



1st Asia-Pacific Water Summit

Policy Brief 2007

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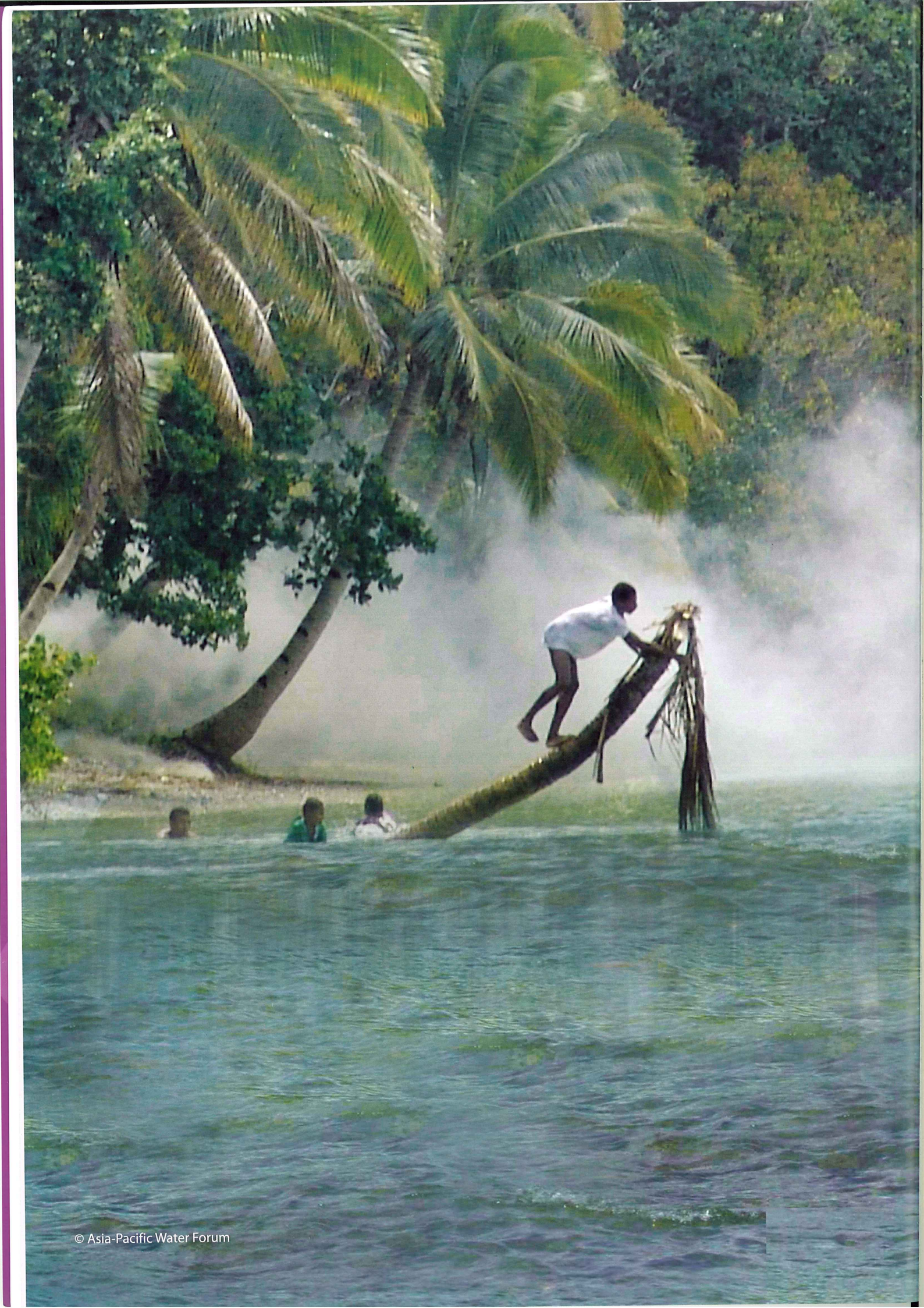
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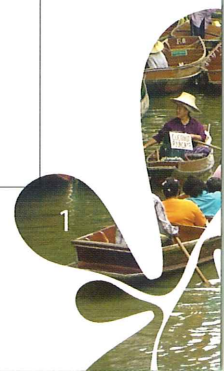
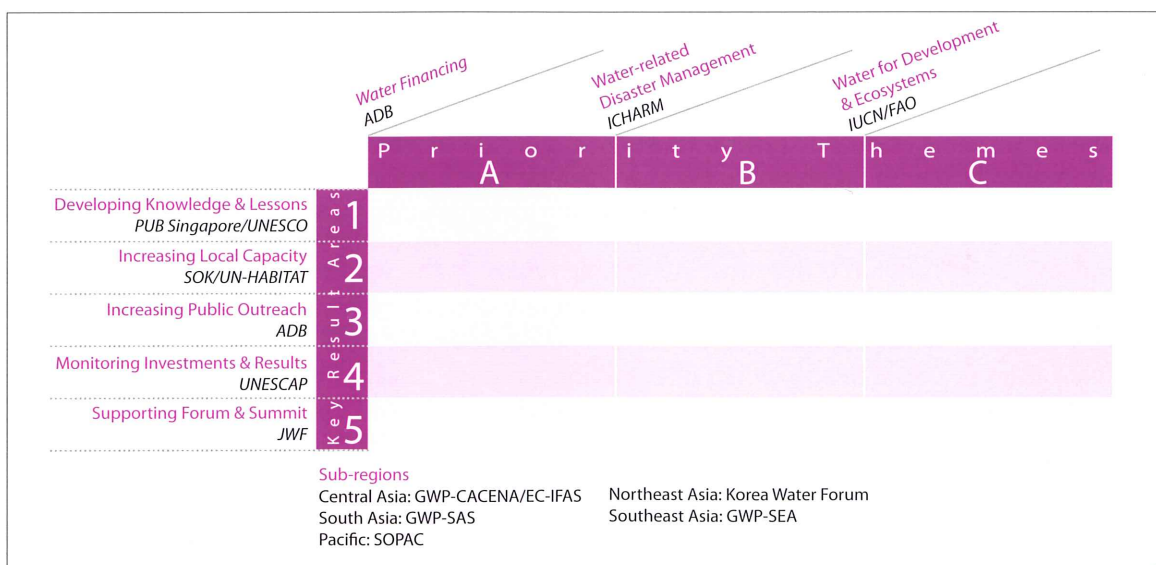


A Call to Action from the Asia-Pacific Water Forum to the 1st Asia-Pacific Water Summit

1. The 1st Asia-Pacific Water Summit (1st APWS) provides an unprecedented opportunity to recognize the central role that water plays for our quality of life and the wellbeing of future generations. The key messages and recommendations presented in this Policy Brief draw a clear and realistic picture of the needs presented throughout our region and of the actions required in order to achieve the level of progress deserved by all. To be sure, the challenges are great, but with will and committed political support, all of our goals can be met.
2. The 1st APWS is not an end in itself. It is, however, a critical milestone that is part of the ongoing regional and international efforts towards human and economic development. Indeed, the outcomes of the 1st APWS shall feed directly into other high profile international events such as the 2008 G8 Summit and the 5th World Water Forum. With 2008 earmarked as the International Year of Sanitation, the timing of the Summit is ideal for generating a momentum that will carry on for years and decades to come.
3. By addressing and engaging decision-makers at the highest possible levels, the 1st APWS seeks to generate the support and commitment required to meet our region's water challenges and to serve as an example of regional cooperation to the rest of the world.

B Background

4. The Asia-Pacific Water Forum (APWF) is an independent, not-for-profit, non-partisan, non-political network that was launched in September 2006 for the purpose of bringing water to the forefront of the political agenda. The first phase the APWF's activity has focused on the three priority themes identified in the regional document for the 4th World Water Forum as the initial steps towards sustainable development and economic growth: water financing, water-related disaster management, and water for development and ecosystems.
5. The APWF has a matrix structure centered on three Priority Themes and five cross-cutting Key Result Areas (KRAs). A number of highly recognized institutions from the region have committed themselves to supporting the APWF as "lead organizations", responsible for identifying strategies and initiating solutions to achieve progress under each of the Priority Themes. Such initiatives have been identified through the KRAs and the "lead organizations" responsible for supporting them. Secretarial support for the APWF has been provided by the Japan Water Forum.



6. This Policy Brief outlines a series of recommendations prepared as part of the initial activities of the APWF in preparation for the 1st APWS, to be held in Beppu City, Japan, on December 3rd to 4th, 2007.
7. The recommendations herein set forth a clear path on how to meet the combined and complementary objectives of development and poverty reduction, economic growth and increasing prosperity, and environmental sustainability. These recommendations are expected to generate momentum in addressing the region's many water challenges and provide the basis for the adoption of a set of concrete initiatives that will not only represent a major output of the 1st APWS, but will make a true difference in solving our region's most urgent water problems.

Issues

8. Over the past few decades, several areas of the Asia-Pacific region have experienced notable progress in various aspects of water management, including access to water resources and coverage of related services. However, rapid population and economic growth, urbanization, and the underperformance of existing water assets mean that there are still significant shortfalls in meeting the region's needs. In addition, growth patterns and the development of water resources have severely affected both the environment and the region's ecosystems. The looming impacts of climate change will exacerbate these challenges unless they are properly taken into account throughout all planning and decision-making processes.
9. The Millennium Development Goals (MDGs) have set socioeconomic targets that need to be achieved by 2015. Although economic growth rates have been high overall, poverty remains a chronic problem in both urban and rural areas with 16% of the population in the region's developing countries undernourished. Progress towards halving the number of hungry by 2015 remains slow.
10. Access to improved drinking water supplies in the Asia-Pacific region has improved substantially in recent years (in 2002 around 3.16 billion people - 82% of the population - in the Asia-Pacific region had access to improved water supplies, up from 74% in 1990). However, formidable challenges remain. Approximately 669 million people live in the region, of which 584 million live in rural areas. Aggregate figures also mask dramatic disparities between the subregions, between nations within subregions, and within the nations themselves.
11. The story for sanitation is even less satisfactory. Of the 2.6 billion people in the world without access to improved sanitation facilities, nearly 2 billion are in the Asia-Pacific region. Coverage for improved sanitation in the region lags behind the rate needed to attain the MDG target. As of 2004, only 45% of the region's population had access to improved sanitation facilities - up from 43% in 2002. And of the 1,862 million people in the region that remain unserved, 1,498 million live in rural areas. These figures illustrate the need to develop new, innovative systems treating human waste that do not rely so heavily on the use of freshwater. And with 2008 being the International Year of Sanitation (IYS), there will be considerable momentum in the international community to provide assistance and guidance towards addressing this particular challenge.
12. The Asia-Pacific region is the most vulnerable region in the world with regards to water-related disasters that hinder sustainable development and poverty reduction. Between 1960 and 2006, over 600 thousand casualties were recorded, accounting for over 80% of casualties worldwide, in addition to US\$ 8 billion worth of economic damage during the same period. Severe water-related disasters such as floods, droughts, tsunamis, windstorms, landslides, storm-surges, water-borne diseases, and epidemics have escalated since the turn of the 21st century.



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13. Rapid population growth in the Asia-Pacific region over the past decade has forced more people to live in floodplains and other vulnerable areas and has led to ever-increasing demands for water supply, security and sanitation services, which require greater investment in water projects. In certain countries, investment in improved access to safe drinking water and decent sanitation facilities; allocation and conservation of water resources; adequate management of wastewater including its safe recycling; and construction of flood control and irrigation facilities, have led to increased economic growth; a healthier, more robust economy; and an overall reduction in poverty. Unfortunately, in most countries, investments in the water sector have fallen seriously behind demands.
14. One great challenge in moving forward as a region is the great diversity of its ecosystems, populations, political institutions, and socio-economic conditions. The region includes 38 major watersheds, of which 21 are transboundary. However, institutions concerned with shared basins are not capable of dealing with the political complexity of international water and the transboundary tensions created by large-scale water management schemes. At the other end of the spectrum, the isolated nature of small island developing states (SIDS) calls for increased regional cooperation to share knowledge and build capacity in order to address challenges common to many insular nations, as embodied in the Pacific Regional Action Plan on Sustainable Water Management.
15. Accounting for 84% of total freshwater withdrawals, agriculture dominates the sector. It is characterized by poor efficiency, low productivity, poor service provision, and non-existing or ineffective demand management. Many irrigation agencies are still driven by supply, and demand management mechanisms are either non-existent or ineffective. Furthermore, the intensification of agriculture, combined with industrial development and urbanization, have severely affected water quality.





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16. Essential ecosystem services provided by aquatic ecosystems, upstream watersheds, and agricultural landscapes are being significantly degraded, especially in areas of high resource dependency, with severe consequences for the incidence and severity of water-related disasters, and affecting downstream urban and rural populations, and populations whose livelihoods depend on them. The aquatic biodiversity's high economic and social value is threatened by overexploitation and alterations in hydrological regimes.
17. Water resources are unevenly distributed, and water availability is complicated by physical, economic, and environmental water scarcity. Moreover, the region's freshwater resources – our river basins, watersheds, wetlands and ecosystems – are imperiled by pollution, inadequate management, and climate change. Indeed, it is highly likely that the additional stresses caused by changes in the region's meteorological and hydrological regimes will increase our vulnerability to water shortages and water-related disasters². There is a need to make comprehensive and collective efforts to manage water-related disasters within the context of integrated water resources management (IWRM) in order to optimize the use of limited financial resources and capacities in the region.
18. Climate variability and change is already affecting water resources and their management in many parts of the region, as notably illustrated by the large-scale retreat of Himalayan glaciers and the growing threat of the rising sea level to small island countries. Adaptation to the effects of climate change and increasing climate variability must therefore be given the highest priority in order to secure limited water resources and to reduce the impacts of water-related disasters.
19. Adaptation and mitigation can act as complementary response measures that should be combined to reduce the risks of climate change. Water plays a central and important role in adaptation to climate change, and as such must be given central priority in national strategies for sustainable development and public security.

20. The lack of firm commitment by the governments of many countries in the region, accompanied by a lack of effective policies, planning mechanisms, and monitoring of investments and results, has resulted in inadequate progress in meeting both the MDGs and national socio-economic goals of development. The urgent need to improve governance, including the better allocation of financial resources and more effective investment in water resources management, is thus a priority issue for regional cooperation in the region.
21. In short, the Asia-Pacific's water challenges are of massive proportions. Resolving these challenges would produce substantial social, economic, and environmental benefits for the region's countries and citizens. However, achieving major progress will require strong support at the highest levels of decision-making. The 1st APWS provides an unprecedented and historic opportunity to engage in collective efforts to recognize that each of the important issues raised by the APWF in this Policy Brief are closely interlinked and thus need to be tackled in a comprehensive manner within the perspective of IWRM.
22. Unfortunately, we cannot solve all of our problems at once. The following sections of the Policy Brief will focus on three specific themes, which were identified in the Asia-Pacific Regional Document for the 4th World Water Forum (March 2006) as those most urgent for the region. The APWF firmly believes that achieving progress under these Priority Themes will also help to solve many of the other problems described above.

Priority Theme A: **Water Financing and Capacity Development**

23. The Priority Theme on Water Financing and Capacity Development aims to increase targeted investments in water management in the Asia-Pacific region, in supply and sanitation infrastructure, and in human resources development in particular. The theme focuses explicitly, but not exclusively, on the efforts required for meeting the MDG targets for safe drinking water and sanitation (Target 10) and for improving water resources management in general, especially in the context of the impending impacts of climate change.
24. Improvements in the MDG indicators for income levels, hunger, communicable diseases, maternal and child mortality rates, and environmental sustainability rest on many factors. However, all have one factor in common: water. Water is essential to sustain life, provide food, and create the conditions for higher levels of health, education, and income. Investing in the water sector embodies the intent of "Human Security," which is to create systems that give people the building blocks for survival, dignity, and livelihood. Furthermore, since water is also a key element of financial development and economic growth, investing in the water sector also promotes economic growth and prosperity which can in turn lead to even greater "Human Security".
25. The Asia Water Watch 2015 study³ estimated that an annual investment of at least \$8 billion will be needed in the Asia-Pacific region over the next decade if countries are to meet the MDG targets for safe drinking water and sanitation (Target 10). The greatest proportion of these financial needs is in the South and Southwest subregions, followed by East and Northeast Asia. In terms of numbers of unserved people, the largest numbers are found in India and the People's Republic of China. Because the Asia-Pacific bears the majority of the world's poor, achieving Target 10 in this region would make a significant contribution towards attaining the global target. The achievability and affordability of meeting Target 10 in the Asia-Pacific raises an interesting possibility: political leaders can afford to confidently set more ambitious targets than the MDGs and advance their countries towards greater levels of social and economic development. It is not a matter of possibility, but a matter of willingness⁴.



26. An investment in the water sector is an investment in all the MDGs, not just Target 10. The impact of water sector investments directly targeted at poor consumers is anything but subtle. Safe water supplies immediately improve people's health and save them time, which they can use for studying or improving their livelihoods, so that they can earn more, eat more nutritiously, enjoy healthier lives, and contribute to the local (and national) economy. In addition, improved sanitation protects the poor from socially and physically degrading surroundings, health risks, and exposure to dangerous environmental conditions.

27. Significant investments are also needed in irrigation services, river basin management, flood management and mitigation, and wastewater management. Investments in water are crucial to meet the broader MDG targets of reducing poverty, hunger, child and maternal mortality, and the incidence of major diseases, and to improve environmental sustainability. Clearly, this is a major challenge, and one that is complicated by a wide range of governance, institutional, social, environmental, and political issues.

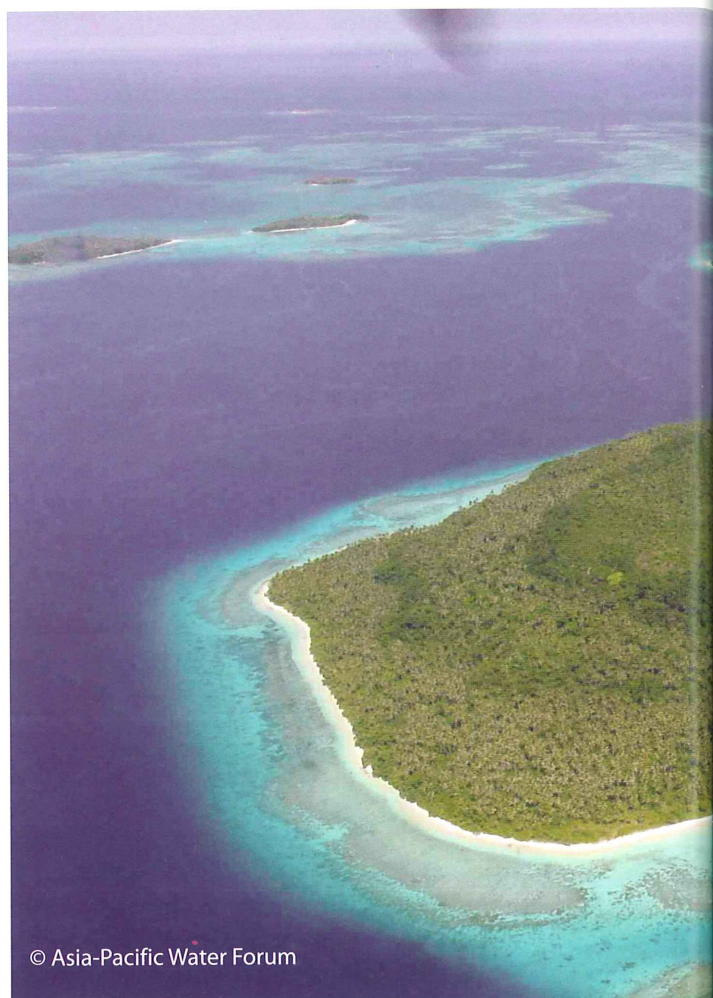
28. There is also a need to drastically reduce the vulnerability of populations to water-related disasters. In the last century, the Asia-Pacific region accounted for 91% of the world's total deaths due to natural disasters and 49% of the world's total damage due to natural disasters⁵. With regard to climate change, the number of typhoons and cyclones has been increasing as have the number and expanse of drought-affected areas. Disaster risk management and the expansion of facilities for water resources development, water supply, irrigation, wastewater treatment, and recycling, need to be promoted with community participation.

29. In general, it is clearly understood that the principal challenge lies not in the technological aspects (hardware component) of water supplies and sanitation, but more in the soft components, especially: (1) leadership and commitment; (2) the need for an appropriate policy environment, and legal and regulatory framework (including local government financing); (3) capacity development of service providers; and (4) innovative financing mechanisms that may prove attractive to potential investors, especially from the private sector, which would increase water sector investment while ensuring the active participation of all affected stakeholder groups – not only from the water sector but also from health, education, and other sectors concerned.

Key Messages and Recommendations under Priority Theme A

I) Water problems of developing countries are manageable

30. A key message emerging from our experience is that the region currently has a reasonable level of knowledge, experience, and technology to solve its water problems. The solutions may differ from one country to another, and even from one part of a country to another, because of differing physical, climatic, economic, social, environmental, legal, and institutional conditions. However,



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the knowledge base to structure proper solutions is currently available from the lessons learned in the Asia-Pacific region. Still, to formulate and implement solutions in a timely, cost-effective, pragmatic, and high-quality manner will require significant additional investment funds, strong political will, and appropriate capacity development at all levels.

II) Give water and sanitation a higher priority on national, regional (Asia-Pacific), and international agendas

31. Although the world community is committed to working together to meet the MDGs with the current trend in progress of compliance, it is unlikely to meet Target 10, generally, in the Asia-Pacific. Attaining Target 10 will be important in improving the socio-economic and environmental conditions of developing countries in the region. However, the firm and continuing commitment of concerned decision-makers and political leaders is necessary. Hence, it is time to put water and sanitation high up on national, regional, and international agendas.

III) The principal challenges will not be technological – the hardware of water sector development – but rather the soft issues⁶

32. Decision makers need to address a range of issues in the following four core areas that reflect the key constraints identified in the UN MDG Task Force report:
33. **Policy, legal, and regulatory reform.** Reform is an essential condition for sustainable and effective change. Governments should ensure that a supportive environment exists for sustained efforts in the sector and should clearly define the roles, rights, and responsibilities of all actors. Special attention should be given to defining policies that target the specific needs and opportunities of the poor, for enhancing human security through improved access to water supply and sanitation.
34. **Planning and technology choices.** The range of technology and management choices must be broadened to include the development of innovative, low-cost technical approaches that can be implemented in poor communities. How technology can be used by communities and the participation of those communities in the planning process should always be taken into consideration. For water supply, this should include approaches such as small pipe water networks⁷ for urban fringes and densely settled rural areas, as well as innovative technologies to ensure adequate water supplies. The performance of existing water supply systems should also be improved through the rehabilitation of facilities. For rural sanitation, a scaling-up of ideas for approaches that accomplish both the safe use of wastewater and excreta, and ecologically sustainable sanitation needs to be considered. With regards to urban sanitation, the promotion of appropriate community-based solutions⁸ in slums should be considered, in addition to upgrading and rehabilitating the ordinary sewerage systems to cope with rapid population growth and increasing water pollution.





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35. **Financing mechanisms.** Investment environments (especially those that encourage small private sector investments) and effective cost recovery mechanisms should be made accessible. Two aspects of this issue are particularly important: (1) the establishment of more effective and diverse credit and financial management systems that are accessible and affordable to the poor, and (2) the development of a regulatory regime that encourages investments by the private sector, and especially by local small-scale entrepreneurs. In this respect, the introduction of Public-Private Partnerships (PPP) schemes and financial mechanisms for local water operators should also be considered.
36. **Institutional reform and capacity development.** Reform should include capacity building⁹, the introduction of more appropriate management systems, and more effective institutional coordination between all players. This is particularly the case among government agencies, but there is also a need to build better links between government, the private sector, civil society, and community-level organizations. Three critical gaps need to be addressed: (1) strengthening decentralization processes and building the capacity of local government agencies; (2) supporting the development of local private sector providers by developing effective market systems; and (3) reducing fragmentation and clarifying uncertainties over mandates that often characterize the water supply and sanitation sector, as well as the management of water resources.

IV) More investment in the water resources sector is necessary to achieve MDG Targets in the Asia-Pacific. It is not a matter of possibility but a matter of willingness

37. As explained above, a regional investment of just \$8 billion a year would ensure that the Asia-Pacific meets Target 10 and continues to expand coverage beyond 2015. The different development needs of urban and rural areas in relation to water need to be taken into account when formulating developmental strategies. For instance, urban areas, particularly slums, need water supply and sewage water treatment, poverty reduction, and flood control, while rural areas need water supply, sanitation, irrigation, and water resources development.

38. While internal funds may not be available in some developing countries, financial support is available through several external support agencies and institutions, as well as through the private sector. At the same time, appropriate financing mechanisms, such as proper cost-sharing between governments and users and the utilization of the additional resources accrued from recent rapid economic growth, for much needed works such as sewerage and sanitation, should also be created.
39. Money is available¹⁰. What is needed now is firm political will and commitment to invest in water and sanitation, to preserve and upgrade the environmental condition of our scarce water resources, and to show leadership towards proper reforms and real capacity development in the region.

Priority Theme B: **Water-Related Disaster Management**

40. The Priority Theme on Water-Related Disaster Management aims to create new momentum towards commitment and leadership in order to strengthen and ensure the effectiveness of our efforts to achieve a positive change in the way water-related disasters are managed in the Asia-Pacific region.
41. The correlation between poverty and population density versus the toll of human casualties clearly reveals how poverty, societal inequality, and a lack of political commitment to adapt to changing risks, also create additional elements of vulnerability to water-related disasters. Health issues, especially the spread of epidemics and water-borne diseases during disasters, remain a major challenge for many communities, particularly for those situated in slums.
42. As recently highlighted by the IPCC, the probability of increasing extreme climatic events such as floods, droughts, and coastal flooding induced by global warming is likely to further aggravate the impact of disasters in the region. Heavy precipitation events, which are very likely to increase in frequency, will augment flood risk. In the course of the next century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world's population currently lives. Densely-populated and low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms and local coastal subsidence, are especially at risk. The populations affected will be largest in the mega-deltas of Asia and Africa, while small island countries are especially vulnerable¹¹.
43. Comprehensive and integrated disaster management schemes, such as the integration and best mix of both structural and non-structural measures for disaster management, must be sought for optimizing the use of limited available resources. Structural measures such as levees, water/sediment regulation facilities, and rainwater harvesting need to be steadily implemented, as they would increase the level of physical protection from certain disasters. At the same time, the potentially significant environmental impact of any of these measures would need to be factored into the decision-making processes, together with socio-economic factors, with the understanding that final decisions on such developments are matters of societal choice.
44. From a global perspective, the MDGs, the Hyogo Framework for Action 2005-2015 (HFA), and the Hashimoto Action Plan, together provide a set of strategic goals and global actions for substantially reducing the effects of disasters on lives and livelihoods over the decades to come. In line with the above, it is vital that national and local development plans be formulated to mainstream water-related disaster management, including climate variability and change, into national land and water management policies and practices and that this mainstreaming process be backed by proper levels of investment.

Key Messages and Recommendations under Priority Theme B

V) Integrate Water-related Disaster Risk Reduction (DRR) into national development plans, recognizing adaptation to increasing risks from climate change as a “highest” priority issue

45. Considering that the majority of natural disasters in the Asia-Pacific region are water-related, especially those caused by tropical cyclones¹², the current trend of increasing loss of life and livelihoods triggered by water-related disasters, and floods in particular, can be regarded as a major impediment to sustainable development and poverty reduction. The expected increase in the severity of water hazards due to climate change will further exacerbate the damage, both in human and economic terms, especially when combined with existing vulnerabilities such as ill-performing social, cultural, political, and management structures.
46. Adaptation to the possible increase in risks from global warming is a new and common challenge to all countries in the region and thus needs to be recognized as a “highest” national priority that must be tackled at various levels and by different sectors in a concerted manner.
47. The integrated approach to disaster management needs to involve various sectors such as urban and land use planning, societal development, industry, education, agriculture, and environmental protection. Therefore, the establishment of a comprehensive policy for managing water-related DRR is a necessity which should be integrated into national and local development plans for water-related DRR. In this respect, a message such as this: “Ensure that DRR is a national and local priority with a strong institutional basis for implementation”¹³ should also be declared as a high level political agenda.
48. In tackling water-related DRR, the involvement of all stakeholders is a must. But above all, national governments should continue to assume central responsibility for national security and peoples’ well-being by establishing national strategies from a longer and wider perspective, ensuring necessary resources, and putting various preventive and adaptive measures into practice. Such strategies would address the need to considerably increase investments in water-related risk management, which is currently very low in most developing countries, to a desirable level as illustrated by several good examples in the region¹⁴.

VI) Recognize the importance of IWRM for water-related DRR and the need to strengthen comprehensive structural and non-structural measures

49. In order to ensure the optimized use of water resources it is important to look at the whole water regime, which means that both scarce and excessive water management must be done in a concerted manner. In recent years, IWRM has been widely and internationally recognized as a desirable approach towards water issues. IWRM is a broad concept promoting the integrated management of water in a sustainable and equitable manner and thus encompasses a wide variety of sectors such as physical, geographical, socio-economic, and cultural domains. *The IWRM approach, therefore, must also be applied to water-related DRR.*
50. In this context, we should note the message delivered by Ministers of the Asia-Pacific region to “promptly strengthen the comprehensive efforts from both hard and soft sides, based on the recognition that the measure is an important element for integrated water resource management, against water-related disasters.”¹⁵ Attempts to tackle water-related disaster management from an IWRM perspective are already underway¹⁶. The adoption of the IWRM approach would ensure various forms of integration (e.g., land and water management, flood and drought management, structural and non-structural measures, etc.). This also contributes to the most effective use of limited resources and capacities in the region.

VII) Establish national and local goals/targets for water-related DRR, taking the impacts of climate change into consideration

51. It generally takes a long time for water-related DRR efforts to show visible results in terms of national sustainable development. Therefore, central governments, local governments, and institutions which focus on disaster management should identify clear-cut goals/targets in water-related DRR for reducing the loss of life and livelihood, reflecting social and economic conditions of the communities at risk. Establishing national and local goals/targets is thus important as it provides a basis leading to concrete actions. In this sense, we appreciate the recommendation issued by the high-level water-expert panel to: "Establish, with unified political will, a clear-cut global-level target that articulates the direction for global actions for reducing the loss of life and livelihood caused by water-related disasters."¹⁷
52. Setting proper DRR targets is also a new challenge posed by climate change, under which decisions need to be made on how to assess the magnitude of future hazards and how to select adaptive management strategies in uncertain situations.

VIII) Develop preparedness indices for water-related DRR for the Asia-Pacific region

53. The MDGs and the HFA, among other international and regional frameworks, are undoubtedly strong vehicles and provide momentum to create unified efforts towards making sustainable progress in water-related DRR.
54. In following-up these frameworks, the development of flood and drought preparedness indices will enable central and local governments to monitor the performance of their achievements and the effectiveness of actions and policies undertaken to reduce the impact of water-related hazards. The utilization of indices will ensure facilitation of the positive spiral of national and local preparedness building up in the Asia-Pacific region. These indices must be adaptable in order to address community preparedness and vulnerability reduction at each stage of the disaster management cycle.



55. The indices for water-related disaster preparedness are expected to help initiate a platform for the creation of standardized procedures for water-related disaster preparedness, which could be developed into an international standard.

IX) Develop water-related disaster warning systems and human capacities

56. Experience shows that effective prevention strategies would greatly contribute to reducing both human and economic losses, as opposed to investments in response and recovery. In this context, the development of well-functioning Forecasting and Warning Systems (FWS) is a prerequisite for communities' disaster preparedness and adaptation. To this end, it is necessary to undertake a consolidated review on the currently available FWS in the Asia-Pacific region and develop appropriate FWS within the parameters of available technologies and resources. The utilization of real-time satellite data could prove useful in the Asia-Pacific region where the availability of real-time data is scarce and thus needs to be promoted.

57. Community capacity development also plays a key role in the successful implementation of various measures in localities where disaster management operations are mostly carried out, in order to build community resilience to water-related disasters. Advanced high-technology can only work when proper local/community capacity development and a culture of disaster prevention, such as community-based disaster management, are implemented. To this end, various levels of education for flood management unique to the Asia-Pacific region must be provided. This will enhance local awareness in order to cultivate qualified disaster managers.

Priority Theme C:

Water for Development and Ecosystems

58. The objective of the Water for Development and Ecosystems Theme is to secure water for long-term, multi-sectoral needs, generating both developmental and environmental dividends.

59. In March 2005, the governments of the Asia-Pacific region adopted a new approach to sustainable development: *Green Growth* which is designed to reconcile seeming conflicts between commitments to environmental sustainability and poverty reduction within the framework of the MDGs by moving away from an emphasis on economic growth with some attention to the environment, to a more integrated thinking in which development enhances sustainability instead of threatening it. Decision-makers must now commit to specific, tangible and achievable objectives. The application of emerging approaches and tools to water management can drive real progress.

60. Decision-makers should invest in ecosystems as development infrastructure that needs to be maintained, restored, monitored, and managed. Investment in water infrastructure for water supply, sanitation, and flood control can be more efficient if ecosystem services provided by aquatic ecosystems, upstream watersheds, and agricultural landscapes are recognized and preserved. Because of the preponderant role of agriculture in water usage, rethinking agricultural water management to improve its productivity and decrease its environmental footprint has the widest scope for improvement. This will be a key area of reform, investment, and capacity building to reach the MDGs in the region.

Key Messages and Recommendations under Priority Theme C

X) Implement good governance at the basin scale

61. The need for ecosystem approaches to development has resonated with many decision-makers across the region, yet the implementation of ecosystem approaches, particularly at the river basin

scale, has not been effective. Similarly, the decisive role that governance plays in determining the outcomes of development is increasingly recognized by all sectors of society. In much of the region, governance at the basin level is weak because political and natural boundaries do not coincide. Rights over water are not clear, and the deterioration of water quality has proven difficult to control. However, there has been much progress in establishing river basin organizations which strive to manage resources at levels appropriate to the hydrological cycle and the functions of water-based ecosystems. These must be replicated. The following approaches for improved water governance are suggested:

62. **Integrate Principle 10 of the Rio Declaration into water resources policy and enhance coordination by increasing stakeholder representation and participation in decision making processes.** The governments of the region have already committed to, and should now take decisive action towards, and monitor, enhancing governance in development through Principle 10 of the Rio Declaration, which calls for ensuring access to information, participation and justice in environmental matters in decision-making processes. National decision-makers should provide the legal and policy framework for a diverse range of institutions – including river basin organizations, networks, coalitions, and dialogue platforms – that can provide necessary inputs from the different sectors of society and improve coordination among stakeholders.
63. **Integrate groundwater into basin-level management.** Groundwater resources are an important component of many of the region's critical ecosystems and food systems. Governments in the region must prioritize groundwater resources within plans for sustainable development. Integration of groundwater into water policy will require a major departure from the *status quo*, requiring much more thorough data and analysis and revision of development policies that create the dynamics for groundwater depletion.
64. **Enhance transboundary collaboration through more open and informed dialogue and adopt and implement regional frameworks to reduce ecological and social threats:** The Asia-Pacific governments must further commit to engaging in meaningful dialogue, institutionalizing protocols and mechanisms for information sharing and consultation on joint development and action plans on transboundary issues, while making monitoring information available to society at large. International and regional cooperation bodies should support these efforts. Where large-scale water management schemes (such as hydroelectric power and irrigation) may have transboundary impacts, institutions in shared basins need to address the political complexity of international water and the transboundary tensions created.



XI) Adopt practical tools to improve economic, social and environmental outcomes of water management

65. There is an urgent need for more holistic approaches to achieving successful outcomes in the environmental, economic, and social spheres. Water management plans must recognize that ecosystems themselves require certain levels of water flow in order to remain productive and provide for the needs of all stakeholders in society. Likewise, ecosystem services and public goods delivered by agriculture water management systems also need water. Tools for dealing with these issues include:
66. **Adopting environmental flows (E-flows) in water development planning and policies.** Ecosystems and livelihoods are often affected when inadequate consideration is given to the potential impacts of water-related development and management strategies. An environmental flow is a water regime within a river, wetland, or coastal zone for maintaining ecosystems and their benefits where there are competing water uses. E-flow approaches assist in assessing the distribution of costs and benefits across sectors and stakeholders and can help ensure that water is allocated to the environment in development planning, especially involving large infrastructure, and should be seen as integral to sustainable water management. Governments of the region must establish legislative, regulatory, and institutional policies and capacities to enable effective quantification, implementation, and enforcement of environmental flow, recognizing the ecosystem services of agricultural systems.
67. **Developing mechanisms and markets for payment for environmental services.** While economic growth is rapid across much of the region, the distribution of benefits across societies is more uneven. The rural poor are often being asked to maintain supplies of critical ecosystem goods and services such as watershed functions. Payment for environmental services schemes have been tested in the region in upstream watersheds, but should be taken to the next step of refinement and considered also for agricultural water management. Incentives such as tax breaks, tenure, and other financial and non-financial instruments must also be considered.

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XII) Re-invent and invest in agricultural water management to raise the productivity of water and decrease the environmental footprint of agricultural production

68. To meet the future food security needs and rural socio-economic aspirations of the region, pressure to develop new supply sources or increase water allocation to agriculture will continue. At the same time, pressure on agriculture to perform more effectively and efficiently and reduce its environmental impact will intensify. Water management must first focus on making better use of the water being accessed, and restore a strategic balance between rain-fed and irrigated production. Given the overwhelming dominance of irrigation and its role in securing food security, it is necessary to improve the benefits of irrigation water. Irrigation is often characterized by poor water productive efficiency, and poor services to farmers, limiting their social benefits and hampering their capacity to adapt to and benefit from changes in agricultural markets and water allocation. Policy-makers can avoid conflict between agriculture and competing sectors by providing direction and incentives for the reform of irrigation management and the upgrading of infrastructure, while delivering direct benefits for a rapidly growing population and to farming communities. Proposed approaches include:
69. **Taking more balanced strategic approaches to increase water productivity in both rain-fed and irrigated agriculture.** The potential to increase food production by boosting the productivity of rain-fed production has been neglected and must be fully realized by providing incentives for the adoption of improved soil and water management practices, and supplementary irrigation and water harvesting, resulting in more equitable investment patterns.
70. **Recognizing and managing the multiple roles of irrigation water.** In addition to food, irrigation systems in the region also provide water for farmhouses, habitats for fish and other aquatic resources, rural enterprise water supplies, domestic water, hydroelectric power, and navigation. It also supports important cultural values that are essential for local wellbeing and livelihoods. Ecological benefits include flood control, groundwater recharge, water purification, biodiversity conservation, and climate adjustment. Policies that recognize and promote the multi-functionality of irrigation water can improve food security, health and sanitation of local communities, and benefits to society as a whole.
71. **Modernizing irrigation systems' management to enhance the welfare of farming communities, environmental sustainability of irrigation, and allowing reallocation of water to other uses and users.** Irrigation sector reform should be reoriented to focus on the professionalization of management and service provision and the accountability of service providers to users, satisfying the needs for representation and empowerment along with performance objectives and market-based instruments. This poses many questions regarding the capacity and willingness of the institutions to deliver services on the basis of demand rather than supply. In many developing countries with large irrigated sub-sectors, there is a continued reliance upon supply management approaches with little attention to the management of existing assets. This trend needs to be reversed if agriculture is to continue to account for its water withdrawals. Reforms will require improving both physical structures and management institutions. Investments should be based upon an understanding of the changing demand in irrigation services for farmers, multi-functionality, and the need to improve the environmental performance of the systems in a river basin management context.
72. **Investing in capacity building and mandating benchmarking systems.** Bringing about this shift in irrigation management will require considerable investment in capacity building at all levels, including engineering and operations. Countries also need to adopt benchmarking systems to monitor the effects of policy changes and improve sectoral performance and quality of investment.

73. **Adopting good practices to reduce the environmental footprint of agricultural production.** In order to counter the environmental impacts that have resulted from the intensification of agricultural production and exploitation of natural resources, policies must be revised to promote conservation agriculture, integrated pest management, integrated plant nutrition, sustainable forest management, efficient processing and marketing processes, and environmentally friendly livestock production.

XIII) Protect and restore urban environments

74. Improving the health and function of urban aquatic systems is vital for ensuring health, sanitation, and overall quality of life in fast-growing urban areas. In the urban setting, the protection of valuable systems should be coupled with the restoration of degraded systems. Concerted efforts to improve waterways and bodies of water are an important strategy for contributing to human development in cities.

XIV) Prepare for climate change impacts on water availability and adopt mitigation and adaptation strategies that provide benefits now

75. Government responses to climate change must focus on reducing human vulnerability while protecting and restoring ecosystems. Effective responses will require improved governance and concerted efforts to build society's capacity to adapt, as the basic assumptions about food production, flood protection, and resilience to drought are challenged by climate change. Improved water and ecosystem governance is essential to develop equitable strategies. Specifically, governments need to prepare for changes in the flow regimes in continental basins, rising sea-levels, and changes in ecosystem dynamics. The major policies, strategies, and techniques available for re-inventing agricultural water management would actually also reduce emissions or sequester carbon and/or represent adaptation options for vulnerable livelihood systems. Creating markets for environmental services can also promote the adoption of adaptive practices, such as the management of watersheds, natural parks and protected areas, the rehabilitation and sustainable management of grasslands, and reforestation and afforestation.

Guiding Principles to Accelerate Progress

76. The following three key messages (XV, XVI and XVII) emanated from the Key Result Area on increasing local capacity (KRA2) and were developed through cross-fertilization with the Priority Themes. These describe general approaches that should guide future actions in the region.

XV) Decentralization with empowerment

77. In many countries in the Asia-Pacific, the delivery of basic water services has been delegated to local authorities. However, there is still a big gap between this decentralized responsibility and the current capacity for supporting the role of local authorities. National governments should focus on strengthening local level delivery systems. Local authorities must be equipped with an enabling environment, allowing them to ensure sustainable service provision for all. This would include the further development of existing capacities to plan and coordinate implementation and the provision of the necessary institutional, technical, and financial support. The political will to assume responsibility must be harnessed and capacities must be strengthened to ensure effective, sustainable, and efficient service delivery systems and good governance at the local level.

XVI) Partnership approach between local authorities, civil society (NGOs and community-based groups) and different service providers (public and private)

78. Local authorities have generally been expected to ensure basic services. The rights-based approach demands that the state be expected to promote, respect, and fulfill the right of local populations to receive the services. However it is not expected that local authorities provide the services by themselves. The key is to be open to multi-stakeholder participation and community-led initiatives. Collaboration is crucial at different levels in order to achieve the mutually accepted goals of sustainable service delivery for all, targeting especially the poor and other marginalized groups of men, women, and children, the sick, and the elderly. Participation in planning, budgeting, technology choices, performance goal setting, and monitoring are some of the key areas that need to be opened up for collaborative action.

XVII) Capacity development as an important area of investment

79. The delivery of basic water services is not just about infrastructure. However, most Asia-Pacific governments fail to provide resources for capacity development which ensure that the knowledge, skills, and behavior changes are in place. While there is a wealth of knowledge, experience, and expertise in the region, there is still limited access to the right information, materials, and tools; insufficient funds for supporting the knowledge transfer process; and insufficient or inadequate human and organizational resources. Adequate investment in capacity development enhances the ability to work with informed partners, work at scale, replicate good practices, and innovate. It also enables local actors to provide the necessary support system to follow through and ensure the continuity of an environmentally sustainable service delivery system.

Key Recommendations for the Way Forward

80. These final recommendations of the Policy Brief emerged from a combination of several complementary recommendations that in turn emerged from the Key Result Area on developing knowledge and lessons (KRA1) and the Key Result Area on monitoring investments and results (KRA4) as well as from the Priority Themes. They encompass a number of specific concrete initiatives which are listed in Annex A.

XVIII) Create a platform of scientific information to support decision-making

81. There is a fundamental mismatch between the scales of information management and decision-making. Most data indicators of water availability and scarcity are collected at the national level, and feed into national development planning. But water availability and quality are tangible at the ecosystem level, be it in sub-national or transboundary basins. Policies to address these issues at the relevant level need to be informed by data on a corresponding scale via indicators that integrate the water required by an ecosystem to maintain the flow of goods and services.

XIX) Create a platform for knowledge coordination, knowledge sharing, and knowledge management at the regional and national levels to increase access to important information, skills, and other support services, in order to improve capacities and efficiencies among implementers of water management programs and services

82. While there are a lot of valuable experiences and information around the region, access of local implementers to this kind of knowledge base is not easy. Capacity development in the region should address the needs of the different stakeholders who are key in implementing policies at various levels. There must be a systematic way of knowledge sharing and skill development based on demand.

XX) Create a platform for a set of sector-level collective monitoring systems at the regional and national levels

83. Monitoring the entire water sector at the national level is essential in order to support the formulation of effective policies for socio-economic development and environmental management. For this purpose, not only are mechanisms for monitoring necessary, but a proper system linking the results of monitoring to policy making is also essential.
84. In view of the complexity of the water sector at the national level, it is likely that a set of sector-level monitoring programmes would prove to be most effective:
- **Water supply and sanitation.** The purpose of the system should be to collect and analyze data on sector financing and investments and the outcomes of investments in order to provide information for guiding the development of national sector policies as well as financial and technical support programmes.
 - **Agricultural water management.** Monitoring information available in the sector has pointed to the poor performance of many irrigation systems and a major reduction in investment for irrigation infrastructure in the region. National governments need to monitor investment and its results in irrigation at both the national and regional levels in order to adjust investment strategies to meet food securities in basic food staples, adjusting for national self-sufficiency targets and availability and trends in international markets.
 - **Ecosystem management.** Governments are urged to establish, with the assistance of international organizations, a monitoring system for the status of rivers and ecosystems in their respective countries and to mobilize the participation of local authorities in developing plans for rehabilitation and restoration.
 - **Water-related disaster management.** Governments are urged to adopt standardized methodologies of assessing the socio-economic impacts of water-related disasters to form a common basis for collaboration among countries and international organizations, including financing agencies, as part of a strategy towards monitoring.
 - **Integrated water resources management.** Monitoring of investment and results of the entire water sector at the national level is essential. The most effective of the possible options for such monitoring mechanisms are identified as follows:
 - **Option 1:** Establishment of a permanent mechanism for overall monitoring of investment and results at the national level for regular monitoring at appropriate frequency
 - **Option 2:** Establishment of a policy on the overall monitoring of investment and results, through which *ad hoc* mechanisms could be established at specific times, with the appropriate frequency
85. In order to ensure synergy of regional efforts on strengthening the monitoring of investment and results, it is recommended that these regional efforts be integrated into the process of institutional strengthening of regional cooperation through APWF. For this purpose, the following courses of action are recommended:
- Establishment of a network of international organizations and financing institutions, in coordination with existing programmes, in order to support the process of strengthening the monitoring of investment and results in the region, and to study implications of findings from the monitoring of investment and results for more effective regional cooperation in water resources management, especially for consideration at the regular Summit.

- Establishment of a Ministers' Council for Water of the Asia Pacific in order to assist developing countries to strengthen their capacity in policy development and to enhance the benefits of regional cooperation.
- Integration of the findings of the monitoring of investment and results in water resources, with the operations of the proposed Central Water Knowledge Hub for Capacity Development

Endnotes

1. WHO/UNICEF Joint Monitoring Programme. www.wssinfo.org
2. IPCC 4th Assessment Report. 2007.
3. This study was commissioned by ADB, World Health Organization (WHO), United Nations Development Programme (UNDP), and United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).
4. ADB. 2006. Asia Water Watch 2015. <http://www.adb.org/Documents/Books/Asia-Water-Watch/default.asp>
5. ADB. Technical Assistance Report: Supporting the Asia-Pacific Water Forum
6. For irrigation, infrastructure does matter. Not only is it in poor condition, but its design parameters are generally obsolete and need to be modernized to support new software arrangements and improved service delivery.
7. <http://www.adb.org/media/printer.asp?articleID=10235>
8. These include community toilets, and condominium sewerage connection systems.
9. Including the establishment of a central water knowledge Hub for Capacity Development in Singapore.
10. To address these concerns, ADB in 2006 announced a significant Water Financing Program (WFP), intended to double its investments in water to over \$2 billion annually, and to increase its technical assistance for preparing feasibility studies and long-term capacity building programs across the sector. ADB has also established a Water Financing Partnership Facility to support WFP. Currently targeted at \$100 million, the facility will provide resources that augment knowledge development and capacity building.

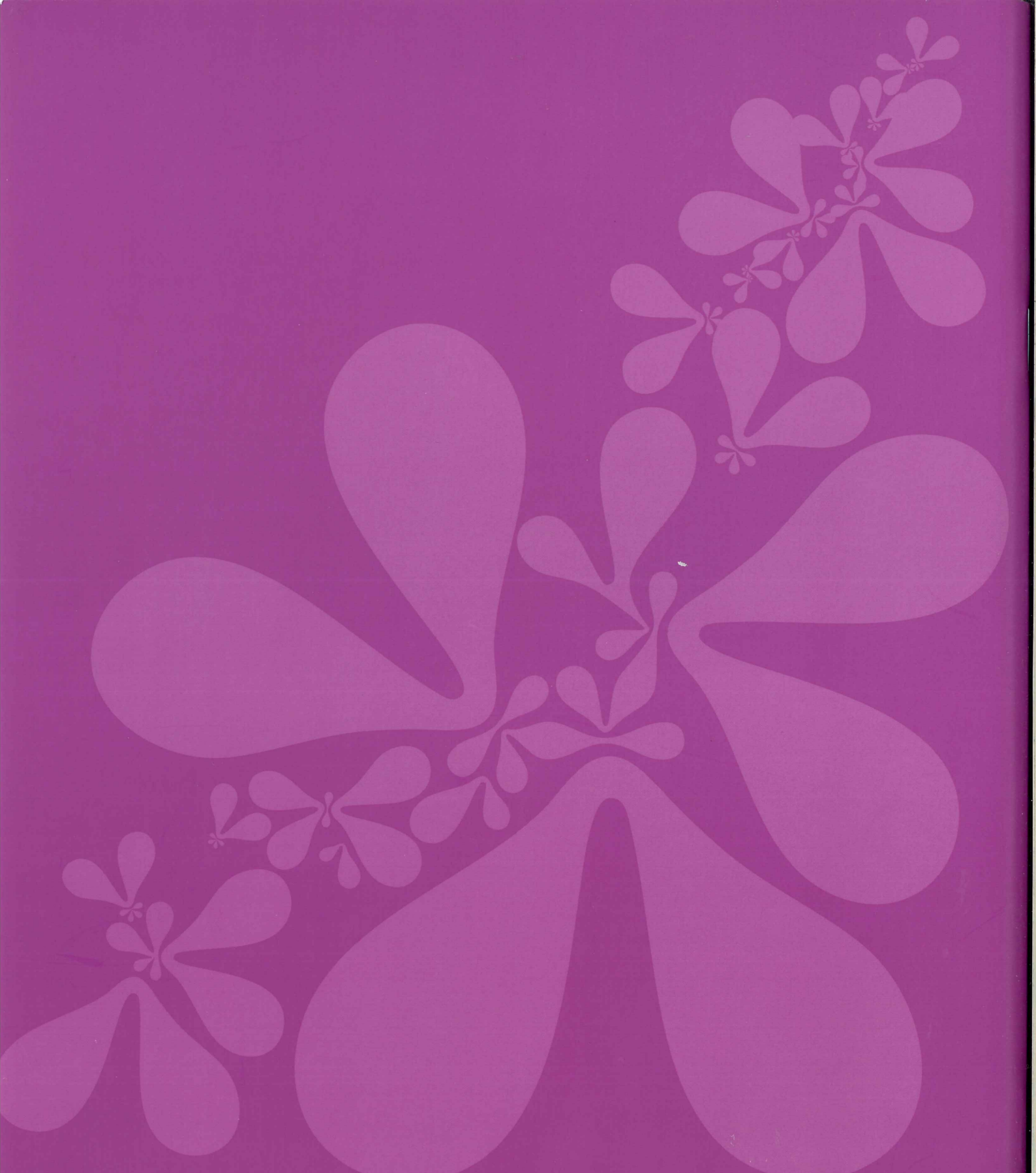
Japan is also expected to play an important role. Japan has been the most active donor in water sector in this region, allocating 20% of ODA loan aid and 7% of grant aid to the solving of water issues, and is committed to continue playing an active role. In addition, the new JICA (which will be established in October 2008 through the merger of JICA and JBIC), and the consolidation of technical cooperation, grant and loan aid of Japan's ODA, will bestow aid modalities for both investment and capacity development. It is, therefore, expected that the new JICA will be able to address issues related to water with more flexibility and mobility.

11. IPCC 4th Assessment Report. 2007. <http://www.ipcc.ch/SPM13apr07.pdf>
12. According to a 2006 study by UNESCAP and the basis of EM-DAT, tropical cyclones accounted for 70% of the number of people killed and about 90% of the total economic damage caused by water-related disasters.
13. Hyogo Framework for Action, World Conference on Disaster Management, Hyogo, Japan. 2005. <http://www.unisdr.org/eng/hfa/hfa.htm>
14. Experiences in Japan showed the desirable investment level to be 1% of GDP. Experiences in Malaysia and the Republic of Korea illustrated a consistent increase from 0.01% to 0.04% in past decades.
15. 6th Ministers' Forum on Infrastructure Development in the Asia-Pacific, Beijing. 2007. http://www.mlit.go.jp/kisha/kisha07/01/010830_2/02.pdf
16. International Flood Initiative. <http://unesdoc.unesco.org/images/0014/001463/146389> and the WMO/GWP Associated Programme on Flood Management. <http://www.apfm.info>
17. Hashimoto Action Plan: Compendium of Actions, United Nations Secretary General's Advisory Board on Water and Sanitation. 2006. www.unsgab.org/docs/HAP_en.pdf



Annex: List of Expected Concrete Initiatives to be Launched at the 1st Asia-Pacific Water Summit

Concrete Initiatives	Implementing Organization
PRIORITY THEME A	
Financing Water and Sanitation and Strengthening Capacity Development	Asian Development Bank (ADB), Japan Bank for International Cooperation (JBIC), Japan International Cooperation Agency (JICA)
PRIORITY THEME B	
Regional Knowledge Hub for Water-related Disaster Risk Reduction (ICHARM)	The International Center for Water Hazard and Risk Management (ICHARM)
Adaptation to Climate Change concerning the impacts of glacier-melting in the Hindu Kush-Himalayan (HKH) region	International Centre for Integrated Mountain Development (ICIMOD)
Pacific Partnership Initiative on Sustainable Water Management	Pacific Islands Applied Geoscience Commission (SOPAC)
PRIORITY THEME C	
Asia Pacific community practice on environmental flows for water resources management at policy, river basin and local levels	The World Conservation Union (IUCN), Network of Asian River Basin Organization (NARBO), International Water Management Institute (IWMI)
Re-inventing irrigation and agricultural water governance in the Asia Pacific to reach the Millennium Development Goals: a regional programme to support action at all levels through knowledge sharing, capacity building and implementation	Food and Agriculture Organization of the United Nations (FAO), IWMI
KEY RESULT AREA 1	
Initial Knowledge Hubs	Public Utilities Board Singapore (PUB Singapore), United Nations Educational, Scientific and Cultural Organization (UNESCO)
Asia-Pacific Water Museum	National Science Museum of Thailand, UNESCO, Japan Water Forum (JWF)
KEY RESULT AREA 2	
Capacity Building Hubs and Policy Support for Increased Local Capacities	United Nations Human Settlements Programme (UN-HABITAT) in collaboration with Streams of Knowledge (SOK)
KEY RESULT AREA 3	
Asian Water & Development Outlook	ADB
Asia-Pacific Water Documentary	Asia-Pacific Broadcasting Union (ABU), ADB, JWF
KEY RESULT AREA 4	
Regional network of water ministers to strengthen regional cooperation in water resources	United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)
Regional water task force to support the strengthening of water resources management with emphasis on monitoring of investment and results in the water sector	UNESCAP
OTHER INITIATIVES	
Launching of the International Year of Sanitation 2008 in Asia and the Pacific	United Nations Department of Economic and Social Affairs (UNDESA), UNESCAP, JBIC and ADB
Water Web Project on Google map & earth	JWF, Water Web Alliance
A Call to Action: Asia-Pacific Businesses to Address the Water Challenge	United Nations Global Compact
Aral Sea Basin Public Water Council	Executive committee of the International Fund for Saving the Aral Sea (EC IFAS), Interstate Commission for Water Coordination of Central Asia (ICWC), Interstate Commission for Sustainable Development (ICSD), Global Water Partnership of Caucasus and Central Asia (GWP CACENA)



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