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Countering the Abundance of Water Argument: A brief look at the implications of total water demand management in the Asia Pacific

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Ensuring that there is a sufficient supply of good quality water for urban, agricultural and industrial use is arguably the most important issue facing the Asia Pacific Region's population in the next few years. Already, countries like Australia are unable to supply enough water to many areas in times of drought, and it is estimated that perhaps a billion people in this region face the prospect of having to somehow make do with unsafe water at all times. In this brief article I would like to look at some of the underlying factors that affect management of this vital resource and what the region is proposing to do about them. This review is also timely because APU now has international network and research strength in this area of resource security and hopes to build on these in the future with a range of courses, and because the 1st Asia Pacific Water Forum is being held in Beppu in December of 2007.

The first issue when looking at total water demand management is the claim that water, being naturally occurring almost everywhere should be made available free of charge or at low cost regardless of any supply difficulties. This misconception gives rise to emotional and often highly politicized argument when communities debate questions relating to water use, charges, and the location of water supply services such as dams and storage reservoirs. Yet in many cases the cost of supplying potable water to every

property in a water service area is many times that needed to refine and supply for example petrol to the same area, even if it exists in sufficient quantities. Like water, oil is a naturally occurring resource, but few would argue that petrol should be free or at low cost. This acceptance of high price owes as much to public perception of the costly infrastructure required to convert oil to a useful product (and the need for our cars to run!) as to its finite availability and relative scarcity in comparison with water-exploration, oil wells, refineries, tankers, etc are all highly visible and obviously expensive. Unfortunately, equally expensive water supply infrastructure is usually hidden in the ground. As a result of our unwillingness to price water properly we get the situation where in for example Australia petrol is currently priced at 110-190 cents for one liter, but for the same price most water customers in Australia are provided with access to over 1 thousand liters of high quality product.

In most countries of the world, water has been traditionally viewed as an abundant commodity with little economic value. Even in times of relative scarcity the value of water and the costs involved in obtaining it rarely become an issue. Because of this, individual and/or community water property rights have always been upheld over conservation needs, even to the detriment of in-stream environmental

Countering the Abundance of Water Argument cont...

flows and diminished aquifer storage capacity in river basins, while saline intrusion or land subsidence have been rarely seen as reasons to restrict use (though they may raise costs of access). The definition of water scarcity also remains open. In basic economic theory, scarcity generally refers to a situation where the supplies of a resource are limited relative to the total demand for its use. This form of scarcity in terms of water actually conjures images where freshwater is not available in sufficient quantity to meet basic human requirements without (unacceptable) radical changes in lifestyles and standards of living, not changes in pricing policy which could be designed to promote substitution of treated wastewater for freshwater use in agriculture or industry. Compounding this tendency to assume all water must be potable are the abundant stocks of groundwater and flows of surface water in much of the Asia Pacific Region. As a result the majority of the regional population is not faced with actual physical scarcity despite the often poor distribution and quality of existing water supplies, and is not therefore looking for substitutes in this way on a regional scale.

However, there has recently appeared in the region a growing desire to address sustainability issues of supply, quality and pricing, as the extensive research and development of practical solutions to demand management problems being carried out in the Asia Pacific indicate. There is recognition that, while it is unlikely that many Asian communities and industries will face critical physical water shortages in the short to medium term, as in Australia, the groundwater and surface water supplies that they rely upon are experiencing severe degradation. Stresses on water supplies can come from growing population, expanding cities, chemical and thermal contamination from agricultural, industrial, and power plant operations, and mismanagement through over pumping of slowly recharging aquifers. For the most part these types of stresses do not create physical scarcity, but economic scarcity.

Economic scarcity can be defined as a situation where supplies of water are limited relative to the demand for its use at a price that users of the resource have become accustomed to paying. This may mean that an increasing number of people in the Region may face water shortages because of the limited opportunities and rising costs of developing new supplies. Addressing this problem will require basic changes in how water is managed and allocated. In this situation uniform, effective, and comprehensive legal frameworks covering the ownership, supply, pricing and use of water, and the disposal of wastewater are important keys to the

better management of water resources in the Asia Pacific.

Water Ownership

Who owns water? This question often arises, especially when there is a sharp increase in the demand for water, a drought, an increasing value being placed on water, and/or a greater demand for attention to be paid to water quality and river health. Different systems have evolved over time either through custom or law, or a mix of the two, to tackle this question. The issue of who owns water needs to be addressed within the context of the particular social and community rights circumstances of each country, and the system that has evolved therein to meet these circumstances. Water rights are traditionally based upon a variation or combination of three systems, namely riparian rights (access to water), prior (appropriated) rights (industry & agriculture) and public allocation of rights (community decisions). There are also a variety of ways in which rights have been defined, such as by volume or as a share of the resource, or through ownership, or as being for consumptive or non-consumptive use.

What does ownership of water actually mean? There is a difference between the right to access and take water and the ownership of water. Water, while forming part of the natural resource, cannot be said to be owned by anyone, it is a public commodity with the State often acting as the custodian of the resource. Once water has been legally captured from its natural resource and taken under a person's control, that person could be said to be the owner of that particular water. The content of a right to water can be defined as a right to access water of adequate quality and in sufficient quantity to meet basic human needs. Thus, there are three aspects to be addressed when conceptualizing essential water supplies as a human right, namely:

- Accessibility-water being within safe physical reach, being affordable, being accessible in law and in fact, and information on water issues being provided;
- Adequate quality-water for personal or domestic use being safe;
- Quantity-water supply being sufficient and continuous for personal/domestic uses.

Countering the Abundance of Water Argument cont...

Water Supply and Demand Management

Even if there are no questions as to water ownership or pricing, there can still be supply and demand management problems. Most water supply companies lose a substantial amount of the water that they collect, treat and pump through to customers before it reaches them. The International Water Association estimates water losses to be as high as 85 percent in some developing countries and as high as 43 percent in some developed countries, within installed collection and water reticulation systems. Evaporation and leakage are two of the biggest problems. Such high losses are simply a complete waste of the resource, of the treatment of the water, and of the energy used to collect, pump and deliver that water to customers.

For many years this lost water has been termed Unaccounted for Water and has been expressed as a percentage of the overall production volume. In most systems only occasional attempts have been made until now to reduce such losses, because they could easily be explained away as unavoidable, and anyway it's water we are talking about, not petrol ! However, given our very late recognition that water is scarce on a world-wide basis, the international trend recently is to attempt to account for all water and therefore no longer use reductions in Unaccounted for Water as a benchmark of system performance. This has significant environmental implications as it motivates water suppliers to be proactive in controlling water supplies, resulting in efforts to reduce losses and to defer new water source schemes. In many parts of Australia, South Africa, Canada and the United States, Europe, Japan and some Pacific Island Nations great efforts are being made to control water distribution systems using proactive methods of pressure and leakage control instead of reactive management systems (waiting to fix it until after it breaks). These proactive methods include methods for reducing losses through new technology in water pressure control systems, leakage detection, data reporting systems, and managing demand.

This last factor is most important in relation to the reduction of environmental impacts from overuse of water, as well as to the ability of water authorities to actually supply enough water. By reducing demand, we reduce the need for major new dams which will further dramatically affect river environments or the need for desalination plants. To do this, however, water will need to be counted as a more valuable item in future years. We must get away from the situation where it usually takes a serious drought before a water company

or the public consider focusing on making water networks function more efficiently, or charging for the true cost of water, or forcing consumers to use potable water only when they really need it for drinking purposes and to use recycled water for all other uses.

Conclusion

Experience demonstrates that technological developments or changes in infrastructure investments in themselves do not succeed without effective policy, institutional, and legal structures to back them up. Our use of water resources is closely linked with that of all other resources and all must be managed together in full consideration of biodiversity preservation and with community participation area-by-area, because opportunities and costs, social institutions, and environmental requirements are different across the region. The term total water management was coined to provide a solution, but results have been disappointing, since not all economic activity, land use considerations, biodiversity needs or political debates have become integrated with the water security issue. However, as this discussion has shown, a more comprehensive approach is now occurring at both the national and the local level to achieve a more strategic sequencing of policy reforms, better technical programs for integrated water and wastewater management, and the introduction of projects supportive of a collective response to the actual or potential water crisis in a number of countries in the region.

More than ever before, however, domestic water policies and actions must go hand in hand with international policies and relations among sovereign states as globalization proceeds. Effectively addressing the linked considerations of water supply and demand, land use, ecosystem health, and socio-economic development in a more comprehensive framework may facilitate the transition to a new development paradigm; one that will allow steady improvement in water quality and availability standards without destroying the ecosystems upon which all our economies and our lives rest.

*Malcolm Cooper is Vice President (Research Affairs) and a Professor at the College of Asia Pacific Studies, Ritsumeikan Asia Pacific University.

Ritsumeikan Asia Pacific Conference

Global Movements in the Asia Pacific

"Global Movements in the Asia Pacific" was the theme of 2007 Ritsumeikan Asia Pacific Conference held at the Ritsumeikan Asia Pacific University (APU) on November 17-18.

Supported by a grant from the International Meetings of the Japan Society for the Promotion of Science (JSPS), the conference brought to Japan some of the world's leading researchers with expertise on different aspects of global movements. A special feature of the conference was the participation of many younger researchers, including doctoral students from APU and other universities in Australia, United States, and other Asian countries.

The conference was a rare attempt to offer an international forum for scholars and practitioners to examine the inter-related dimensions of trans-national movements of people, capital, trade, technology, logistics, and information. Such movements have been both the cause and consequence of the increasing pace of globalization. They have helped to shape the socio-economic and political transformation of the Asia Pacific and fostered new regional identities in a part of the world marked by considerable ethno-cultural diversity as well different political systems and economic attainment.



APU President Monte CASSIM introduced the two keynote speakers at APU's Millennium Hall.

The conference opened with keynote addresses by two of APU's Academic Advisors, Professor Lee Yuan-Tseh the 1986 Nobel Prize Winner in Chemistry and Ambassador Alfonso T. Yuchengco, Advisor in Foreign Affairs to the President of the Philippines and the Republic's former ambassador to Japan, China and the United Nations. -A total of thirty-nine papers by speakers from 13 countries were presented in the two-day conference.

In his speech titled "Brain Drain, Brain Gain, and



Professor LEE Yuan Tseh

Brain Circulation in a Half Globalized World" Professor Lee Yuan-tseh, who has recently retired as President of Taiwan's Academia Sinica, provided insights into the global movement of the highly skilled.

Reflecting on his own journey as a young person from Taiwan to the United States, Professor Lee shared with the large audience of faculty, students and visitors gathered at the university's Millennium Hall, how the acquisition, development and transmission of knowledge has helped to shape the modern world of learning.

The conventional wisdom on the transnational movement of the highly talented has shifted from one of "brain drain", to "brain gain", and increasingly "brain circulation". Professor Lee said that from a global perspective, "losing brains to knowledge creation is good". However, he urged developing countries to adopt policies that would make full use of the talent of their citizens and encourage their stay. To facilitate the circulation of knowledge, Professor Lee encouraged young people to "take a global view and to respect, appreciate, and understand different



Ambassador Alfonso T. Yuchengco

Ritsumeikan Asia Pacific Conference cont...

cultures and different people".

Ambassador Alfonso Yuchengco, founder of the Yuchengco Group of Companies and one of Asia's most respected business leaders and diplomats, was uniquely suited to offer insights on "Transnational Business and Diplomacy in the Asia Pacific".

He singled out the "ASEAN-10 Plus China" free trade pact as an example of trade diplomacy that would see the group becoming the world's largest free-trade area in population terms by 2010. This, according to Ambassador Yuchengco, would leave Washington "outside looking in on an East Asian Economic Grouping", at least until the projected APEC free-trade-and-investment area becomes a reality in 2020.

Ambassador Yuchengco urged the Asia Pacific to learn from the European example, "for it is not fated that the hegemonic power -the United States- and the rising power -China- should come to blows". He sees multilateralism, as advocated by the Association of Southeast Asian Nations (ASEAN), as the key to future transnational business and diplomacy in the Asia Pacific.

The only real and lasting solution to regional rivalries and nationalisms, said Ambassador Yuchengco, "is to embed all our countries in a network of economic, political and security relationships -in an East Asian- and ultimately, in an Asia-Pacific community of consent".

A selection of the conference proceedings is being edited and will shortly be published by the Ritsumeikan Center for Asia Pacific Studies.

Conference Poster



Parallel Sessions on several themes were held on the second day of the conference.



A Plenary Session on "Migration" was held on the first day of the conference.

RCAPS Seminars

Featured Seminar MIT-Japan Program Seminar

RCAPS Contemporary Asia Pacific Seminar AY2006

Dr. Richard J. Samuels

Ford International Professor of Political Science and
Director of Center for International Studies at MIT

Time : Fri. 28th Apr. 13 : 45 - 15 : 00

Venue : Convention Hall, Bldg. A, 2F

A seminar titled "Hard Power & Soft Power: U.S. Japan & China" was given by Dr. Richard J. Samuels on April 28, 2006.

Dr. Richard J. Samuels is Ford International Professor of Political Science and Director of the Center for International Studies. He is also the Founding Director of the MIT Japan Program. In 2001 he became Chairman of the Japan-US Friendship Commission, an independent Federal grant-making agency that supports Japanese studies and policy-oriented research in the United States. In 2005 he was elected a member of the American Academy of Arts and Sciences.

Dr. Samuels served as Head of the MIT Department of Political Science between 1992-1997 and as Vice-Chairman of the Committee on Japan of the National Research Council until 1996. Grants from the Fulbright Commission, the Abe Fellowship Fund, the National Science Foundation, and the Smith Richardson Foundation, have supported eight years of field research in Japan.



Dr. Richard J. Samuels

The seminar was held with help from The Fukuoka American Center at the U.S. Consulate in Fukuoka.

One of the goals of this seminar was to create discourse between researchers. Therefore, the time allotted for questions and answers was longer than that of regular RCAPS seminars. Nonetheless, with a lively audience of nearly 100 APU faculty and students, the questions and answers continued on long after the scheduled time had past. Even after the seminar had officially ended, Dr. Samuels continued to graciously answer questions from APU faculty and students.

On the same day, a Special Lecture was held specifically for APU undergraduates with the same title of "Hard Power & Soft Power: U.S. Japan & China". Again, Dr. Samuels was happy to answer questions from students for as long as time allowed.

An offer was also received from The Fukuoka American Center to the effect that they would be happy to cooperate with APU Academics and Research in the future. The seminar turned out to be an important first step for building new partnerships for RCAPS and APU.

MIT Japan Program Home Page:
<http://web.mit.edu/mit-japan>

RCAPS Seminars cont...

Spring 2006 RCAPS Seminars

Contemporary Asia Pacific Seminar Series

| Date | Title | Speaker | Affiliation | Language |
|----------|---|-----------------------------|--|----------|
| April 6 | My interpretation of the on-going political drama in Thailand | Prof. KRONGKAEW, Medhi | GSA, APU; Professor, National Institute of Development Administration, Thailand | English |
| April 26 | Supply Chain Management for Corporate Competitive Advantage | Prof. HOSHINO Hiroshi | Professor, Graduate School of Economics, Kyushu University | English |
| April 28 | Hard Power & Soft Power : U.S. Japan & China | Dr. Richard J. Samuels | Ford International Professor of Political Science and Director of Center for International Studies at MIT | English |
| May 17 | Whose company is it and whose should it be? | Prof. DORE, Ronald P. | Professor Emeritus, University of London; APU Academic Advisor | English |
| May 24 | The Role of Organised Industry in India: Employment Elasticity, Wage-Productivity Nexus and Poverty | Prof. Arup Mitra | IDE-JETRO Visiting Research Fellow, Professor of Economics, Institute of Economic Growth, University of Delhi, India | English |
| July 12 | Housing, Superannuation and Health: The Social Economy in Singapore | Dr. David Alexander Reisman | Nanyang Technical University, Singapore | English |
| July 19 | Australian multiculturalism in a time of siege | Prof. Leslie John Terry | Visiting Professor, Center for Pacific and American Studies, The University of Tokyo | English |

Current Research Seminar Series

| Date | Title | Speaker | Affiliation | Language |
|----------|--|---|--------------------|----------|
| April 19 | Knowledge Creation Through the Use of the Case Method with Diverse Groups of Students | Prof. KUHARA Masaharu | APM, APU | English |
| May 10 | Tokyo Consumers' Willingness to Pay for Organic Foods: A Double Bounded Contingent Valuation Approach and Its Contributions to Sustainable Development Policy-Making | Prof. MANOPIMOKE, Supachit | APS, APU | English |
| June 21 | An Illustrated Method to Understand Japan's International Development | Assistant Prof. ASAMIZU Munehiko | APM, APU | English |
| July 5 | "Same Bed, Different Dreams": the Beijing Olympics and Taiwan Independence Movement. | Associate Prof. XU Xin | APM, APU | English |
| July 26 | Aman Resorts: Tourism and the Creation of the Representation of Southeast Asian Communities | Associate Prof. KONDO Mari & Lecturer IGUCHI Yufu | APM, APU /APM, APU | English |

APU Publications

Occasional Paper Series and Working Paper Series

Beginning in the 2006 academic year, RCAPS has been publishing an "Occasional Paper Series" and a "Working Paper Series".

These are designed to accompany the regular publications of RCAPS such as the Ritsumeikan Journal of Asia Pacific Studies and the RCAPS Newsletter.

The Occasional Paper Series aims to publish the results of research and surveys presented at the RCAPS Seminars as well as papers by APU graduate students (mostly Master's students).

The Working Paper Series provides a more formal medium for the publication of research papers by APU faculty members, affiliated scholars, and PhD students. This series aims to disseminate research in a timely manner on the web, and to enable authors to collect views from researchers and practitioners concerned before they send the papers for publication in academic journals.

Volumes from both these series can be viewed on the RCAPS website in PDF format.

<http://www.apu.ac.jp/rcaps>

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2006 RCAPS Occasional Paper Series

| No. | Date | Author | Title |
|------|---------------|-----------------------------|---|
| 06-1 | June 2006 | ASAMIZU Munehiko | Japan's Development and Globalization |
| 06-2 | October 2006 | PAVLIK Thomas | Why Japan Will Not Become a Permanent Member of UN Security Council with Veto Power |
| 06-3 | October 2006 | SUZUKI Yasushi | Realities of Japanese Corporate Web IR Practices |
| 06-4 | December 2006 | MERCADO Christian Ernest C. | Social Boundaries and the Imagined Landscape of "People Power" :Manila's Epifanio de los Santos Avenue |

2006 RCAPS Working Paper Series

| No. | Date | Author | Title |
|------|---------------|--|---|
| 06-1 | June 2006 | YOSHIMATSU Hidetaka | Industrial Competition and Technology Standards :Techno-Regionalism in East Asia |
| 06-2 | October 2006 | CHHEANG Vannarith | The Establishment of the Khmer Rouge Tribunal and the Issue of Justice |
| 06-3 | December 2006 | SUZUKI Yasushi, Md. Dulal Miah, YUAN Jinyi | In What Process is the Chinese Bank-centred System Evolving? - Studies on Bank Rent Effects in China - |

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