IHDP supported the Secretariat with the logistic arrangements in situ, APN provided funding for the workshop. The curriculum was jointly developed by UNU-IHDP and the main collaborating scientists. This core group also ensured the achievement of identified goals and expected outcomes. The main collaborators provided the training modules addressing issues related to a Green Economy. The group also provided mentorship to the participants during and after the workshop. Furthermore, it supported the IHDP Secretariat with the development of the "Summary for Decision-Makers (SDM)", a scientific publication to be issued in June 2012. The Secretariat coordinated the conceptual design and content of the SDM and selected a group of scientists to form an editorial board for the production of the publication. These measures were undertaken to ensure the desired high quality of the product.

The workshop was attended by young professionals from a scientific or policy background, mainly based in developing countries. They were integrated in international research and policy networks and jointly worked on the outcomes of the workshop. Targeted at contributing to the Rio+20 policy process, the workshop led to a successful interaction between science and policy.

Results

The productive collaboration between the organizers combined with IHDP's 14 years of experience in organizing training workshops ensured the event's success. The workshop enhanced the research capacity of participants while strengthening the human dimensions research community in the Asia-Pacific region. Thereby, governance and transitions research was a major focus. Illustrating a core aspect, the event improved regional research collaboration including links with international communities as well as collaboration between individual scientists and policymakers who sought to locate common ground and thus, moved one step further towards finding shared forms of communication. Consequently, participants became more receptive to each other's positions and ultimately identified mutually beneficial solutions to environmental challenges. The results of this interaction will be exemplified in the policy briefs and funding proposals the participants began to produce during the workshop.

In addition, the workshop contributed to the creation of a better scientific base to address the challenging themes of UNCSD 2012. This was partly achieved through enhancing the participants' understanding of these topics and enabling them to contribute to scientific background papers for the UNCSD 2012 process under the guidance of leading scholars. By directly including these outcomes into the Rio+20 policy process, through IHDP and its partners, their political impact is ensured. A further essential outcome was the development of the "Summary for Decision-Makers", which is produced by IHDP in cooperation with the workshop trainers and will be issued in June 2012.

Relevance to the APN Goals, Science Agenda and to Policy Processes

The Nanjing workshop was embedded in the context of the upcoming UNCSD. As one event out of a series of events in the preparatory stage towards Rio +20, the workshop catered to the UNU-IHDP focus of contributing to the debate around the Green Economy.

The supported training workshop was held for one week in a manner loosely based on IHDP's previous workshops' design. The aim was to train aspiring scientists and young professionals coming from a policy background, while the majority of participants came from developing countries. The workshop allowed for participants to become integrated into international research and policy networks. Through its connection to the Rio+20 process, the workshop significantly contributed to the current APN focus on effective science-policy interactions. The participants gained the opportunity to develop overarching capacities by building bridges between science and policy. This becomes an increasing expectation of major forums, such as the current process of Transition to "Future Earth" proceeded by the ICSU (International Council for Science)-led Visioning Process and the International Group of Funding Agencies for Global Change Research (IGFA) "Belmont Challenge". In addition, the event provided a venue for follow-on activities and helped reshape the transitions/transformations research portfolio.

Self evaluation

The Nanjing workshop was a very successful event, conducted in a different manner than prior IHDP workshops. By moving away from a global towards a regional scale, the workshop concentrated on the Asia-Pacific region. With the participants showing interest in similar issues, this approach led to in-depth discussions. In addition, the regional scale simplified further exchange and collaboration between participants after the workshop.

Bringing together scientists and practitioners in one event led to a very active and successful exchange. Thus, the workshop demonstrated the benefits of an event combining parties with different backgrounds.

Another major success factor was IHDP's collaboration with local organizations. Thereby, IHDP's aims were embedded within local institutions, able to provide regionally relevant knowledge and context.

In the future, the IHDP Secretariat will intensify its efforts for an increased integration of local policymakers. Local policymakers could contribute to such events by delivering guest lectures between the regular training lectures. As some of the participants were in the early stages of being politically active, an enhanced integration of local policymakers would also benefit the participants' networking activities.

Potential for further work

The workshop strengthened the existing networks, including the collaboration between regional researchers, linkages with international communities and interaction between scientists and policy makers. After the workshop, a "Google group" was established to ensure further networking activities. In addition, the Secretariat, together with the workshop trainers, is currently in the process of developing the "Summary for Decision-Makers" (SDM) on the topic of the Green Economy which will contribute to the integration of the participants into IHDP's activities. This joint effort on the Green Economy will feed into the Rio+20 policy process and represents one of IHDP's key topics in the future. Therefore, both prospective collaboration with the workshop trainers and further elaboration of the topic are essential for the Secretariat's activities.

Publications (please write the complete citation)

The IHDP Secretariat together with the workshop trainers is preparing a "Summary for Decision-Makers" on the topic of Green Economy that will be launched in June 2012.

References

Summary for Decision-Makers

Acknowledgments

The workshop was made possible through the generous contributions of the following sponsors: Asia Pacific Network (APN) and the IHDP Chinese National Committee (CNC-IHDP).

TECHNICAL REPORT

Preface

The Green Economy is defined as an economy that improves social equity while significantly reducing environmental risks and ecological scarcities. It is a solution to the challenge of achieving improvements in human wellbeing while at the same time respecting planetary boundaries. A question often neglected, however, is to what extent fundamental societal shifts are a prerequisite for a Green Economy to successfully meet this challenge. Similarly, pathways towards such an economy remain ill-defined.

The Nanjing workshop utilized the upcoming UNCSD 2012 to address these issues and to provide the context for a critical exploration of questions concerning the human dimensions of a Green Economy.

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1.0 Introduction

The concept of a Green Economy has increasingly gained importance and is on the agenda of various organizations and constituencies. However, the definition of the concept is generally restricted to energy efficiency, sustainable resource use, and minimizing environmental impacts. IHDP sets its focus on the human dimensions — social and economic — of a Green Economy. The undertaken workshop in Nanjing, China aimed at the critical exploration of social and economic impacts on such an economy. During the event, the workshop participants identified goals for a Green Economy, such as equity, inclusiveness, and compatibility with other important social and political values, while addressing one of the core human dimensions research foci: transitions. Based on the research already completed by the IHDP-Industrial Transformation Project, the workshop further developed present findings. This was accomplished through the creation of a network of academics and practitioners and capacity-building efforts. The outcomes of the workshop were targeted at the international Rio+20 process.

Due to the shift in research focus towards more practical methods and applied knowledge, capacity-building activities in inter- and multidisciplinary research gained importance. An exchange between different disciplines will become necessary in regard to this shift. Thus, social scientists will have to take into account natural science methodologies, case studies and findings, and vice versa. However, this exchange is not restricted within the scientific field. Scientists and policymakers also need to locate common ground and find shared forms of communication so as to identify mutually beneficial solutions to emerging environmental challenges. For scientists, this implicates moving towards more demand-driven research, while policymakers will need to become more receptive to incorporating science-based solutions into decision-making processes. Hence, they will need to be trained as well. This can be done through the incorporation of decision-makers into IHDP research capacity development workshops.

The Nanjing workshop illustrated a first step in this direction by incorporating young professionals with scientific as well as policy backgrounds into the workshop. The main objective in this regard was to promote the communication between science and policy and to thereby develop capacity to engage in science-policy dialogues as an interactive two-way process. The workshop further aimed at strengthening the human dimensions research community in the APN region and helping to establish contacts and networks with the international research community, including policy communities.

In regard of the background of significant economic growth combined with a rapid increase of population in developing Asia, it is essential to enable research, providing solutions for Asian countries to further develop their economic growth, while at the same time exerting less burden on the environment. Although there is consensus on the necessity for a transition towards a Green Economy, it is still unclear how to successfully foster and govern this transition. Until now, the major focus is solely set on implementing green technologies and linear, market-based policy instruments. However, to ensure an ethical and efficient transformation towards a Green Economy, the dimensions of efficiency and equality have to be included in the process. Furthermore, it has to be considered to what extent and in which manner behavioral changes as well as alterations in attitudes and values are necessary for such a transition.

With the recently finalized IHDP-IT project, which was probably the only GEC research project directly addressing some of the themes around the debate on transitions to a Green Economy, IHDP already gained significant knowledge in this research area. One of IHDP-IT's most profound findings was that in order to actually achieve sustainable development it is not sufficient to introduce incremental changes in the operations of the economic sector. Instead, major systemic changes are

essential to reach the sustainable development goal. Furthermore, IHDP-IT's results suggest for developing integrated, systemic tools in order to decouple economic development from increased environmental burdens. A recent focus of IHDP-IT's work has been the role of practical socio-technical experiments in Asian countries, as a potential source of innovations to reshape development pathways in the region.

Based on this knowledge, the Nanjing workshop focused on capacity building to investigate feasible and desirable transition pathways for rapidly developing Asian economies. Moreover, the initiative examined policy suggestions, supporting the development of selected pathways in the APN region, with a special focus on the Rio+20 process.

2.0 Methodology

The workshop was carried out for one week with similar structured meeting days. It consisted of four training courses on topics within the fields of:

- Governance and Technology (trainers: Frans Berkhout and Xuemei Bai)
- Economics (trainer: Nicholas Kosoy)
- Equity (trainer: Deborah Rogers)

Each of the training courses consisted of two morning sessions, each lasting for one and a half hours. These were designed as discussion-oriented panels, lectures and/or keynote addresses. The delivered speeches and lectures are summarized in the course of this section.

In the afternoon the workshop participants worked for three hours in smaller groups of approximately five persons. Based on relevant topics provided by the course trainers, the groups developed APN ARCP research proposals or policy briefs under the supervision of the trainers. The elaborated topics were selected once for the full duration of the workshop and were assigned to a specific working group. Thus, the participants gathered into the same groups every afternoon, to develop their designated assignment. The resulting documents will be submitted to APN in 2012. In addition, the policy briefs will be published on the IHDP website as blog entries. Thereby, the policy briefs will not only add important content to IHDP's website but also enable and stimulate an open discussion on the essential themes elaborated in Nanjing.

The aim of the morning lectures was to build capacity among individual social science and humanities researchers within green economy research and other relevant networks. At the same time, the group activities during the workshop provided ample opportunities for more intimate interaction among the participants and for development of a basis for further collaboration after the workshop end. In order to create a multi-disciplinary and multifunctional environment, IHDP included participants with scientific as well as policy background in the workshop, and thereby encouraged interdisciplinary work and discussions.

Selection of participants

The workshop participants consisted of a diverse set of early-career researchers and decision-makers, working in the family of fields related to Green Economy or global environmental change from either a scientific or a political perspective. The majority of the participants were Asia-Pacific regional professionals who were experienced in conducting studies and developing projects, or who had otherwise been involved in an activity dealing with the workshop themes from a local or regional perspective. Besides the requirement of submitting general application material, such as a CV and a Letter of Motivation, the participants were asked to also submit a short paper (1000 words maximum), outlining Green Economy issues and questions in their country or region and a proof of

one published paper.

In the double-blind selection process the IHDP Secretariat in collaboration with the workshop trainers identified suitable participants based on specified selection criteria that took into account the quality of the submitted papers, as well as regional and gender balance. The evaluation criteria for the short paper were clarity and creativity, acceptable English language writing skills, appropriate use of information sources, and some understanding of Green Economy concepts and issues. In order to ensure different perspectives within the workshop, IHDP and its contributors also took into consideration gender and regional representation. Therefore, participants from specific countries were given special preference. These countries included:

- Bangladesh
- Bhutan
- Cambodia
- China
- Fiji
- India
- Indonesia
- Lao People's Democratic Republic
- Malaysia
- Mongolia
- Nepal
- Pacific Island Countries
- Pakistan
- Philippines
- Russian Federation
- Sri Lanka
- Thailand
- Vietnam

To be eligible the participants had to be in their early career, which was defined as no more than five years after their final degree. Of particular interest was to enable suitable "young professionals" from policy and other fields to participate in the event. The targeted groups of participants consisted of:

- Researchers who were expected to have a record of peer-reviewed publications in the field, and to have an interest in multi-disciplinary research as well as science-policy interaction.
- Other stakeholders, such as professionals associated with governmental and nongovernmental organizations, civil societies, and private industries working in the policy planning process and in the formulation and/or implementation of government and industrial policies targeted at the region, or in the organization of civil society for the solution of problems specific to the region. In this case, applicants were expected to show a record of working in the formulation and/or implementation of policies, in the foundation or management of nongovernmental organizations, or in the development of projects.

In addition to the general selection criteria, specific criteria applied to the two different groups of applicants. Researchers were required to hold a PhD or to be enrolled in a doctoral program. Moreover, they were only eligible if they already published at least one paper, and if they were currently studying or working in the field of academic research. Policymakers in turn were requested to hold a university degree and to be currently studying or working in the field of public policy or governance.

Besides reviewing submissions and selecting participants by means of the above stated eligibility criteria, the major collaborators also developed the curriculum and design of the workshop, wrote the final concept note and provided training modules for the course. In addition to these collaborators, IHDP was supported by its wide communication channels, its projects, and its National Committees (especially from the APN region) through publication of the event and contributions to its agenda. As local host institution, CNC-IHDP in particular contributed substantially to the organization of local logistical arrangements. Furthermore, IHDP collaborated with other GEC

programs and major UN agencies active on the topic of a Green Economy. Although the overall organizational management was in the responsibility of the IHDP Secretariat, including coordination of fundraising, communication with participants, and determination of the procedures for the selection process, these efforts were complemented by the endeavours of a large dynamic network. This reflects the interdisciplinary, international, and multi-scale basis to address the challenges posed by the concept of transitioning towards a Green Economy.

Workshop lectures

The workshop was opened with a keynote delivered by Frans Berkhout, who illustrated the objective of finding development pathways in the Asia-Pacific region on the example of the IHDP-IT project.

Asian development pathways and transitions to a Green Economy

Frans Berkhout

During the ten-year life cycle of IHDP's core project IHDP-IT, pathways towards a Green Economy were elaborated and profound knowledge on the topic was established. Due to the gained insights, the project provided a great opportunity to build capacity among the workshop participants regarding pathways of Asian development towards Green Economy. As the workshop was based on the knowledge gained from IHDP-IT-related research, the presentation aimed at familiarizing the participants with the project and its outcomes. Thus, the presentation gave insights into the history of the project, described the two phases of its lifecycle, and finally illustrated the achievements of IHDP-IT's ten-year activities.

The overarching goal of IHDP-IT, as stated in its initial Science Plan, was to explore pathways towards decoupling economic growth from related degradation of the environment. The main focus was set on production and consumption systems as well as on energy, food, and transport.

Green, Blue and Brown: Economics for Spaceship Earth (lecture 1 and 2)

Nicolas Kosoy

Nikolas Kosoy's two lectures focused on economic aspects of the Green Economy. Both aimed at critically analyzing the role of economics in satisfying human needs and wants. In doing so, answers to two main questions were sought. Lecture 1 analyzed what a Green Economy is and how it looks like. Lecture 2 examined ways to achieve a Green Economy. In order to approach these questions, an economic system was described by introducing the following contents as pillars for an embedded economy:

- Planetary life support systems
- Sacred goods and cultural fiduciary obligations
- Achieving fairness and equity
- Recognizing the role of merit
- Technological change, demand and supply curves
- Complexity and inter-dependencies
- Measuring progress

The course further described the need for innovative technologies, supporting sustainability by working within the planetary boundaries and illustrated the requirements of such technologies. A main part of the lecture introduced different kinds of economies, namely the brown, the green and the blue economy, and outlined their characteristics in regard to growth, production and consumption, response to environmental problems, waste treatment, and biodegradable products. The first part of the course concluded with the presentation of alternatives to the current economic systems, such as EJOs, degrowth and environmentalism.

During the second part of the lecture, which opened the second workshop day, Nicolas Kosoy emphasized the current transgressing of planetary boundaries and main causes of this exceedance. After an introduction on the sustainability and growth debate, the lecturer stressed the failures of growth and the free market. The main detected aspects were the inability to lower the ecological footprint and the failing of decoupling the economy and the ecological impact. This analysis led to the conclusion that the current economy will not lead to sustainability. Observations in the past show that increases in GDP were coupled with a decrease in GPI, which accounts for social and environmental factors. Furthermore, the extraction of natural resources considerably increased over the last five decades. In order to ensure an economy that provides continuous growth but at the same time reduces negative social and environmental externalities, a set of conditions were identified:

- New meanings and measures of success
- Limits on materials, energy, wastes and land use
- Voluntary simplicity
- Stable population and labor force
- Carbon price - more informative prices
- More efficient capital stock
- Shorter work year
- More generous anti-poverty programs
- Fewer status goods
- More informative advertising
- Education for life not just work

As one method to achieve this, the idea of degrowth was introduced. The main arguments suggesting for degrowth were the fact that infinite growth in a finite world is impossible and the awareness that growth does not deliver promises for the collective-wellbeing. To enhance the understanding of the concept, different transitional economic pathways, including de-growth and a-growth were compared based on the following premises:

- Pay systematic attention to bio-geophysical boundaries
- Respond to inequality challenges
- Balance decision-making power across objectives and stakeholders
- Make use of multiple metrics and measurements of progress
- Identify and address sources of instability

The overall conclusion of the presentation emphasized the main requirements of an economy that serves Planet Earth. Such an economy must:

- Capture and distribute planetary resources within and beyond the human
- Improve actual well-being, and re-embed it in ecological reality
- Provide appropriate information, knowledge, and decision-making processes concerning the interplay of the planetary boundaries and human capacities
- Recognize future time as ethically important
- Re-physicalize provisioning, sustaining, sufficiency on a planetary household scale
- Promote sustainable ways of life through different forms of ethos

Urbanization, Industrialization and Environmental Change in Asia

Xuemei Bai

The lecture explored the trend of urbanization and industrialization, as well as the associating environmental issues within the urban context and at regional and global scales. The first

course was divided into two parts: The first part was conducted as a lecture highlighting issues and trends, and introducing an evolutionary point of view towards urban environmental change. The lecture started with an introduction to the increasing urbanization over time and the relation between urbanization and economic growth. The positive and negative consequences as well as the drivers and impacts of urbanization were introduced and issues related to urban growth were elaborated by drawing on the example of Chinese mega cities. Subsequently, the lecture showed the global impact exerted by urbanized areas and the disproportion of this huge impact in comparison to the relatively low urbanized earth surface. The course introduced three major types of urban environmental issues, namely poverty-related issues, rapid growth-related issues, and wealthy lifestyle-related issues. Concluding the first part of the lecture, it was demonstrated that every city is subject to a process of urban environmental evolution. During time, cities pass different stages, whereby each stage's environmental impact is influenced by one of the major types of urban environmental issues. The environmental evolution of cities is strongly non-linear, and each evolutionary trajectory is shaped by a unique combination of endogenous and exogenous forces, reflecting both pressures from outside the system and the responses from within the city. The evolutionary process can be ascribed to the fact that cities are complex systems, which are subject to constant change.

The lecture's second part covered a discussion around the issues presented and allowed the participants to raise questions. To animate the discussion the lecturer raised the following discussion questions:

- What does a Green Economy in developing cities mean?
- What would it look like?
- To what extent is it dependent on the cities' socio-economic environmental conditions?

The aim of the course was to enable the participants to achieve a better understanding on the complex relationships between industrialization and economic growth, as well as urbanization and environmental issues. Furthermore, it aimed at understanding the need for a transformative approach towards future development pathways in the region.

Urban Sustainability Experiments and Transition in Asia
Xuemei Bai
Based on the insights gained during the previous course, the second morning lecture discussed urban governance and innovative practices for sustainability transitions.
The second session started with a brief introduction on conceptual and theoretical perspectives of transition in cities, followed by an extensive examination and discussion on innovative practices in Asian cities. The course explored real world examples showing why some cities are doing better than others in terms of sustainability, what are the main factors that contribute to the successes and/or failures of the practices, and what are the roles of these innovative practices in the overall sustainability transition of cities in the region. The participants were encouraged to prepare a short critique on a particular (or a group of) success or failure story of urban sustainability-related initiatives within their own cities, and to share it with the class.

Governance and Socio-technical Transitions
Frans Berkhout
Focusing on the technological aspect of the transition towards a Green Economy, Frans Berkhout guided two courses on the role of innovation and adoption of new technologies in achieving this transition. As a Green Economy will be based on new, non-conventional patterns of production and consumption, with an emphasis on efficiency, closed-loop systems as well as renewable energy, innovation and adoption of new technologies play a vital role. At the same, time markets and

governance are key aspects in creating the incentives and selection mechanisms for new technologies and behaviors. The aim of both training unites was the emergence of theoretical understandings and empirical evidence of socio-technical transitions in rapidly-emerging economies.

The learning objectives of the first part of the technology-related course were as follows:

- Learn some features of innovation theory
- Apply these insights to socio-technical innovations
- Reflect on the role of public and private governance in shaping socio-technical transitions

Based on the learning objectives, the course started with an introduction to innovation theory and outlined different forms and models of innovations. Thereby, it was illustrated how innovations happen and different processes of innovation were described. Utilizing this theoretical knowledge, the course focused on the particular matter of socio-technical innovation. This specific area involves innovations in several aspects, including technology, practices, expectations, norms, and beliefs. Socio-technical systems consist of different levels and include various areas and participants. Thus, innovation has to happen throughout the whole system. Regarding the transition process of an innovation, the course covered three different theories, which distinguish each other through the question of how to generate and sustain change.

A further important aspect covered in the course was the governance of innovations, which includes public, private, and social governance. As innovators do not experience all the rents that are flowing from their innovation, for example environmental benefits, there is a tendency to under-invest in Research and Development activities. Therefore, governments set incentives, invest in research, and put regulations in place. The role of governance is of crucial importance because it creates a demand for innovations. Furthermore, there has been a shift in focus away from specific environmental innovations towards the analysis of large-scale, long-term system innovations. In this context, policy and governance are concerned not only with the supply and demand of innovations, but with reshaping the institutional context in which innovation occurs.

Systems Innovation and Technological Catch-up
Frans Berkhout
The learning objectives for the second technology-related course were to:

- Understand the problem of economic-environmental convergence thesis
  - Is there a way of theorizing “green growth”?
- Assess catch-up theory and some of its problems
- Reflect on (sustainable) innovation in latecomer countries using a systems innovation approach

Initially, the course compared figures in GDP growth, energy consumption and CO_2 emission from developing as well as developed countries. Describing conventional growth, key factors of economic development were illustrated, including labor productivity improvements through the adoption of technologies from leading countries, capital availability, supply of labor, and “social capabilities”. It was also stated that “catch up” by latecomer countries requires not only backwardness, but also facilities for knowledge diffusion, politico-institutional conditions enabling structural change and macro-economic conditions favoring investment and demand growth. Furthermore, as indicated by the economic-environmental convergence thesis, structural change, technology adoption and “social capabilities” determine resource- and pollution-intensity. Firms in leading economies are the source of technologies, which are adopted and imitated in latecomer countries. The growth of industrial GDP in Asian countries is relatively high, which also means higher rates of capital turnover and new capital investment. Much of this capital investment involves trade and foreign investment

with OECD economies. Thus, OECD countries gain the opportunity to influence new technology and investment choices in Asia. Furthermore, they can have an impact on the replacement of older capital stock with newer, more energy-efficient and less energy- and material-intensive products and processes.

In order to ensure the greening of the "developmental stage" in Asia, governance in form of political salience of sustainable development, sustainable development strategies and policy reforms, as well as social movements are essential. With the proposition that green innovations will emerge and diffuse in late-comer countries first, these countries will respond to emerging scarcities, adapting to price and political signals and taking the opportunity of simultaneous transitions. However, this will only be enabled through global knowledge, technology, trade and investment flows. Further needs in regard of green innovations in latecomer countries are a perspective emphasizing social and institutional embeddedness through interactions and the involvement of firms, consumers, and institutional system. Analysis of innovation in emerging and weak innovation systems is also essential. Furthermore, innovation has to be placed in a multi-level transnational perspective, as flows of knowledge and resources weaken constraints of national settings for innovation.

Utilizing the model of multi-level systems, introduced during the first part of the course, innovation was described from a multi-level perspective. By means of the multi-level system it was analyzed how green innovations emerge as a component of green growth, and which factors influence this emergence.

Concluding the course, the lecture emphasized the importance of introducing radically new socio-technical systems to achieve sustainable development. Furthermore, it was stressed that many of the innovations enabling sustainable development will need to be adopted in latecomer countries, from early stages of development. Finally, the fluidity of traditional ways of doing things in developing countries was stated to be both a barrier and an opportunity for innovation.

Why Equality and Well-being are Essential to Sustainability

Deborah Rogers

In her lecture during the Nanjing workshop, Deborah Rogers focused on the aspect of well-being and its influence on the transition towards a Green Economy. Well-being is an essential issue regarding the transition to sustainability, as it represents an important prerequisite for it. Thus, social sustainability as well as environmental sustainability, meaning providing for the well-being of all, and ensuring socioeconomic equity, is vital for this transition. The willingness of societies' members and communities to make the efforts needed for the transition to sustainability highly depends on the presence of well-being and equity. Achieving sustainability often involves accepting limits and tradeoffs, which most people are only willing to accept if they feel that others are making similar sacrifices. Furthermore, if well-being and equity are not present, communities and societies will likely experience social, economic and political instability, thus disrupting any sustainability initiatives in place.

During the course, the meaning of equity and well-being, the reasons why they are necessary to sustainability, and the kinds of policies needed to ensure their provision were discussed. The content was delivered during two sessions of the workshop.

The first session covered detailed definitions of equity and well-being, provided data on the relationship between both, and discussed the reasons for their high impact on the transition to sustainable development or a Green Economy. The course started with an introduction to Green Economy, including a definition of the term and a description of its components. In order to answer the question why social sustainability is essential for a Green Economy, the concept and its

elements, namely biological needs, social needs, and the need for process, was also defined. By means of several examples it was pointed out that social sustainability needs to be present in all aspects of a society in order to ensure stability. Subsequently, the relation between humans' well-being and the state of the environment was drawn, leading to the recognition that well-being depends on well-functioning ecosystems. These however, require functioning societies, as healthy and satisfied individuals will more likely be concerned about environmental protection. Furthermore, good governance is vital for the legal and political protection of the environment, and economic resources are necessary to implement best environmental practices. For a greater understanding of this relation the term well-being, including its physical and social elements, was defined and the problem of measuring well-being was stressed. Due to the multidimensional and context-specific characteristic as well as its subjective nature, a variety of factors have to be considered and evaluation cannot be based on income and utility only. In this context, also the shortcomings of GDP in measuring well-being were described. Having provided detailed information on well-being, the lecturer elaborated essential problems in achieving well-being and sustainability and stressed the inability to overcome these problems by means of economic growth which often leads to even greater inequality. Inequality in turn has a variety of negative impacts on societies in regard to conflicts, migration, societal ills, cooperation, trust and fairness. The course concluded with showing the positive effects equality has on societies and sustainability. As equality leads to shared interests, it facilitates cooperation and eventually leads to a sustainable future.

Policies and Pathways to Equity and Well-being

Deborah Rogers

During the second session, the various policies and structures that must be in place in order to move towards sustainability as well as metrics to measure progress were discussed. Deborah Rogers also led a discussion among workshop participants about how these considerations are viewed in their home countries, and whether there are realistic ways to move towards these elements of social sustainability in conjunction with a Green Economy.

The lecture first introduced the goals of new policies that are the same for various policy areas. They all work towards:

- Human well-being (physical, social)
- Equity within and among communities, states, regions
- Social and environmental resilience and sustainability

To reach these goals, diverse methods are utilized within different policy areas. These measures were described in regard to economic policies, governance policies, caste, race and ethnicity policies, gender policies, health care policies, education policies, communication and technology policies, law enforcement and judiciary policies, as well as security and military policies. Taking up the measurement problematic, especially in regard to the shortcomings of GDP in capturing well-being, the course provided an explanation of efforts to correct GDP. Subsequently, new metrics, utilized to measure various social aspects, such as environment and economic interactions, health, educational progress, social progress, other activities with economic value, political voice, and personal security, were introduced. In addition, a number of indices were illustrated. Before proceeding with the group discussion, trade offs for well-being and the barriers to progress were elucidated. Concluding the course, the discussion then focused on two questions:

- What are barriers to implementation of each set of policies in each country?
- What are some suggested strategies for implementation of policies in each country?

The workshop saw its last presentation on the fourth day, delivered by Anantha Duraiappah.

Green Economy and the Emperor's New Clothes

Anantha Kumar Duraiappah

The presentation focused on Green Economy by drawing a comparison to the tale "The emperor's new clothes". Starting with a description on what the Green Economy entails, Anantha Duraiappah further concentrated on what is needed to deliver it. As necessary prerequisite for a Green Economy, ecological surety was determined, which is only attainable through behavioral change. Secondly, he pointed out social equity as further prerequisite for a Green Economy. As markets are not designed to address equity issues and also the trickle down theory does not address equity but rather absolute poverty, an essential requirement for social equity is the institutional oversight of economic facilities, transparency guarantees, social opportunities, protective security, participatory opportunities and ecological surety. Moreover, the capability of achieving basic functions, such as nourishment, shelter, security and esteem, is also vital for social equality.

The course went on to define sustainability and to answer the question of how to measure progress in a Green Economy. In this context, traditional measurements, such as GNP/capita and HDI, as well as their shortcomings were discussed. Despite supporting the macroeconomic effect of efficiency gains, GNP/capita does not consider equity or environmental impacts and is not focusing on sustainability. While HDI expands to include social variables, the equal weighting of variables still allows GNP/capita to dominate. Furthermore, HDI also fails to consider the environment and lacks a sustainability focus. Resulting from these shortcomings, the necessity of a new approach to measure progress becomes apparent. Utilizing inclusive wealth as a measure provides such an approach. It measures the productive base or inclusive wealth of an economy, which is the discounted sum value of manufactured capital, human capital, social capital, and natural capital. Thus, to attain non-decreasing well-being, non-decreasing inclusive wealth is required. Concluding the presentation, Anantha Duraiappah summarized the main messages of the course:

- Behavioral change is key for ecological surety
- Capability and instrumental freedom are key to social equity
- Inclusive Wealth (IW) is a new metric for progress

3.0 Results & Discussion

By means of the lectures, focusing on topics built around the Green Economy, the workshop greatly contributed to capacity building in this area. Through the morning lectures, conducted by scientists from diverse fields, the participants had the opportunity to gain profound insight to different issues related to the Green Economy and the possible development pathways of transitions towards such an economy. Covering the topics of governance and technology, economics, as well as equity in the context of Green Economy allowed the participants to consider different perspectives. The cautious selection of participants and the combination of scientists and policymakers contributed to high-quality outcomes in form of policy briefs and science proposals, broadened the discussion topics and augmented science-policy interaction. The workshop contributed to enhanced awareness in regard to the science-policy interface by including the latest scientific findings and new ideas within the policy process. In addition, it confronted participants with the demands and process requirements of the Rio+20 context.

The workshop established several tangible outcomes through its daily group work. The different groups were working on four topics within the area of the Green Economy, and initiated the process of developing policy briefs or research proposals according to the area of discussion. The groups elaborated on the following themes:

- APN Funding Proposal 1:
- Innovation and Diffusion of Green technology in Asia
- APN Funding Proposal 2:
- Strategies for Social and Environmental Sustainability in Asian Development Policy
- Policy Brief 1:
- Role of Government Policy in the Promotion of Renewable Energy in Asian Countries
- Policy Briefing 2:
- Moving Towards Social and Environmental Sustainability

During the afternoon group work, each team worked together with an assigned lecturer. Besides ensuring high quality with regard to the developed documents, the lecturers allowed for enhanced interaction and mentorship. In addition to the interaction among participants and between the participants and the lecturers, participants also had the opportunity to meet IHDP's Scientific Committee members and to involve in an active exchange.

The workshop led to the creation of a group that is still interacting on a regular basis. Its participants are connected within a virtual community, where they are in constant exchange. The main achievement of these ongoing relations is the creation of connections across disciplines and across borders. Thus, the workshop enabled Asia-wide trans-disciplinary networking with the potential for long-term collaborations. By following a regional instead of a global approach, the workshop further facilitated collaboration. As the participants focused on common topics, cooperation was simple and more likely. The group of participants was composed of scientists and practitioners, creating diverse interactions and enabling interdisciplinary discussions.

To ensure the desired impact of the workshop, results will be discussed in the Summary for Decision-Makers that is planned to be distributed to international policymakers as a contribution to the Rio+20 process. As one of the major topics at the UNCSD in Rio, the field of the Green Economy considerably gains momentum. Moreover, developing countries' rapid economic growth and the environmental challenges that traditional economies are unable to address, illustrate the necessity for a transition towards a Green Economy. This transition, however, is not only important for developing countries; instead it concerns future generations on a global scale, due to the tremendous environmental challenges worldwide. By means of the established network of scientists and policymakers, the workshop did not only address this pressing issue but also encouraged further research as well as continuous collaboration among the workshop participants. In addition to the workshop and its follow-up activities, IHDP is working on a range of activities in the field of the Green Economy, and will continue its efforts in this scientific area.

Due to the success of the event, the relevance of the topic, and the successfully maintained interaction of the participants after the workshop, IHDP considers the possibility of integrating the participants into future IHDP activities related to the Green Economy.

4.0 Conclusions

1. Enhance awareness and understanding of the human dimensions of GEC, particularly related to the themes of UNCSD 2012, with a focus on transitions toward a "Green Economy"

The workshop trainers enhanced awareness of the human dimensions of GEC among the participants through the daily morning lectures which laid a special focus on Green Economy topics. As each lecture considered a particular issue related to the transition towards a Green Economy, the

participants did not only gain general knowledge on the Green Economy but had the opportunity to understand the following aspects of the concept:

- Governance and Technology
- Economics
- Equity

Each aspect was examined during two morning lectures, giving the participants the possibility to establish a broad understanding of each topic. Besides this enhancement of understanding, the lectures also increased the participants' capacity to conduct research on topics relevant for the development of the Asia-Pacific region.

By means of the group work, the participants solidified this knowledge through the development of policy briefs and research proposals. This process was additionally supported by the mentorship of the workshop trainers.

Furthermore, all lectures and group works were related to topics relevant to the upcoming UNCSD 2012, as the results of the workshop contributed to the policy process of the Rio+20 conference. This connection to the Rio+20 process enabled the workshop to significantly contribute to the current APN focus on effective science-policy interactions.

2. Strengthen the human dimensions research community in the APN region and help establish contacts and networks with the international research community, as well as policy communities, e.g. build on and broaden the research network established by IHDP-IT – especially in the context of UNCSD 2012

The continuous collaboration of the workshop participants illustrates IHDP's success in strengthening the research community in the APN region. The collaboration was facilitated through the conduction of a regional instead of a global workshop. Thereby, IHDP created a group that is still actively exchanging, and established connections across borders and disciplines. Furthermore, the potential of IHDP's future cooperation with the participants provides the opportunity to connect these young scientists from the APN region with the global IHDP community. One step towards such collaboration was made through the development of the funding proposals for APN's consideration in 2012. These proposals have the potential to lead to long-term collaborations and to the enhancement of regional networking.

The combination of participants with a scientific background as well as practitioners and policymakers further suggests for enhanced network building in the field of the Green Economy in the Asia-Pacific region. The science-policy interface was also improved by ensuring the contribution of the workshop outcomes to the UNCSD 2012 policy process. The "Summary for Decision-Makers" (SDM) currently in preparation will reach out to policymakers, providing them with detailed information on the outcomes of the workshop.

Although, the workshop was very successful in connecting young scientist and policymakers from the APN region, there are still future efforts needed in order to connect the workshop participants with the global research community.

3. Promote communication between science and policy and develop capacity to engage in science-policy dialogues as an interactive two-way process

The workshop participants group was composed of young scientists and policymakers from the Asia-Pacific region. This combination of professionals from science and policy who came from the same

region facilitated communication and cooperation among the participants during the workshop. Therefore, the workshop enabled collaboration between individual scientists and policymakers, who sought to locate common ground and thus, moved one step further towards finding shared forms of communication. Thereby, the participants gained the opportunity to develop overarching capacities by building bridges between science and policy. This constructive interaction during the event led to a constant two-way exchange after the workshop, which is being undertaken until now.

The policy briefs and the upcoming SDM will address policymakers with the pressing issues elaborated at the workshop. These activities have the potential to emerge into a two-way science-policy dialogue. Furthermore, the workshop contributes to the policy process for UNCSD 2012 and the outcomes will directly feed into the Rio+20 conference. Thereby, the undertaken efforts will exert influence on policymakers and strengthen the current APN focus on effective science-policy interactions.

IHDP also continues working on Green Economy issues, and future actions are likely to include workshop trainers and trainees from the Nanjing workshop. As one of IHDP's main pillars, science-policy interaction will be a major part of IHDP's Green Economy endeavours.

4. Support the development of participant research proposals, as well as the production of policy briefs and background documents in the context of UNCSD 2012

The research proposals and policy briefs were developed during the daily afternoon group work. By means of the morning lectures, the trainees established a profound understanding of different aspects of the Green Economy and the needs and possible development pathways of transitioning towards it. The trainers provided the participants with the necessary background to establish the requested documents already during their lectures, and equipped the working groups with the essential knowledge to work on their designated topic. Additionally, each group was joined by one of the lecturers. Thereby, active exchange between the trainers and trainees was enabled and the groups had the opportunity to seek direct support from the science experts. Besides enriching the produced papers, this method also allowed for the participants to deepen their understanding and to communicate not only amongst each other but also with the trainers. This approach was very successful and led to the high quality of the policy briefs and research proposals.

5.0 Future Directions

The IHDP Secretariat has planned a series of events and deliverables to contribute substantial scientific input for the international process of the upcoming UNCSD 2012. Due to the importance of the topic at UNCSD 2012, the Green Economy was a major part of these events and will remain an important research focus of IHDP. Future efforts in this area are likely to include trainers and trainees from the Nanjing workshop. Thus, there is a great potential for long-term collaboration between IHDP and the workshop participants. At the same time, IHDP, through the workshop, established cooperation between the workshop participants. The participants initiated an online community that serves a platform for constant exchange, contributing to network activities within the Asia-Pacific region. This continuous communication on scientific research in relation to the Green Economy has the capability to emerge into a long-term cooperation between the young scientists and policymakers from the Asia-Pacific region.

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Appendix

Conferences/Symposia/Workshops

1. *Agenda/Program*

Training Workshop on Asian Development Pathways in the context of transitions towards a "Green Economy"
17 October to 21 October 2011 in Nanjing, China
Suti Tianyun Lake Sports Resort
No. 1167 Phoenix Road, Qinglong Hills, Jiangning District, Nanjing, China

Monday 17 October 2011

09:00 – 10:30	*Welcome* **Opening Ceremony Key-Note: Asian development pathways and transitions to a Green Economy** Speaker: Frans Berkhout
10:30 – 11:00	*Break*
11:00 – 12:30	*Lecture* **Green, Blue and Brown: Economics for Spaceship Earth** Lecture by Nicolas Kosoy
12:30 – 14:00	*Lunch*
14:00 – 17:00	*Group Work* Development of Proposal or Policy Brief

Tuesday 18 October 2011

9:00 – 10:30	*Lecture* **Green, Blue and Brown: Economics for Spaceship Earth** Lecture by Nicolas Kosoy
10:30 – 11:00	*Break*
11:00 – 12:30	*Lecture* **Urbanization, Industrialization and Environmental Change in Asia** Lecture by Xuemei Bai
12:30 – 14:00	*Lunch*
14:00 – 17:00	*Group Work* Development of Proposal or Policy Brief

Wednesday 19 October 2011

09:00 – 10:30	*Lecture*

	Urban Sustainability Experiments and Transition in Asia
10:30 – 11:00	*Break*
11:00 – 12:30	*Lecture* **Governance and Socio-technical Transitions** Lecture by Frans Berkhout
12:30 – 14:00	*Lunch*
14:00 – 17:00	*Group Work* Development of Proposal or Policy Brief

Thursday 20 October 2011

09:00 – 10:30	*Excursion* **APEC Conference Opening Session**
12:30-13:30	*Lunch*
13:30 – 15:00	*Lecture* **Systems Innovation and Technological Catch-up** Lecture by Frans Berkhout
15:00 – 15:15	*Break*
15:15 – 16:45	*Lecture* **Why Equality and Well-being are Essential to Sustainability** Lecture by Deborah Rogers
16:45 – 19:00	*Break*
19:00	*Excursion* "**Nanjing by Night"** Sightseeing Tour

Friday 21 October 2011

09:00 – 10:30	*Lecture* **Policies and Pathways to Equity and Well-being** Lecture by Deborah Rogers
10:30 – 11:00	*Break*
11:00 – 12:30	*Farewell* **Closing Ceremony "Green Economy and the Emperor's New Clothes"** Speaker: Anantha Duraiappah
12:30 – 14:00	*Lunch*
14:00: - 17:00	*Group Work* Development of Proposal or Policy Brief
17:00 – 19:00	*Break*
19:00	*Reception* **Dinner Reception jointly with the IHDP SC Meeting**

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Funding sources outside APN

CNC-IHDP
CNC-IHDP supported the accomplishment of the workshop in various ways, including organizational tasks, of which the arising personnel costs were an in-kind contribution, as well as coverage of various costs related to the workshop:

- CNC-IHDP covered the costs of five meeting rooms (including equipment) for the workshop with capacities for approximately 15-20 persons each and one meeting room for opening, closure and lectures with capacities for approximately 40-50 persons. These costs were an in-kind contribution.
- CNC-IHDP organized and covered the costs of a dinner reception for up to 50 participants. These costs were an in-kind contribution.

A detailed budget breakdown is illustrated hereafter:

Estimated costs for IHDP Training Workshop 2011 in China

	Round-trip Airfare	Per diem		No. of Persons	Total US$	UNU-IHDP US$	CNC-IHDP US$
		Accommodation (1 week)	Allowance (1 week)				
TRAVEL							
22 workshop participants from developing countries	1000 (average est.)	350		20	29700		29700
3 workshop participants from China	0	0			0		
5 trainers from various locations + 1 IHDP Staff	1500-2000 (some flights already covered)	350		5	7600	3400	4200
Other Costs					**37300**	**3400**	**33900**
Local transportation/airport transfer (28 persons @ $100)					2800	100	2700
Lump sum payment for travelers for misc. ($25 per person per day)					3500	250	3250
Visa fee (ca. 28 persons @ $140)					3920	280	3640
Catering (all meals for all participants @ $150 per participant)					4200		4200
Copying/printing					780	270	510
Consumables, equipment rental					500		500
Production of Summary for Decision-Makers (SDM) on Green Economy @ $7,000					7000	7000	
					22700	**7900**	**14800**
				Total	**60000**	**11300**	**48700**

List of Young Scientists

For the list of scientists, including their affiliation and contact details, please refer to the participants list provided in the second part of the section Conferences/Symposia/Workshops.

All scientists were assigned to a group of approximately five participants, each developing a funding proposal or policy brief concerning one designated topic. The groups were composed as follows:

Green Group
APN Funding Proposal 1:
Innovation and Diffusion of Green Technology in Asia

- Bista, Raghu Bir
- Jolly, Suyash
- Jupesta, Joni (PhD)
- Das, Daisy (PhD, Ms.)
- Mangan, Tehmina

Blue Group
APN Funding Proposal 2:
Strategies for Social and Environmental Sustainability in Asian Development Policy

- Tan, Rong (PhD)
- Peng, Lilliana
- Huq, Nazmul
- Clemente, Tina Saavedra (PhD)
- Ahamad, Mazbahul Golam
- Luong, Vinh Quoc Duy
- Saboor, Abdul (Dr.)

Red Group
Policy Brief 1:
Role of Government Policy in the Promotion of Renewable Energy in Asian Countries

- Bakshi, Shilpi Kapur (PhD)
- Gengaiah, Uma (Dr.)
- Kandel, Bibek Raj
- Dulal, Hari Bansha (PhD)

Yellow Group
Policy Briefing 2:
Moving Towards Social and Environmental Sustainability

- Fatimah, Yuti Ariani
- Alam, Mahmudul (Md.)
- Yu, Lu
- Mukherjee, Sacchidananda (PhD)
- Nissanka Arachchillage, Aruna Prasad
- Geekiyanage Don, Anurasiri Nalaka
- Yadav, Pramod Kumar (Dr.)

Glossary of Terms

CNC-IHDP	Chinese National Committee for the International Human Dimensions Programme on Global Environmental Change
EJO	Economic Justice Organization
GDP	Gross Domestic Product
GEC	Global Environmental Change
GNP	Gross National Product
GPI	Genuine Progress Indicator
HDI	Human Development Index
ICSU	International Council for Science
IGFA	International Group of Funding Agencies for Global Change Research
IHDP	International Human Dimensions Programme on Global Environmental Change
IHDP-IT	Industrial Transformation Project
IW	Inclusive Wealth
OECD	Organizations for Economic Co-operation and Development
Rio+20	United Nations Conference on Sustainable Development 2012
SDM	Summary for Decision-Makers
UNCSD 2012	United Nations Conference on Sustainable Development 2012
UNU	United Nations University