RIHN/UNESCO-IHP/UNU-IAS International Symposium

Water, Cultural Diversity and Global Environmental Change: Emerging Trends, Sustainable Futures?

地球研・ユネスコ・国連大学　国際シンポジウム

水の未来可能性－文化多様性とともに

PROGRAMME & ABSTRACTS

プログラム / 要旨

Date: October 1(Thu)-3(Sat), 2009
Venue: Lecture Hall, Research Institute for Humanity and Nature
Room D, Kyoto international Conference Hall
Organizers: Research Institute for Humanity and Nature (RIHN)
UNESCO International Hydrological Programme (UNESCO-IHP)
Institute of Advanced Studies, United Nations University (UNU-IAS)

日時　2009 年 10 月 1 日（木）－ 3 日（土）
場所　総合地球環境学研究所 講演室・国立京都国際会館 Room D
主催　総合地球環境学研究所
ユネスコ（国際連合教育科学文化機関）
国際連合大学高等研究所

Objectives

The objective of this international symposium is to encourage global recognition of, and respect for, cultural diversity in water resources management, in order to facilitate collaborative actions for sustainability of water and cultures. The symposium is part of a series of activities that have been implemented on the topic, most notably public sessions held in the past four World Water Forums. The symposium will bring together an international and interdisciplinary community of scholars, scientists, advocates and policy makers to explore various issues, such as: "water cultures" and the culture of water; how traditional ways of life are threatened due to the loss of water resources, and, how traditional knowledge might contribute towards future water security; how water resource development and management has undermined the viability of culturally diverse groups, and, how water resource management can strengthen biodiversity and cultural diversity; and, alternative futures: strategic recommendations for incorporating socio-cultural perspectives into water resource management systems, addressing rights and entitlements to water, and stewardship principles and responsibilities.

趣旨

水について考え、その価値を認め、利用する行為は、それぞれが帰属する文化の影響を受けています。世界の水問題が深刻化するなか、私たちは水の文化的側面を考慮することなしに適正な水管理はありえないと考え「水と文化多様性」をテーマに議論を重ねてきました。今回のシンポジウムはその成果を継承したものです。

PROGRAMME

Day 1 Thursday, 1 October 2009

09:00-09:30 Opening addresses

SATO Yo-Ichiro, *Deputy Director-General, RIHN*

Richard A. MEGANCK, *Former Rector, UNESCO-IHE Institute for Water Education, The Netherlands*

Govindan PARAYIL, *Director, UNU-IAS, Australia*

Session 1 Diverse water cultures and ecologies

09:30-13:00 Chair: **AKIMICHI Tomoya,** *RIHN*

09:30-10:00 Diversity of Indigenous people's cultural meanings, values and perceptions of water

Monica MORGAN, *Murray Lower Darling Rivers Indigenous Nations, Australia*

10:00-10:30 Indigenous water management in Africa

Rodah ROTINO, *Kenya, Indigenous World Forum on Water and Peace (IWFWP)*

10:30-10:50 *Coffee/tea*

10:50-11:20 Scarce water resource, culture and society: A case study of a Tibetan Buddhist village

Tashi TSERING, *University of British Columbia, Canada*

11:20-11:50 Diverting water: Cultural plurality and public water features in an urban environment

Veronica STRANG, *University of Auckland, New Zealand*

11:50-12:20 Water Culture: Could be a common means for water environment protection?

ZHENG Xiao Yun, *Yunnan Academy of Social Sciences, China*

12:20-12:50 **Discussion**

Discussant: **David GROENFELDT,** *Santa Fe Watershed Association/Indigenous Water Initiative, USA*

12:50-14:00 *Lunch*

Session 2 Development and/or diversity? Water as a managed resource

14:00-18:00 Chair: **Daniel NILES,** *RIHN*

14:00-14:30 From sacred to transferable waters: The paradigm shift in India's river policies

Kelly D. ALLEY, *Auburn University, USA*

14:30-15:00 Legacies and challenges to integrating cultural diversity in the Sierra Leone water sector

Fenda AKIWUMI, *University of South Florida, USA*

15:00-15:30 Climate change and agro-pastoralist ecologies in the Three Parallel Rivers region, Yunnan, China

YIN Lun, *Yunnan Academy of Social Sciences, China*

15:30-15:50 *Coffee/tea*

15:50-16:20 Drowning under progress: Water, culture and development in the Greater Mekong Subregion
Nathanial MATTHEWS, *International WaterCentre, Australia*

16:20-16:50 Living with dams: Japanese experience of dam development and people's lives
TAKESADA Naruhiko, *Meikai University, Japan*

16:50-17:30 **Discussion**
Discussant: Marcus BARBER, *James Cook University, Australia*

18:30 **Welcome Reception** at Royal Hotel & Spa

Day 2 Friday, 2 October 2009

Session 3 Future ecologies: Water, environmental change and cultural adaptation

09:00-13:00 Chair: **NAKAYAMA Mikiyasu,** *Graduate School of Frontier Science, The University of Tokyo*

09:00-09:250 Water, culture, power: Emerging trends and implications for sustainable futures
Barbara Rose JOHNSTON, *Center for Political Ecology, USA*

09:25-09:50 Climate change and the downstream implications of retreating glaciers:
The sociocultural consequences of the Bhagirathi River's decline
Georgina DREW, *University of North Carolina, USA*

09:50-10:15 Reimagining the river: Contest over multifunctional river flood planning in Western Europe
Jeroen WARNER, *Wageningen University, the Netherlands*

10:15-10:30 *Coffee/tea*

10:30-10:55 Urban river cultures
Irene J. KLAVER, *University of North Texas, USA*

10:55-11:20 The Water Culture Atlas project: Strategies and technological alternatives for water in Latin America and the Caribbean
Ana BUTI, *Republic of Uruguay University, Uruguay*

11:20-11:50 **Discussion**
Discussant: **Marcela BRUGNACH,** *University of Osnabrück, Germany*

11:50-12:35 *Lunch*

12:35 Shuttle bus leaves RIHN for public event

Public Forum

WATER, CULTURAL DIVERSITY & GLOBAL ENVIRONMENTAL CHANGE

Chair: **KUBOTA Jumpei,** *RIHN*

13:00-17:00

13:00-13:05	Opening addresses **TACHIMOTO Narifumi,** *Director-General, RIHN*
13:05-13:10	Symposium objectives **ABE Ken-ichi,** *RIHN*
13:10-13:40	The water-culture-environment nexus: Practical lessons from the field **Richard A. MEGANCK**, *Former Rector, UNESCO-IHE Institute for Water Education, The Netherlands*
13:40-14:10	Cultural value of water among indigenous people **Esther CAMAC,** *Association for Indigenous Development and Information, Costa Rica*
14:10-14:40	Water and Japanese civilization **TAKEMURA Kotaro,** *Japan Water Forum*
14:40-15:00	*Coffee/tea*
15:00-15:40	Water and cultural diversity in Life Environmentalism **KADA Yukiko,** *Governor, Shiga Prefecture, Japan*
15:40-17:00	**Panel Discussion** Moderator: **ABE Ken-ichi,** *RIHN*
17:00-18:00	**Poster session/Youth artwork exhibition**

Day 3 Saturday, 3 October 2009

Session 4 Roundtable Discussion

09:00-13:00	Mainstreaming cultural diversity in water resource management Chair: **Lisa HIWASAKI**, *UNESCO-IHP, France*
09:00-09:20	Aboriginal perspectives in water resource management: The way forward *Live-video comments from* **Henrietta MARRIE,** *The Christensen Fund, Australia*
09:20-9:40	The power of diversity: Water, culture, and the challenge of shared difference in water resource management **Marcus BARBER,** *James Cook University, Australia*
09:40-10:00	Droplets of hope: Searching for sustainability and common ground through traditional water attitudes and knowledge in the Arab/Israeli conflict **Rosina HASSOUN,** *Michigan State University, USA*

10:00-10:20 Applying indigenous values to water management
David GROENFELDT, *Santa Fe Watershed Association/Indigenous Water Initiative, USA*

10:20-10:35 Integrating indigenous knowledge into water policies
Ameyali RAMOS-CASTILLO, *UNU-IAS Traditional Knowledge Initiative, Australia*

10:35-10:55 *Coffee/tea*

10:55-12:00 **Discussion**

12:00-13:00 *Lunch*

Session 5 Working Groups

13:00-17:30 Strategic recommendations for incorporating sociocultural perspectives into water resource management
Chair: **WATANABE Tsugihiro,** *RIHN*

13:00-15:30 Participants break into working groups

15:30-15:45 *Coffee/tea*

15:45-16:00 Presentation of Working Group 1

16:00-16:15 Presentation of Working Group 2

16:15-16:30 Presentation of Working Group 3

16:30-17:30 **Discussion**

Session 6 Conclusion

17:30-17:45 Closing comments
Richard A. MEGANCK, *Former Rector UNESCO-IHE Institute for Water Education*

17:45-17:50 Recognition and conclusion
AKIMICHI Tomoya, *Deputy Director-General, RIHN*

Keynote Speech

The water-culture-environment nexus: Practical lessons from the field

Richard A. MEGANCK

Former Rector, UNESCO-IHE Institute for Water Education, The Netherlands

Richard A. Meganck retired from the United Nations in 2009 after a career in international development spanning some 34 years. His most recent position was that of Rector of the UNESCO-IHE Institute for Water Education located in The Netherlands. Prior to joining UNESCO, he served in a number of senior posts in both the Organization of American States and the United Nations Environment Program. He began his professional career as a Peace Corps Volunteer in Colombia, followed by 4 years as an assistant professor in the College of Forestry at Oregon State University.

Dr. Meganck and his family have lived in eight nations in the Americas, Asia and Europe and he has undertaken more than 350 technical and administrative missions to 110 countries throughout the world. Dr. Meganck has published more than 70 journal articles and five books, including *A Dictionary and Introduction to Global Environmental Governance* published in 2009 by Earthscan. He holds BSc and MSc degrees from Michigan State University in Watershed Management and Resource Development Policy and a PhD from Oregon State University in Natural Resource Management.

The author briefly discusses the roots of some of the main environmental problems we are facing today. He draws the distinction between problems faced by ancient societies and those we are encountering today. He concludes by offering a number of 'principles' based on his long field experience in water management and water policy development.

Water and development are two sides of the same coin. From the beginning of time, water has played a fulcrum role in where societies migrated and settled and how they interacted. Even to the casual observer it is obvious that the accumulation of knowledge about nature by communities has impacted how we have dealt with the very resources upon which we depend – our water, air and soil, and in turn, how those resources have impacted the evolution of cultures. But part of the problem today and one of the main differences in looking to the ancient societies is that problems such as climate change, are now global in scope and require an unprecedented level of cooperation to resolve. Another aspect of the problem is how to organize ourselves – financially and technically to attack a problem on that scale once alternatives are agreed-to and the consequences of sitting on the sidelines understood. Finally, there is the integrated nature of the major environmental and cultural problems that we are facing. Conclusions include: (i) a need to change the tenor of the North-South debate and interaction, (ii) the reality of new water management technologies and their limits, (iii) the fact that money alone will not solve the complex problems we are facing and (iv) the absolute need for greater investment in education at all levels to address the water-culture-environment nexus.

Keynote Speech

Cultural value of water among indigenous people

Esther CAMAC RAMÍREZ

Association for Indigenous Development and Information, Costa Rica

Esther CAMAC, the Executive Director of the Association for Indigenous Development and Information (IXACAVAA), is a Quechua from Peru who currently resides in Costa Rica. A sociologist by training, Esther is an expert on Indigenous, gender and environmental policy. She has served as an advisor to the Convention on Biological Diversity's Article 8 that focuses on Traditional Knowledge. She has also served as an Indigenous representative to the United Nations Development Program's Millennium Ecosystem Assessment and as a panel member on the roundtable on "Cultural Diversity and Biodiversity for Sustainable Development" that was convened by UNEP together with UNESCO in 2002. As Director of IXACAVAA, Esther highlights the need for ethical values to achieve sustainable development and stresses the link between Traditional Knowledge and natural resource management. Esther is currently working on creating an Indigenous Institute on Natural Resource Management Entrepreneurship.

From the earliest human history, water has been a principal force in life and development, and this has special implications for Indigenous People. Different cultures have valued water in spiritual and religious ways and from this perspective different customs and practices have characterized their relationship and access to water. Currently however, changes are occurring that are affecting Indigenous Peoples' relationship to water – primarily their adoption of modern ways of life that obscure the sacred dimensions of water. Water management practices should adapt to cultural difference and should not be disconnected from cultural values, as these represent entire systems of knowledge and practice. Thus, cultural diversity is a fountain of sustainable practices and innovative perspectives, scientists and holders of traditional knowledge should cooperate to find solutions to water challenges. I will discuss how an integrative governance that has cultural diversity as a cornerstone must be sought if we are to achieve sustainability and the role that Traditional Knowledge holders must play in achieving a true 'integrative' water governance. I will argue that we must look beyond the traits and characteristics that define us as individuals hailing from different nations, cultures and regions to the values and attitudes that unite us and encourage a raising of consciousness to safeguard water.

Keynote Speech

Water and Japanese civilization

TAKEMURA Kotaro
Japan Water Forum
Foundation for Riverfront Improvement and Restoration
Tokyo Metropolitan University

TAKEMURA Kotaro, Ph. D. was born in 1945 and graduated from Tohoku University in 1968, and then started his career at Ministry of Construction after receiving his master of civil engineering in 1970. He successively held various posts as Chief of Miyagase dam construction Bureau, Director of River Division of Chubu Regional Bureau, Director-General of Kinki Regional Construction Bureau, Director-General of River Bureau, Ministry of Land. After his retirement in 2002, he serves as President of Foundation for Riverfront Improvement and Restoration since 2004.
Dr. Takemura is the author of "Clarifying the mystery of Japanese civilization" (SEIRYU Publishing Co., Ltd, .Dec. 2003), "Civilization of Land" (PHP Institute Co., Ltd, Jun. 2005), "A Privileged Civilization" (PHP Institute Co., Ltd, Feb. 2007)

In Japan, the birth of our civilization was deeply linked to water. About a thousand years ago, Japanese civilization was born in the Nara basin. Four-hundred years later, the capital was relocated from Nara to Kyoto. Both of them were connected to water.
Three thousand years ago, the Japanese started growing rice on alluvial plains, where it had once been the seashore. The land was fertile but poorly drained.
To face destiny, it was necessary to improve the flood control systems. The regional characteristics were developed over a long time period built on the people's daily experiences.
Against the catastrophic climate change events of the 21st century, flood control will become even more important.
In each district, we were always suffering from water shortages, due to the commonly steep sloping topography. The rainwater stays inland for only a few days and the river water returns to the sea in just a short time.
In the Edo period, about 400 years ago, people had the wisdom to share water, and at that time, a dam was constructed in Edo area.
In recent times, we rushed to build the water infrastructure. Nowadays it saves the Japanese's lives and wellbeing.
The Japanese archipelago is surrounded by ocean. In this century of resource crunch, Japan should protect its river and marine environments and survive in a continuous water cycle.

Keynote Speech

Water and cultural diversity in Life Environmentalism

KADA Yukiko

Governer, Shiga Prefecture, Japan

KADA Yukiko is the governor of Shiga Prefecture. She is the first female governor of Shiga and the fifth female governor in Japanese history. She received her Ph.D. in agriculture (1987) at Kyoto University. Prior to being elected governor she was a professor of environmental sociology at Kyoto Seika University, and senior research scientist of Lake Biwa Museum. Her many publications include “Three Paradigms behind River Governance in Japan: Modern Technicism, Nature Conservationism and Life Environmentalism” in *International Journal of Japanese Socisenology*(15, 40-54, 2006) and “Japanese Views on Water Environmental Issue (Symbiosis with Nature)” in *Forum on Human and Environment* (8-12, 2001).

Operationalizing IWRM: Cultural diversity as the missing link

András SZÖLLÖSI-NAGY

UNESCO-IHE Institute for Water Education, The Netherland

András Szöllösi-Nagy is the Rector of UNESCO-IHE Institute for Water Education. Prior to his appointment in September 2009, he was the Director of the Division of Water Sciences and Secretary of the International Hydrological Programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Between 2000 - 2009, Mr Szöllösi-Nagy also served as Deputy Assistant Director-General of the Natural Sciences Sector. Mr Szöllösi-Nagy was born in 1949 in Budapest, Hungary. He holds a Civil Engineering Diploma (1972) and a Dr. Techn. (Summa cum Laude) in Hydrology and Mathematical Statistics (1975) from the Budapest University of Technology. He holds a Ph.D. in hydrology from the same university. Mr Szöllösi-Nagy joined UNESCO in 1989 as Director of the Division of Water Sciences and Secretary of the International Hydrological Programme. Between 1999 and 2002 he also served as Coordinator of UNESCO's environmental programmes (MAB, IOC, IGCP and MOST) and was tasked with UNESCO's preparations for WSSD. He also served as member of the Steering Committee of the Global Water Partnership and Chair of the World Water Council Publication Committee. He is a member of UN-Water, the Board of Governors of WWC and was co-Chair of the Political Processes Committee of the 5th World Water Forum held in Istanbul, Turkey, 2009. He was the joint (founding) Editor of the International Journal of Stochastic Hydrology and Hydraulics and serves on the editorial boards of several journals.

Water, which cuts through and connects the eight Millennium Development Goals (MDGs), has been recognized as indispensable for sustainable development. In order to manage this resource in a sustainable manner amidst the “water crisis” the world is projected to face, it is necessary to address the complexity of issues surrounding water: the specific social, cultural, economic and political dimensions. In the recent past, however, engineering and natural sciences have dominated approaches to water resource management, thus neglecting these crucial dimensions.

In my presentation, I will provide the background to and an overview of the paradigm of Integrated Water Resources Management (IWRM), and highlight some of the issues linked to its implementation. In the late 1980s and early 1990s, ecosystems approaches, including considerations linked to biological diversity, enriched the concept of IWRM. IWRM is innovative in its emphasis on the interdependence of the ecological, hydrological and social systems. I suggest that the consideration of cultural diversity is the missing link that will make the concept of IWRM operational. Cultural diversity is the key to sustainability, in that it provides the multiple human possibilities necessary for us to adapt to environmental changes, which, in turn, shape the process of change for sustainability. Bringing an active recognition of, and respect for, cultural diversity into water resources management has the potential to bring us one step closer to sustainability of both water and cultures. This reflects a particularly important element of UNESCO's new vision of water—that sustainable management of water is as much cultural as it is technical.

Session 1

Diversity of Indigenous peoples cultural meanings, values and perceptions of water

Monica MORGAN

Murray Lower Darling Rivers Indigenous Nations, South-Eastern Australia

Monica Morgan is a Yorta Yorta woman of South-Eastern Australia, and is a founding member, international advocate and researcher for the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) a confederacy of 10 First Nations of the Murray River Basin. She is a member of the First Peoples Working Group on Freshwater advising the Australian National Water Authority. Her life's work is as an activist in the areas of Indigenous Peoples rights to their traditional land and waters, in coordinating the Yorta Yorta Native Title Application a legal test case in Australia and in advocating to government, industry, environmentalist and scientists on human rights-best practice processes for recognizing the cultural diversity of Indigenous Peoples as first sovereigns and in the protection of their cultural, spiritual, social and economic rights and interests on their traditional lands. Monica has co-authored a number of publications including "Indigenous Rights to Water in the Murray Darling Basin, Research Discussion Paper No.14, Morgan, Strelein and Weir, AIATSIS, 2004. She is currently completing a Graduate Diploma in Natural and Cultural Resource Management, at Institute of Koori Education at Deakin University, Geelong, Australia.

This presentation will highlight the important place of Indigenous Peoples and their knowledge within contemporary society and in finding respectful and sustainable solutions to the increasing demands placed upon the need for water. By presenting a case study of the Indigenous Nations from along the Murray Darling Rivers of South Eastern Australia framed within the setting of a highly developed water management system. We hope to bring a perspective on water that highlights that respecting cultural diversity of Indigenous peoples is as important as preserving and protecting biological diversity of which all life on earth is dependant.

The identity of Indigenous Peoples is sourced from their inherent relationship to their traditional lands and waters as first peoples. Water is central to the cultural, spiritual and economic sustainability and diverse identities of Indigenous Peoples. In many Indigenous society's water is held as sacred, and is given the same reverence and identity as an ancestral being. The permanency of Indigenous Peoples relationship to water is more than a random coincidence of presence and use. This relationship involves an ancient history with water as prescribed through their unique systems of law, custom and spirituality has been passed from generation to generation since time immemorial. There is much to be gained by contemporary society in adapting the unique perspective and knowledge of the first peoples within water sciences and water management policies. In order for this to be achieved there will need to be a shift in the way in which the western world view their place in the world. This can only be achieved through a process which recognizes, protects and promotes the historical and contemporary rights of Indigenous Peoples of the world.

Session 1

Indigenous water management in Africa

Rodah ROTINO

Kenya, Indigenous World Forum on Water and Peace (IWFWP)

Rodah ROTINO, a Kenyan Maasai from the community of Pokot, is the focal point for Africa for the Indigeous World Forum on Water and Peace (IWFWP). Rodah holds a bachelors degree in education from Kenyatta University. She is the co-founder and board member of the African Indigenous Women Organization (AIWO). She has been an Indigenous woman capacity builder since 1988, an advocate on women's rights that include the right to self determination, and an articulator of Indigenous women's inclusion in civic leadership. Rodah pioneered the first Alternative Rite of Passage (ARP) in the Pokot community to replace the harmful traditional practice of Femal Geneital Mutilation. Her work in the community led to her 2005 nomination as "One of the 1000 Peace Women Across the Globe." Currently, Rodah is the director of the Pastoral Communities Empowerment Program and a representative for the Indigenous Information Network.

For the Maasai in Kenya, water has deep spiritual values and plays an important role in Indigenous culture and traditions. Current policy regimes in Kenya make it very challenging for Indigenous Peoples to assert their rights and manage their water resources. In many communities, Indigenous Peoples still lack access to and adequate infrastructure for water supply and sanitation. Water quality is still a major concern for many Indigenous communities. In this presentation, I discuss the reality of Indigenous Peoples' water supplies in Kenya and the policy challenges we must overcome. I urge those present to consider the spiritual qualities of water and argue that only by recognizing water as a spiritual entity will we be able to provide clean water to all.

Session 1

Scarce water resource, culture and society: A case study of a Tibetan Buddhist village

Tashi TSERING

Resource Management and Environmental Studies

University of British Columbia, Canada

Tashi TSERING is pursuing doctoral studies in Resource Management and Environmental Studies at the University of British Columbia. His PhD research project probes into the inequalities and politics of water management within a traditional Himalayan Buddhist village. In the past he has written and worked for protection of Tibet's environment with a focus on the politics of water control projects in China. Founding editor of Trin-Gyi-Pho-Nya: Tibet's Environment and Development Digest, Tashi currently maintains The Tibetan Plateau Blog (http://tibetanplateau.blogspot.com/) and serves on the board of Tesi Environmental Awareness Movement (www.ecotibet.org) based in Dharamsala, India. Tashi holds a BA from Bangalore University and MA's in Political Science from Portland State University and in Economics from Garhwal University.

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This paper provides an ethnographic description of water management practices, customs and related belief systems in a Tibetan Buddhist village in the arid Western Himalayas. It demonstrates that there is a strong relationship between water and local social structure, inheritance practices, and religious practices in these regions. It suggests that scarcity of water resources strongly determine 'where' and 'who are the members' of a village in this region. This relationship and the practical necessities of sustainably managing of scarce water are the key factors that shape local social structure. By demonstrating how local social structure and cultural practices 'shapes' and are shaped by scarcity of water resources in this region, this paper seeks to widen our current framework of analysis on water resource as systems managed by society to ones that can strongly determine society itself.

Session 1

Diverting water: Cultural plurality and public water features in an urban environment

Veronica STRANG

University of Auckland, New Zealand

Veronica STRANG is a Professor of Anthropology at the University of Auckland. Her research is concerned with human-environmental interactions, and she has written extensively on water, land and resource issues in Australia and the UK. Her ethnographic focus on river catchments has facilitated engagement with the natural sciences, and she has been involved for several years in UNESCO's International Ecohydrology Programme, and, more recently, its programme on Water and Cultural Diversity. In 2000 she received a Royal Anthropological Institute Fellowship in Urgent Anthropology, and in 2002 a Discovery Fellowship from the Australian Research Council. In 2007 she was awarded an international water prize as one of UNESCO's Les Lumières de L'Eau (Water's Leading Lights). She is the author of Uncommon Ground: cultural landscapes and environmental values (Berg 1997), The Meaning of Water (Berg 2004) and Gardening the World: agency, identity and the ownership of water (Berghahn 2009).

Public water features are an intrinsic part of every urban environment. They provide focal points for the expression of social identity and belonging, and contribute to a collective process of 'placemaking'. They vary considerably in form, sometimes employing classical his torical imagery to assert social continuities; sometimes making use of 'ultra modern' forms to convey more fluid neo-liberal ideas about identity. Such material culture can be used to express both cultural diversity and cross-cultural unity. Based on recent ethnographic fieldwork in Queensland, this paper explores the design and use of public water features in the multicultural environment of Brisbane City, and the often ritualized activities that take place around these. It considers how these artifacts and activities serve to celebrate cultural identities and to articulate debates about inclusion and exclusion; cultural pollution; and social conflict.

Session 1

Water Culture: Could be a common means for water environment protection?

ZHENG Xaio Yun
International Center for Ecological Culture Studies
Yunnan Academy of Social Sciences, China

Mr. Zheng Xaioyun is Director of Department of Academic Affairs. Director and professor of International Center for Ecological Culture Studies.Yunnan Academy of Social Sciences (YASS), China. Vice president of International Water History Association, Vice chairmen of Chinese Committee of Senor Experts for Water Culture (The Ministry of Water Resources of China) He is a recognized leading scientist in the field of ethnic culture and environment culture studies in China, More than 100 kinds of research papers and 8 books was published in Chinese and international academia. Research focus on human culture and natural resources management, especial water history and culture studies that connected local ethnic culture, he is a main scientist who pushed the scientific realm development of water issues from social sciences in southwest China. He has leaded series international cooperation research projects, and he has hosted series important international conference, for example, International conference on Water Culture and Water Environment Protection in 2005, International Conference on Ecological Civilization among Red River Basin in 2007. Present research focuses on ecological culture studies, especially ethnic water related culture. Current main project: Ethnic Culture and Environmental Protection in Red River Basin.
New publication: water Culture and Eco-Civilization(2007), SOCIAL CAPITAL AND RURAL DEVELOPMENT(2009)
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I believe that there are three means to save water crisis and protect water environment on the contemporary age, such as the means of institution, culture and technique. No one of the elements can be neglected.

Water culture was consisted with water related idea, knowledge, social norm, behavior, religion, art which among peoples in the world, or some elements as a common culture of human beings. Basically, water culture was a kind of tradition that existing in different societies or ethnic culture, but it was also mixed with related new elements along with the development.

Water culture was a friendly relationship between water and human beings, but it has been changed that goes with rapidly development and urbanization in contemporary age, especially in developing countries. We stressed on technical means for protection of the water environment but many cases showed that water environment issues engendered along with the water culture losing.

Water environment protection is one of most important aspect which in connection with sustainable development from countryside to city. Nowadays, to protecting water environment not just institution means and technique means are necessary but culture also could not be neglected. We have to keep water culture as the social foundation of water environment as well as construct new water culture which is adapted with present situation as a means of water environment protection. Case in this paper from Asia should be useful to understand the water culture in Africa. Anyway, the conception of water environment protection changes from simples engineering to culture should be greatly progress.

Session 2

From sacred to transferable waters: The paradigm shift in India's river policies

Kelly D. ALLEY

Auburn University, USA

Kelly ALLEY is Alumni Professor of Anthropology and Chair of the Department of Sociology, Anthropology and Social Work at Auburn University. She received her B.A. from Cornell University and her Ph.D. from the University of Wisconsin-Madison. She has carried out research in northern India for over 18 years, focusing on public culture and environmental issues. Her book, "On the Banks of the Ganga: When Wastewater Meets a Sacred River" (University of Michigan Press, 2002), explores Hindu interpretations of the sacred river Ganga in light of current environmental problems. She is the author of numerous book chapters and articles on religion and ecology and environmental law and justice in India and the U.S. She directed a project to facilitate professional exchanges between environmental lawyers, scientists and NGOs to address river pollution problems in India and the U.S. She also worked with an interdisciplinary team tocreate a radio series on the river Ganga for National Public Radio in the USA. alleykd@auburn.edu

The beliefs and practices of Hinduism are directly tied to many religious and public uses of rivers across India and have been central to the rhetorical reverence for rivers appearing in national policy over the last half century. In these open-access practices, citizens are not prevented from using river water but are sometimes regulated in so far as the times when and places where they can attain access. However it is expected that with the development of private water projects and supporting state incentives public uses will be further restricted and services may be priced out of reach for some public users over time. In this paper, I draw upon data I have collected over the last 15 years that pertain to policy on river resources in India and look specifically at references to religious sentiments and ritual uses of river water. Looking at river pollution prevention and dam, canal, and link policies and projects since the 1980s, I will show a progressive diminishment of policy concerns related to water quality and availability for religious practices and for public, unpriced uses. This appears to be happening as public uses--for religious bathing, washing, household and small-scale industrial practices, and potable needs (the latter having a varied market valuation)--are sustained. I will outline the implications of this diminishment of concern for river basin science and policy, religious worshippers as stakeholders, ongoing project evaluation and the future of public water uses.

Session 2

Legacies and challenges to integrating cultural diversity in the Sierra Leone water sector

Fenda A. AKIWUMI

Department of Geography, University of South Florida, USA

Fenda A. Akiwumi is assistant professor in the Department of Geography, University of South Florida USA. She received a Ph.D. in Environmental Geography from Texas State University-San Marcos and a M.Sc. in Hydrogeology from University College London. Her major field of interest is resource geography, taking a holistic approach and researching varied aspects of resources such as sectors (water, mineral, forest), topics (extraction, policy), problems (equitable distribution, public involvement, environmental change and impact assessment), and issues (resources and sustainability, resources and cultural diversity, resources and conflict, resources and environmental history). Her publications include Mining and environmental change in Sierra Leone, West Africa: A remote sensing and hydrogeomorphological study (co-authored with David R. Butler) (2008), Conflict timber, conflict diamonds: The political ecology of 19th and 20th century resource exploitation in Sierra Leone. In *Africa's Development in the Twenty-First Century: Pertinent Socio-economic and Development Issues* **(**2006). Limitations to "indigenous people participation": Conflict in water use in an African mining economy. In *The World of Water* (2006) and Indigenous people, women and water: The importance of local knowledge in water project planning in an African context. In *The business of water and sustainable development* (2005).

The UNESCO International Hydrological Programme initiative on 'Water and Cultural Diversity' is to be mainstreamed into the organizations Integrated Water Resources Management (IWRM) approach and subsequently implemented by countries worldwide. This goal will be a formidable challenge for developing African nations such as Sierra Leone, with a poorly-conceived IWRM agenda. The ad hoc arrangements governing water, a legacy of a British colonial heritage include legal pluralism, conflict between statutory and customary law, contradictions in statutory law, and gaps between law and practice. The fragmented management framework complicates the integration of cultural diversity in the water sector. Stakeholders in water include the national government, indigenous populations, and private concerns such as mining companies. Equitable multi-stakeholder participation in water management is inadequate. Recent reviews of the water sector have emphasized the need for major policy and legislative reform. A major oversight, however, is that the mining sector a primary stakeholder in water use and where conflict over cultural diversity is perhaps, most rife has never been strongly integrated into overall water management. Desecration of sacred water sites, for example is a historic cause of conflict between indigenous populations and mining corporations. Much of Sierra Leone's water related legislation is for the mineral industry due to the largely alluvial nature of ore deposits worked. Mining agreements since the 1930s are issuances of water rights with companies gaining exclusive access to all water bodies in mine lease areas. I use a selection of Sierra Leone mining policies and laws to illustrate the problems of contradiction, overlap, colonial vestiges in water governance, and conflict. Periodic piecemeal amendments to existing policies and supporting legislation built on ill-conceived foundations are not the solution. For reform to effectively include cultural diversity, participatory approaches incorporating cross-cultural interactions and water management that fits into a multi-sectoral plan are crucial.

Session 2

Climate change and agro-pastoralist ecologies in the Three Parallel Rivers region, Yunnan, China

YIN Lun

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Yin Lun is associate professor of the Yunnan Academy of Social Science (YASS), China. He received his M.A. in Social Anthropology Studies at the Ecole Des Hautes Etudes en Science Sociale of Paris (2001). He is Deputy Director of Center for Tibetan Regional Sustainable Development (CTRSD) and Center for Biodiversity and Indigenous Knowledge (CBIK). His major field of interests is the Indigenous Knowledge among the mountain ethnic groups in Yunnan which links with watershed management, environment and biodiversity, his work is dedicated to the adaptation and resilience of climate change in support of sustainable livelihoods of the mountain indigenous peoples in Tibetan region and Eastern Himalaya Mountain, China. He undertakes action and scientific research together with indigenous people's communities which focus on climate change, and in partnership with other governmental, non-governmental and research agencies, and is committed to serving as a bridge between local communities and policy makers in order to improve decision-making that affects local climate change and livelihoods. His work stresses the importance of basing conservation and development interventions on the indigenous knowledge and cultural assets of mountain indigenous peoples. His major publications include "Disquisitions Collection of the Forum of Harmonious Deqin", "The Map of Yunnan National Minority Hand Papermaking", "Sustainable Agriculture" "Discussing the Polygamy in the Angle of Space——Take the Example of Jiabi village", The 3rd Issue, 2006, The Journal of Central South Nationalities University. lun.yin@gmail.com

The Three Parallel Rivers of Northwest Yunnan, one of the World Heritage region and world's biodiversity hotspots, is also home to an extraordinary cultural multiplicity among its numerous mountain nationalities. In recent years, climate change and its impacts have become increasingly obvious both within and beyond the region. Furthermore, the detrimental effects of climate change are not merely confined to the local region, and have spread downward into the lower reaches of the region via the great Asian rivers that find their birthplace in the Tibetan highlands (the Mekong, Salween, and Yangtze Rivers, etc.), rivers upon which hundreds of millions of downstream residents – both human and non human— are critically dependent. As a result, the climate change of Three Parallel Rivers region has gradually become the world's hot issues of common concern. My research projects will break through the limitations of past research on climate change, moving beyond the confines of natural science to arrive at a more holistic, interdisciplinary understanding. Similarly, by using my wealth of prior experience in working with and incorporating the perspectives of local Tibetan people in Yunnan, the resulting research will provide much-needed insight into the impacts of climate change that have truly been the most detrimental to the livelihood and development of these communities. I will also explore how Tibetan communities currently utilize the biodiversity resources of the region, as well as the dynamic, innovative measures these communities have already taken to adapt to climate change and increase the livelihood diversity and security of the region. By incorporating indigenous knowledge and perspectives, my research will be able to identify the changes that are the greatest cause for concern for members of Tibetan communities in Yunnan, and well as the adaptive, creative solutions that these communities have found to be most effective in addressing these concerns.

Session 2

Drowning under progress: Water, culture and development in the Greater Mekong Subregion

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Nathanial MATTHEWS is the Education and Research Officer at the International WaterCentre (IWC) and an Adjunct Lecturer at the University of Queensland. He completed a B.A. in Political Science at Acadia University (1999) and a Master of International Development and Environmental Analysis at Monash University (2007). He currently co- coordinates and teaches in the IWC's Master of Integrated Water Management program, and is involved with the IWC's research and consultancy projects. He is especially interested in community based natural resource management, integrated water management, low and middle income water and sanitation and the advocacy of vulnerable groups. His recent publications include: Hidden Costs – The underside of economic transformation in the Greater Mekong Subregion (Co-Authored, Oxfam, 2007) and Social Accountability and Community Forest Management: The Failure of Collaborative Governance (Lead Author, Development in Practice, 2009).
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The Greater Mekong Subregion (GMS) hosts unique biodiversity, provides shelter, livelihoods and food for millions of people and is home to hundreds of distinctive cultures. The GMS is also an area in constant flux due to massive development projects that attempt to control and profit from the water that brings life to the region. It is currently estimated that only 10% of the hydropower potential of the Mekong is being used and organizations such as the Asian Development Bank have recently called for an aggressive increase in hydropower development in the GMS. This chapter highlights the vulnerability of the GMS and demonstrates why overlooking the interconnections between culture, livelihoods and biodiversity creates an unsustainable approach to water management that leaves no long-term winners. Case studies and literature demonstrate that unintegrated water management and large scale development projects, which focus on economic gain, have had devastating effects on the environment and the people who depend on natural resources for their livelihoods. The lessons learned from this study suggest that despite its complexities, for development to be sustainable and bring benefits to all stakeholders there is a need for integrated water management that priorities culture and the environment over economics.

Session 2

Living with dams:
Japanese experience of dam development and peoples' lives

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Naruhiko TAKESADA is lecturer in the faculty of economics at Meikai University, Chiba, Japan. After graduated from the University of Tokyo (1990), he joined the Overseas Economic Cooperation Fund (currently Japan International Cooperation Agency), Japanese governmental agency for providing official development assistance in the form of yen-loan to developing countries. During his 14 years' service, he dealt with number of large infrastructure projects including dams with displacement and resettlement of peoples in various countries such as Indonesia, India and Turkey. After leaving the agency (2004), he received Ph.D. (International Studies) at the University of Tokyo (2009). He holds interest in development & displacement and is working to relate them with normative values such as equity and justice. His major publications include "Japanese Experience of Involuntary Resettlement: Long-Term Consequences of Resettlement for the Construction of the Ikawa Dam" in International Journal of Water Resources Development (Vol. 25 No.3, 2009).
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As some other civilizations and cultures in this planet, peoples in Japanese islands have been keeping close associations with water, especially with rivers. Since Meiji Era (after 1867), Japan has been making full use of one of effective and modernized water resource management facilities, namely dam. More than 2500 dams have been erected in Japan. Due to its scale and effectiveness, dams have been largely affected peoples' livelihood in various ways.

One of social and cultural issues related to dam is displacement of people for the construction of dam and reservoir. Human-made reservoirs not only submerge the land where affected people inhabit and work but often destroy the social and cultural relationship which affected people hold with the nature and among themselves. With gradual improvement of its compensation policy, Japanese government has been making an effort to reconstruct the livelihood of displaced people. Beside the reconstruction of the livelihood, there were several efforts to preserve the cultural symbols through the survey, through constructing the memorial facility and even through replanting single cherry tree. There has been no solid evaluation or assessment of cultural aspects of dam-induced displacement in Japan. The reason might be found in the interview survey the author conducted after 50 years of resettlement. Resettlers admitted that the dam brought the major change in their lives. At the same time, they see the dam as only one of causes of the change that comes sooner or later.

Currently, more comprehensive approach to water resource management, especially in river management is being introduced in Japan. The comprehensive approach means watershed management which considers the people's various relationships with the river. Although there are some cases which pose the difficulties even in this approach, past lessons in Japanese dam development may generally support this trend in water resources management.

Session 3

Water, culture, power:
Emerging trends and implications for sustainable futures

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A series of vignettes illustrate several points: the notion of water scarcity is at times manipulated and, on occasion, manufactured by nations, industry, and international agencies and financiers to legitimize resource development schemes that prioritize short-term profit and national resource security on the backs of project-affected peoples. Closer examination finds obscured agendas, including power generation to allow extractive resource development, support nuclear power operations, and sustain the high-energy and high-water consumer lifestyle of some first-world nations. Significant money and power is at stake, with few benefits accruing to the people whose homes, health, livelihoods, and cultural ways of life are demolished in the name of development. These points are placed in global context to ask, what are the planet-wide consequences of this social engineering, in ter ms of poverty, food security, health, and sociocultural well-being? It is argued that a more holistic approach to resource management decision making is needed, where the long-term, cumulative, and synergistic effects of planned activity on biocultural diversity are considered, assessed, and prioritized in the decision making-process.

Session 3

Climate change and the downstream implications of retreating glaciers: The sociocultural consequences of the Bhagirathi River's decline

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Georgina Drew is a Ph.D. candidate in the Department of Anthropology at the University of North Carolina, Chapel Hill. Her research interests include water, development, gendered ecologies, and the socio-cultural dimensions of climate change. Ms. Drew's dissertation research, supported by Fulbright Hays and National Science Foundation grants, explores ecological change and development along the primary tributary of the Ganges River from the perspective of Himalayan women. Her publications focus on the political ecology of water resource management as evidenced in "From the Groundwater Up: Asserting Water Rights in India," (Development 51: 37-41, 2008). She was also a contributing author for a book on Women and Water by the Research Foundation for Science, Technology, and Ecology (2005). Ms. Drew has chapters forthcoming in an edited volume on Gender and Sustainability through the University of Arizona Press and a book on Water and Cultural Diversity to be published in affiliation with UNESCO-IHP.

For millions of people living along the Ganges River in India, the retreating Himalayan glaciers threaten access to a natural entity that has been a central part of the country's Hindu-influenced culture for millennia. If current predictions come to fruition, the river will lose its glacial source and become seasonal by mid century. More controversial are the potential impacts of localized development projects along the first stretch of the river's primary tributary, the Bhagirathi. In the Himalayan region from which the Ganges River begins, a series of hydropower dams are set for construction in a fragile area of frequent landslides, road collapses, and seismic activity. This paper explores dynamics of development, conservation, and activism along the Bhagirathi/Ganges with a focus on the culturally grounded concerns that inspire action. Based on ethnographic research, the chapter describes the relevance of cultural rites and river-intertwined livelihoods for the critique of development projects and water management policies. By highlighting women's concerns for the future of their access to the river and its embodied Goddess Ganga, the chapter provides insights into the personal, cultural, and religious significance of the river's decline in an area where human love for a natural entity plays a significant role in the political ecology of the river's management. Policy recommendations to promote conservation and resilience along the river are also offered.

Session 3

Reimagining the river: Contest over multifunctional river flood planning in Western Europe

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Jeroen F. Warner, PhD, is a political scientist working on domestic and international environmental conflict and participation and is especially interested in the politics of water risk and security. He has taught and given trainings and presentations all around the world, made several media appearances and published a number of peer-reviewed journal articles on water politics. He also edited two books,-'Conflictos y participacion' (with Alejandra Moreyra, Nordan 2004) and 'Multi-stakeholder Platforms for Integrated Water Management' (Ashgate, 2007). A new book, 'The Politics of Water', co-edited with Kai Wegerich, is to appear from Routledge in late 2009 as well as a commercial version (with IB Tauris) of his dissertation on the politics of flood insecurity. Jeroen is now Assistant Professor with the Disaster Studies group at Wageningen University. He is also a pianist and composer.
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When draining a swamp, it is not customary to consult the frogs who live there. Planned river interventions in the countryside often clash with local cultural perspectives and preferences about the river, landscape and development vision. Local stakeholders often successfully mobilize counter expertise, media exposure and political clout to counter projects.

It is rarely just the project itself that is unpopular - the process, the sense of local values and interests not being taken seriously, can bring local frustration with a project that might otherwise well have been acceptable to stakeholders.

Multi-stakeholder dialoguing ('Joint Planning') throughout the planning cycle may be a possible way out, to bring out the value clashes, complexity and uncertainties inherent in river planning. Mainly drawing on examples from the Netherlands, the UK and France, we shall argue that while such dialogue may not always lead to consensus, public engagement supports mutual understanding and adjustment of mutual 'frames'. Public engagement will not only involve social learning (integrative negotiation) but also tough bargaining (distributive negotiation).

Research on experiences with 'Space for the River' participation however brings an important cautionary note, though. Participation is often conceived by its organizers as narrowly subscribed 'box' where a firm 'no' to a proposal is not an option. If local people feel they are being co-opted, overruled, patronized or 'boiled' like frogs in steadily heated-up water, they will find ways of sidestepping the process and resorting to non-organized forms of 'participation'.

Session 3

Urban river cultures

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University of North Texas, USA

Irene J. Klaver is Director of the Philosophy of Water Project and Associate Professor of Philosophy at the University of North Texas. (www.water.unt.edu)
She has published widely in the field of Environmental Philosophy and given numerous talks and courses on water issues. Her research and teaching focuses on social-political and cultural dimensions of water. She is member of the UNESCO-IHP Expert Advisory Group on Water and Cultural Diversity. At the University of North Texas she organizes biennial water conferences, called, WaterWays–Confluence of Art, Science, Policy and Philosophy, to explore water issues across disciplinary boundaries. (www.water.unt.edu/html/waterways.html)

Drained, dammed and polluted, many rivers have ended up in the 20th century as a sheer shadow of their former selves--the blue lines on the map tokens of faded glories. The decline or collapse of ecological and hydrological health implied usually a cultural decline of people's relation to the river. In the 21st century rivers are resurfacing in the public imagination in many western cities as cultural and ecological corridors, creating a cultural rejuvenation. While some cities explicitly aim for increasing stewardship of the river and engaging communities in river-related projects, others focus mainly on economic stimulus of new urban river projects, such as river-walk promenades, theaters, cafés, and restaurants along old quays. I will explore if and how these initiatives contribute to raising awareness of the river's ecological, cultural, and economic wealth, inspire public education about local water issues and lead to political participation. I will critically examine how they enrich or impoverish cultures in their relationships to water.

Session 3

The Water Culture Atlas project: Strategies and technological alternatives for water in Latin America and the Caribbean

Ana BUTI

Republic of Uruguay University, Uruguay

Ana Buti is a researcher on social cultures and groups at the Science, Technology and Society Programme of FLACSO (Latin American School of Social Sciences, Uruguay) and is professor on qualitative research techniques at the Master on Education of the University of the Enterprise (Uruguay). Besides, she is in charge of the coordination of international cooperation programmes with European Union countries and Brazil at the Cooperation Department, University of the Republic of Uruguay.

She graduated in Anthropology in 1996 (University of the Republic of Uruguay) and continued her postgraduate studies on history of science in 2005 (University of the Basque Country, Spain). She is at present completing her Doctorate Degree on Philosophy, Science, Technology and Society at the University of the Basque Country, Spain.

She has been linked to the water and culture programme of the UNESCO International Hydrological Programme for Latin America and the Caribbean since 2006, and is a member of the working group that coordinated the Uruguayan chapter of the Atlas on water cultures (2007-2009). This group is in the process of establishing a UNESCO Chair on water and culture at the University of the Republic of Uruguay. Ms. Buti is presently the acting regional coordinator for the water and culture programme for Latin America and the Caribbean.

In this work we will present the Regional Program on Water and Culture of the UNESCO-IHP. It aims to:

i) generating a process of interaction between the Social Sciences, Natural Sciences and Water Science for the production and elaboration of knowledge in order to construct a theoretical framework for the definition and study of the Water Culture;

ii) develop a vision of Water Cultures of Latin America and the Caribbean since the most ancient cultures to today's ethnic groups, and

iii) provide an accessible text on the diversity of strategies and technological options for the use and preservation of water in Latin America interplaying water issues, cultural, ethnographic, ecological, economic, through a water atlas, books, and an interactive website, among others.

In particular, it will present the activities being carried out in the project "UNESCO / IHP-LAC" Atlas of Hydric Cultures of Latin America "in several Latin American and Caribbean countries" http://www.unesco .org.uy / phi / aguaycultura.

Session 4

Aboriginal perspectives in water resource management: The way forward

Henrietta MARRIE

The Christensen Fund, Australia

Born and raised in the Aboriginal community of Yarrabah southeast of Cairns in Queensland (Australia), **Henrietta MARIE** is has held academic posts at a number of Australian universities, including at the Centre for Aboriginal and Torres Strait Islander Participation, Research and Development at the James Cook University of North Queensland, and the Centre for Indigenous History and the Arts at the University of Western Australia. Since the mid 1980s, through her research and work in legislation and policy development, she has supported the Aboriginal movements in the arena of arts and cultural heritage, and in the recognition of Aboriginal rights to land and for the protection and recognition of traditional knowledge. Ms. Marrie has served on a number of government committees and inquiries, and acted as a consultant to government bodies including Environment Australia, the Great Barrier Reef Marine Park Authority and the Wet Tropics Management Agency. Prior to joining The Christensen Fund, she worked at the United Nations Environment Programme Secretariat of the Convention on Biological Diversity, where since 1997 she was responsible for supporting Parties to the Convention in their initiatives to respect, maintain and preserve the traditional biodiversity-related knowledge of indigenous peoples and local communities, promote its wider application with the approval of its holders, and ensure the equitable sharing of benefits arising from the use of their knowledge. Ms. Marrie holds a Diploma of Teaching (South Australian College of Advanced Education), a Graduate Diploma of Arts (University of South Australia) and a Masters of Environmental and Local Government Law (Macquarie University) with a thesis entitled The Convention on Biological Diversity, Intellectual Property Rights, and the Protection of Traditional Ecological Knowledge.

Water is central to Aboriginal culture, society and livelihoods and traditional use of land has always included the use and management of fresh and slat waters. For thousands of years, Aboriginal peoples have respected, depended on, celebrated and sustainably managed their lands and waters. Despite this, however, Aboriginal peoples have historically been denied their rights to water resources and have suffered tremendously in the name of 'development' initiatives and changing environmental conditions. This has brought many changes to Aboriginal traditional ways of life and has led to numerous negative impacts on water resources including pollution, over-fishing, dams, mining, and removal and displacement of Aboriginal custodians from their traditional lands and territories. In this presentation, I will discuss the Wild Rivers legislation that is being proposed by the Queensland government in Australia and how, rather than helping Aboriginal peoples, this legislation will not only continue to deny Aboriginal peoples' their rights to water resources but also threatens the survival of an Aboriginal culture and identity.

Session 4

The power of diversity: Water, culture, and the challenge of shared difference in water resource management

Marcus BARBER

James Cook University, Australia

Marcus Barber is a Lecturer at the Department of Archaeology and Anthropology at James Cook University, Townsville, Australia. His research focuses on environmental issues and on interdisciplinarity within the natural and social sciences, as he holds a Ph.D in anthropology as well as an Honours degree in marine biology. His ethnographic research with the Yolngu people of Australia's tropical north emphasises the critical role that various forms of water play in Yolngu cosmology and Yolngu conceptualisations of their coastal environment (both land and sea). This research has fed directly into a successful High Court case regarding indigenous rights to the intertidal zone and tidal rivers in northern Australia. Marcus is a member of the UNESCO Expert Advisory Group on Water and Cultural Diversity and aside from his work on water has published on a diverse array of topics including death, material culture, and fish ecology.

This presentation will explore theoretical and strategic issues regarding the promotion of culture and cultural diversity in Integrated Water Resource Management. Drawing on the existing work of the author and UNESCO's Expert Advisory Committee for Water and Cultural Diversity, this presentation will introduce some further reflections on the concept of cultural diversity, particularly in relation to the way it was understood and responded to at the World Water Forum in March 2009. Certain countries, groups and individuals present at the Forum, including the host country Turkey, objected to the use of the concept as divisive of wider social and national unity and instead strongly emphasized the unifying potential of water beliefs to the exclusion of discussions of diversity. Other countries, groups, and individuals use cultural diversity to describe their own polities, and believe that appropriate consideration of different practices, beliefs, and ways of life will improve both the process and the outcomes of new water initiatives. This presentation will consider how discussions of culture can be pursued in contexts dominated by technical and political discourses resistant to questions of human diversity and injustice. It will particularly emphasize the adaptive potential of diverse human practices in the face of new global challenges such as climate change, and the need to pursue arguments on multiple levels in order to improve water management outcomes.

Session 4

Droplets of hope: Searching for sustainability and common ground through traditional water attitudes and knowledge in the Arab/ Israeli conflict

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Michigan State University, USA

Rosina HASSOUN is a Visiting Assistant Professor at Michigan State University where she teaches in the Center for Integrative Arts and Humanities and the Program in Public Health and is adjunct in the Department of Anthropology. She received her PhD in anthropology from the University of Florida, Gainesville and her BS and MS in zoology and biology respectively from Texas A&M University. Her areas of interest include medical and ecological anthropology, specifically Middle East water and culture, Arab Americans and the Arab Diaspora, and refugee health. Two of her major publications include: Arab Americans in Michigan. Ethnicity in Michigan Series. East Lansing: Michigan State Press, 2005, and "Water between Arabs and Israelis: Researching Twice Promised Resources." Chapter In: Water, Culture, and Power: Local Struggles in a Global Context. John M. Donahue and Barbara Johnston Eds. Washington D.C.: Island Press, 1998.
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The potential impact of global warming, the current drought, the increasing "securitization" of water, and the inequalities in access to water between Israel and the Palestinians and their neighbors have been predicted to increase the potential for violent confrontation.

Despite the enormity of the Arab/Israeli conflict, the current drought conditions and the potential of global warming, the water situation of Palestinians and Israelis requires cooperation and recognition of traditional attitudes and practices of both people, as well as a new vision in working towards a sustainable future. The analysis of the basis for water cooperation examined here include: 1) recognizing the cultural and religious altitudes toward water and land use of both sides in the conflict 2) searching for traditional practices and water usages that enabled sustainable water usage and preservation 3) changing current government water policies 4) finding current case studies of water cooperation and 5) the potential for charting a future based on a common shared water culture and appropriate technologies. While the present situation seems bleak, the growing Palestinian and Israeli environmental movements and their joint cooperation holds out hope for the kind of cultural change needed to create the vision for a more sustainable future for both people.

Session 4

Applying indigenous values to water management

David GROENFELDT

Indigenous Water Initiative, USA

David GROENFELDT is Executive Director of the Santa Fe Watershed Association in New Mexico, USA, and Coordinator for the Indigenous Water Initiative (www.indigenouswater.org). An anthropologist, Dr. Groenfeldt has focused on the issues of water management and community development, particularly in Asia. He worked with the International Water Management Institute in Sri Lanka (1984-89), as a consultant (1989-94) to World Wildlife Fund, World Resources Institute, IFAD, GTZ, and the private firm, ARD. From 1994-2001 he worked with the World Bank to develop a program on participatory irrigation management. In 2002 Dr. Groenfeldt helped establish the Indigenous Water Initiative in cooperation with Wageningen University, and helped organize sessions on water and indigenous peoples at the World Water Forums in Kyoto (2003) and Mexico City (2006). Since 2006, Dr. Groenfeldt has worked on local watershed issues and the challenges of balancing human uses and the environment, in the face of climate change.

Modern water development relies on engineering solutions for water storage and control, and institutional incentives to enhance the economic productivity of water. This approach of "command and control" water management has resulted in an environmental crisis of polluted and de-watered rivers, degraded channels and floodplains, and depleted aquifers. An extension of this strategy in response to the increasing climatic variability and more severe droughts associated with climate change, threatens even greater devastation of rivers, lakes, and wetlands. Sustainable water development requires a new approach of "natural water management" based on well established ecological principles, and particularly the principle of "environmental flow". Yet in spite of growing scientific and economic consensus, these principles are seldom put into practice. Using the case of the Santa Fe River, a tributary of the Rio Grande in the Southwest USA, this paper explores the cultural reasons underlying the disconnect between scientific and economic knowledge on one hand, and actual management practices on the other. A key factor identified is the lack of shared ethical principles and spiritual beliefs about the river, and conflicting priorities for protecting the health of the river ecosystem. Indigenous Pueblo communities in the region could potentially influence water policies through sharing their cultural understandings of rivers and water. A pilot "Water and Climate Dialogue" is proposed that would invite indigenous leaders to interact with water managers, political leaders and scientists in devising solutions to the looming water crisis. Through focusing attention on a local basin with clear boundaries, and explicitly inviting indigenous inputs, this approach seeks to define new management solutions that are consistent with both traditional indigenous principles as well as modern ecological science.

Session 4

Integrating indigenous knowledge into water policies

Ameyali RAMOS-CASTILLO

UNU-IAS Traditional Knowledge Initiative, Australia

Ameyali RAMOS CASTILLO is an Adjunct Research Fellow working on the Water Management and Climate Programmes at the UNU-IAS Traditional Knowledge Initiative (www.unutki.org). Her work focuses on exploring interlinkages between global environmental issues and Indigenous Knowledge systems and on highlighting the role that Traditional Knowledge plays in developing sustainable solutions to pressing global environmental challenges. Before joining the UNU TKI, Ameyali was a consultant and a PhD Fellow on the Science Policy for Development Programme at the UNU-IAS. Ameyali is completing a doctoral degree on Cultural Rehydration of Water Governance at the Oxford University Centre for the Environment and the Oxford University Centre for Water Research. Her research focuses on understanding indigenous water governance systems in Latin America and exploring how these systems provide insights sustainable water resource management.

Exploring the interlinkages between global water issues and Indigenous Knowledge systems is key for developing sustainable solutions to pressing water resource challenges. Increasing concern over climate change and environmental change, is driving plans for investments in water infrastructure and development that are negatively affecting ecosystem health and Indigenous well-being. Indigenous Peoples have long advocated for a more powerful voice in debates about water management, development, and sustainability and it is becoming increasingly clear that Indigenous Peoples hold knowledge of alternative and resilient water management strategies to cope with climate change. To this end, the UNU-IAS TKI is supporting a new project led by David Groenfeldt on "Indigenous Values, Water and Climate Change." This project will aim to document Indigenous water management alternatives, their benefits for socio-environmental sustainability and suggestions for facilitating their inclusion in International and national water policies. Specifically, the program will explore how a shift in the human-water relationship toward an animistic or 'culturally rehydrated' human-water relationship will be key in achieving true sustainable water resource management.

Chairs, Discussants, Organizers

ABE Ken-ichi is Professor at the Research Institute for Humanity and Nature (RIHN). He was assistant Professor at the Centre for southeast Asian Studies, Kyoto University(1989-1997), associate Professor at the Japan Center for Area Studies, National Museum of Ethnology (1997-2006), and the Center for Integrated Area Studies, Kyoto University (2006-2007). His areas of specialization are environmental anthropology and Southeast Asian regional studies. He has studied the political ecology of tropical forests in Southeast Asia, Chinese environmental history, and related subjects, using repeated periods of fieldwork to examine the relationship between people and forests. Water is a more recent research interest, and he coordinated the panel "Water and Cultural Diversity" at the 2006 World Water Forum. He has written and edited a number of books, including *The Political Ecology of Tropical Forests in Southeast Asia: Historical Perspectives* (2003, Kyoto University Press & Trans Pacific Press), *The Social Ecology of Tropical Forests* (2006, Kyoto University Press & Trans Pacific Press), *Extreme Conflicts and Tropical Forests* (2007, Springer) *Good Earths: Regional and Historical Insights into China's Environments* (2009, Kyoto University Press & Trans Pacific Press).
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