# Response on Behalf of the United States

*Nearly all of the United States' 300 million inhabitants enjoy access to clean safe drinking water and basic sanitation; water has been available to support economic growth; watersheds and water-related ecosystems enjoy greater protection; and overall water consumption has remained steady despite continued population and economic growth.*

There are twenty-one large river basins and more than 21,500 small watersheds within the fifty United States. The availability of water and the demand for water varies greatly across these basins and watersheds as do the needs and interests of the public in how these resources should be managed.

Partly due to this heterogeneity and partly due to the unique system of governance in the United States, the U.S. does not have a single national plan or strategy for integrated water resources management (IWRM). Instead, IWRM is accomplished through a combination of federal laws and regulations, state statutes, federal and state institutions, and U.S. Government Agency directives and policies that promote cross-sectoral cooperation and sound water resources management for the public good. Within the context of the federal framework outlined below, state governments generally have jurisdiction over the management of waters within their borders – e.g., setting state water quality and environmental protection standards and developing water allocation regulations. When deemed necessary and appropriate, the national government has engaged in the development of large scale infrastructure for regional or national benefit and the implementation of laws promoting sound water resources management, watershed protection and water quality.

Examples of national-level laws that directly or indirectly promote water resources management, watershed protection and water quality include:

- **Clean Water Act:** Mandates public participation during the State development of water quality standards as well as public participation during the process of developing permits for industry and waste water treatment plants.[1]
- **Safe Drinking Water Act:** Intended to protect the quality of drinking water the public receives from public water systems including assuring the quality of drinking water at the tap as well as preventing contamination of groundwater that may be a source for drinking water.[2]
- **Watershed Protection and Flood Prevention Act (1954):** Promotes cooperation between the federal government, states, and localities to prevent flood damages. [3]
- **National Environmental Policy Act:** Requires federal agencies to consider the environmental impacts of their proposed actions as well as reasonable alternatives. Agencies must inform the public of all proposed developments and allow for public comment.[4]
- **Fish and Wildlife Coordination Act:** Provides that wildlife conservation receive equal consideration and be coordinated with other features of water resource development programs.[5]

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[1] http://www.epa.gov/region5/water/cwa.htm
[2] http://www.epa.gov/safewater/sdwa/index.html
[3] http://www.nrcs.usda.gov/programs/watershed/pl56631705.pdf
[4] http://www.epa.gov/region5/defs/html/nepa.htm; http://ceq.eh.doe.gov/nepa/agencies.cfm
[5] http://www.fws.gov/habitatconservation/fwca.htm

- **Endangered Species Act of 1973:** Provides for the protection of critical habitats on which endangered or threatened species depend on for survival.[6]
- **Estuary Protection Act:** Among other issues, requires that Federal agencies give consideration to estuaries in planning for the use or development of water resources.[7]
- **Wild and Scenic Rivers Act:** Provides for the preservation of selected rivers due to their remarkable scenic, recreational, geological, fish and wildlife, historic, or cultural values.[8]
- **Coastal Zone Management Act of 1972:** Encourages states to implement coastal zone management programs by authorizing the suspension of federal funding when coastal states fail to adhere to its management program and by mandating that federal activities in any states coastal zone be consistent with the states plans.[9]

Examples of national-level policies and programs aimed at improving sound water resources management include:

- **Clean Water Action Plan:** Enhances public health protection from water pollution. Provides for more effective control of polluted runoff and promotes water quality on a watershed basis.[10]
- **National Estuary Program:** States lead a multi-year collaborative process that brings together private and public stakeholders from all levels of the federal system to outline action for the estuary. The goals include protection of public water supplies and the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and allows recreational activities, in and on water, and requires control of point and nonpoint sources of pollution.[11]
- **Principles and Guidelines:** Set of elaborate processes developed to account for changing social preferences and ensure public participation in water resources planning.[12]

Finally, institutions that support IWRM exist at all levels – some as federal government institutions/organizations, some as state institutions/organizations, and some as interstate or intergovernmental institutions/organizations. Examples include:

- **U.S. Forest Service:** Implements, monitors and evaluates hundreds of collaborative forest watershed management restoration efforts at both the local watershed level and at the regional watershed level.[13]
- **Bureau of Reclamation:** The Bureau of Reclamation manages, develops and protects water and related resources in an environmentally and economically sound manner in the interest of the American public.[14]
- **U.S. Environmental Protection Agency:** Works collaboratively with all States and territories to implement the Clean Water Act and Safe Drinking Water Act by setting baselines for the states to incorporate into standards based on site specific characteristics.[15]
- **Army Corps of Engineers:** Builds broad-based relationships and alliances to collaboratively provide comprehensive, systems-based, multi-purpose, sustainable and integrated solutions to water resources national and international challenges.[16]

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[6] http://www.fws.gov/endangered/esa.html
[7] http://www.fws.gov/laws/laws_digest/ESTUARY.HTML
[8] http://www.rivers.gov/wsract.html
[9] http://www.aphis.usda.gov/regulations/compliance/environmental_esa_coastal_zone_318.shtml
[10] http://www.epa.gov/history/topics/cwa/03.htm
[11] http://www.epa.gov/owow/estuaries/
[12] ftp://ftp- fc.sc.egov.usda.gov/Economics/priceindexes/Data/Principles%20and%20Guidelines,%20local%20site.pdf
[13] http://www.fs.fed.us/
[14] http://www.usbr.gov/
[15] http://www.epa.gov/

- **Tennessee Valley Authority**: Since 1933 responsible for coordinated development of multi-purpose use and conservation of the Tennessee River Basin.[17]
- **U. S. Geological Survey**: The USGS mission is to provide reliable, impartial, timely information that is needed to understand the Nation's water resources.[18]
- **Chesapeake Bay Program:** Regional partnership that brings together members of various state, federal, academic and local watershed organizations to build and adopt policies that support Chesapeake Bay restoration.[19]
- **Everglades Restoration Program**: A framework and guide to restore, protect, and preserve the water resources of central and southern Florida.[20]
- **CalFed Bay Delta Program**: A collaboration between 25 Federal and State agencies to achieve a balanced, comprehensive approach to reduce conflicts over limited water supplies and to address the Program's four objectives of water supply reliability, water quality, levee system integrity, ecosystem restoration.[21]
- **For additional examples of community-based watershed restoration partnerships see** http://www.fs.fed.us/largewatershedprojects/ .

As demonstrated above, The United States has taken considerable action at the national level to support IWRM – much of which has been motivated by changing needs as well as a growing appreciation for environmental and ecosystem concerns. That said IWRM in the United States has - to a large degree - been a by-product of a growing national a governance system that encourages transparency, accountability, and public participation in government decision making. These principles are not specific to water but instead support ideals that create the conditions for a sound water policy that reflects the needs, wants and desires of the public. For example, key policies that protect individual and public rights, increase transparency, and promote public participation include:

- **Freedom of Information Act:** Increases transparency by defining a legal process in which government information is available to the public. Enables citizens and journalists to monitor political activity to detect corruption. There are similar laws in all 50 states in addition to the Federal Government.[22]
- **Administrative Procedures Act:** Requires agencies to keep the public informed of their organization, procedures and rules; to provide for public participation in the rulemaking process; to establish uniform standards for the conduct of formal rulemaking and administrative adjudication; and to define the scope of judicial review of agency decision-making and actions.[23]

In addition to the survey below, we hope the above introduction and examples (while not exhaustive) provide insight into the laws, policies, institutions, and organizations that shape the way in which water is managed in the United States.

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[16] http://www.usace.army.mil/who/
[17] http://www.tva.com/abouttva/history.htm
[18] http://www.usgs.gov/
[19] http://www.chesapeakebay.net/overview.htm
[20] http://www.evergladesplan.org/index.aspx
[21] http://calwater.ca.gov/
[22] http://www.usdoj.gov/oip/index.html
[23] http://usgovinfo.about.com/library/bills/blapa.html

# Questionnaire

## Part 1: Enabling conditions for water resources management (policies, legislation and plans)

**Please indicate the stages of formulation and approval of key enabling instruments for water resources management in your country, by checking one of the five columns for each instrument.**

(Given that the U.S. has a variety of instruments operating at a variety of levels we have checked all boxes that apply rather than making a single generalization regarding all.)

| Water Resources Management – Enabling Instruments | Not relevant | Under Consideration | In place but not yet implemented | In place and partially implemented | Fully implemented |
|---|---|---|---|---|---|
| Main national instruments: | 1 | 2 | 3 | 4 | 5 |
| a) Water Policy | | XX | | XX | XX |
| b) National/federal water law | | | | | XX |
| c) National/federal IWRM plan or equivalent strategic plan document | XX | | | | |
| d) National/federal Water Efficiency Plan | | | | XX | |
| Other national/federal strategies that may contribute to promoting IWRM: | | | | | |
| e) Poverty Reduction Strategy (PRS) with WRM component | | | | | XX |
| f) National Development Plan with WRM component | XX | | | | |
| g) National Sustainable Development Strategies with WRM Component | | XX | | | XX |
| h) National Environmental Action Plan with WRM component | | | | | XX |
| International agreements on IWRM to which your country is party: | | | | | |
| h) Regional/sub-regional IWRM plans/strategies or their equivalent[24] | | | | | XX |

[redacted]

[24] Examples include the 1909 treaty between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada and the 1944 treaty between the United States and Mexico Relating to the Utilization of the Waters of the Colorado and Tijuana Rivers and of the Rio Grande.

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| i) Transboundary IWRM plans/strategies (river basins) or their equivalent | | | | XX | XX |

**Please indicate steps/actions being undertaken to bridge the water demand/water availability gap, if such a gap exists in your country?**

At the national level, the National Science and Technology Council (which coordinates science and technology policy within the executive branch) has a Subcommittee on Water Availability and Quality. This subcommittee consists of 25 federal agencies that collectively are responsible for all aspects of federal water research and water resource management. The subcommittee has 7 elements of coordinated strategy designed to bridge the water demand/availability gap. They are:

- To implement a National water census
- To develop a new generation of water monitoring techniques
- To develop and expand technologies for enhancing reliable water supply
- To develop innovative water-use technologies and tools to enhance public
- acceptance of them
- To develop collaborative tools and processes for U.S. water solutions
- To improve understanding of the water-related ecosystem services and
- ecosystems needs for water
- To improve predictive hydrologic models and their applications

**If your country has developed and approved or is in the process of developing an IWRM Plan or an equivalent water resources management planning framework, please indicate how was the development of the plan/framework funded?**

☒ entirely by national funds?
☐ mainly through assistance from donors or IFIs?
☐ through both national and donor funded activities?
☒ others? State, local, non-government, and private sector funds also support IWRM activities.

## Part 2: Main elements of water resources management policies, strategies, programmes and plans:

**From the following indicative list, please check those programme areas and policy measures that are included in your country's water resources strategies, programmes and plans, while at the same time giving some indication of their status of implementation.**

| Water Management Programs/Policies/Strategies/Measures | Not relevant | Under consideration | In place bur not yet implemented | In place and partially implemented | Fully implemented |
|---|---|---|---|---|---|
| **Water Resources Development** | | | | | |
| Assessment of water resources. | | | | XX | XX |
| Regulatory norms and guidelines for sustainable development of water resources. | | | | | XX |
| Basin studies for long-term development and management of water resources. | | | | XX | XX |
| Desalination of seawater. | | | | XX | XX |
| Rainwater harvesting programs. | | | | XX | XX |
| Initiatives on water harvesting from coastal fogs. | | | | XX | XX |
| Supply augmentation programs to meet increasing demand of water. | | XX | | | XX |
| Programs and policies for recycling of water, wastewater treatment and reuse. | | | | | XX |
| **Water Resources Management** | | | | | |
| Programs and policies for watershed management. | | | | | XX |
| Program for improving efficiency of water infrastructure to curtail water losses. | | | | XX | XX |
| Programs and policies on protection and rehabilitation of catchment areas. | | | | | XX |
| Groundwater management program. | | | | XX | |
| Programs/policies to reverse ecosystem degradation and restore their functions. | | | | XX | XX |
| Programs and policies to avoid floods and to overcome flood related disasters. | | | | XX | XX |
| Programs and policies to combat drought and desertification. | | | XX | XX | XX |
| Policies for efficient allocation of water resources among competing uses. | | | | XX | XX |

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|---|---|---|---|---|---|
| Legislative mechanisms to protect water resources from all types of pollution. | | | | | XX |
| Demand management measures to improve water use efficiency in all sectors. | | | | XX | XX |
| Integration of drainage facilities in irrigated agricultural development schemes. | | | | XX | XX |
| Mechanisms to promote conjunctive use of ground- and surface water. | | | XX | XX | XX |
| Norms and guidelines to evaluate environmental impacts of water projects. | | | | | XX |
| Cooperative programs for joint management of shared water resources. | | | | | XX |

| Water Management Programs/Policies/Strategies/Measures | Not relevant | Under consideration | In place bur not yet implemented | In place and partially implemented | Fully implemented |
|---|---|---|---|---|---|
| **Water Use** | | | | | |
| Water demands survey in different water using sectors. | | | | XX | XX |
| Programs and policies for managing agricultural water use. | | | | | XX |
| Programs and policies for managing municipal water use. | | | | | XX |
| Programs and policies for managing industrial water use. | | | | | XX |
| Programs and policies for managing other water uses. | | | | | XX |
| **Monitoring, Information Management and Dissemination** | | | | | |
| Functional hydrological and hydro-meteorological monitoring networks. | | | | XX | XX |
| Standardized procedures for data compilation, processing and analysis. | | | | XX | XX |
| A reliable integrated water resources management information system. | | | | XX | XX |
| Programs for information exchange and knowledge sharing about good practices. | | | | | XX |
| Monitoring and reporting system to determine impact of IWRM reforms. | | | | XX | XX |

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| **Capacity Building and Enabling Environment** | | | | | |
| Assessment of capacity building needs/ gaps in the water sector | | | | XX | XX |
| Capacity building programs on different aspects of water resources management. | | | | XX | XX |
| Establishment of river basin management institutions. | | | | XX | XX |
| Institutional reforms to enhance the effectiveness/accountability of institutions. | | | | XX | XX |
| Institutional co-ordination mechanisms for water resources management. | | | | | XX |
| Mechanisms to link water resources management to other economic sectors. | | | | | XX |
| Assessment of water management research needs and gaps. | | | | XX | XX |
| Mechanisms to enforce water legislation. | | | | | XX |
| Programs for providing advisory (extension) services on WM issues to end users. | | | | | XX |
| Programs for transferring improved and cost effective water saving technologies. | | | | | XX |
| Pro-poor policies and programs in the water sector. | | | | | XX |
| **Stakeholders Participation** | | | | | |
| Processes for stakeholders' participation in water management decisions making. | | | | | XX |
| Decentralized water resources management structures. | | | | | XX |
| Programs for gender mainstreaming in all aspects of WRM. | | | | | XX |
| Public awareness campaigns to educate people about water-health-poverty links. | | | | | XX |
| Mechanisms to discuss/resolve trans-boundary issues with the riparian countries. | | | | | XX |
| Partnerships for water resources management. | | | | | XX |
| **Financing** | | | | | |
| Water sector investment plan | XX | | | | |
| Strategy for mobilizing financial resources in the water sector. | | | | | XX |
| Norms and procedures for financial sustainability and viability of water | | | | | XX |

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| schemes. | | | | | |
| Gradual cost recovery mechanisms/progressive tariff structures in all water uses. | | | | | XX |
| Subsidies/micro credit programs for promoting water conservation technologies. | | | | | XX |
| Water sector investment plan. | XX | | | | |

## Part 3: Implementation, monitoring and evaluation

**If your country is in the stage of implementation (last two columns of the preceding question), please indicate specific actions/ activities undertaken, including institutional arrangements such as e.g. national implementation body, cross-sectoral coordination mechanisms, stakeholder fora, river basin committees etc.**

The US has tried numerous types of interstate, cross jurisdictional and cross sectoral organizations. Each has different organizational structures and different combination of authority and purposes. Examples include:

- **International Joint Commission**: Provides principles and mechanisms to help prevent and resolve disputes primarily those concerning water quantity and water quality along the boundary between Canada and the United States.[25]
- **International Boundary and Water Commission:** Provides a platform for shared management and dispute resolution on U.S. - Mexico shared waters.[26]
- **Potomac River Commission:** A cooperative arrangement among three states and the Federalist district. The Commission uses a process of joint modeling of the river and subsequent monitoring using jointly owned models by the Potomac commission to suggest allocations and flow changes needed by the entities.[27]
- **Other types of Institutional arrangements**: Interstate Councils, Basin Interagency Committees, Interagency - Interstate Commissions, Federal - Interstate Compact Commissions, Federal - Regional Agencies, Single Federal Administrator, Watershed Councils/ Process.

**Defining indicators, establishing networks and setting up mechanisms to ensure monitoring and evaluation are all key activities in any successful implementation of plans and reform processes. If your country has established monitoring and evaluation mechanisms for water resources management policies/strategies/plans, please describe how and by whom it is being done:**

Waters in the United States are monitored by state, federal, and local agencies, universities, dischargers, and volunteers. These data are essential for managing and allocating waters under

[25] http://www.ijc.org/en/home/main_accueil.htm
[26] http://www.ibwc.state.gov
[27] http://www.msa.md.gov/msa/mdmanual/38inters/html/17potb.html

the many laws, regulations, compacts, treaties and many other types of agreements in existence the U.S. Water data are also used for planning and management of water resources for diverse purposes including irrigation, hydropower, urban and industrial water supplies, flood control management and drought mitigation. Specifically, water data is collected to:

- Minimize the loss of life and property as a result of water-related natural hazards, such as floods, droughts, and land movement.
- Effectively manage ground-water and surface-water resources for domestic, agricultural, commercial, industrial, recreational, and ecological uses.
- Protect and enhance water resources for human health, aquatic health, and environmental quality.
- Contribute to wise physical and economic development of the Nation's resources for the benefit of present and future generations

The USGS and the EPA have the two largest water monitoring data bases. (A list of many of the agencies that collect and provide water information is found at: http://water.usgs.gov/connections.html )

The responsibility to monitor water quality rests with many different agencies. State pollution control agencies and Indian tribes have key monitoring responsibilities and conduct vigorous monitoring programs. They receive pollution control and environmental management grants from the U.S. Environmental Protection Agency (EPA) that help them establish and maintain monitoring programs and report the results of monitoring activities to the EPA. Interstate commissions, like states and tribes, may also receive grants and maintain monitoring programs.[28] Many local governments, such as city and county environmental offices, also conduct water quality monitoring within their boundaries. The EPA helps administer grants for water quality monitoring and provides technical guidance on how to monitor and how to report monitoring results.

The EPA also conducts some limited monitoring of its own. Its Environmental Monitoring and Assessment Program (EMAP) managed by the Office of Research and Development, is designed to provide status and trends information on statistically selected waters representing a variety of ecosystems. EPA Regional Offices conduct compliance and inspection monitoring of wastewater discharged by industries and municipal treatment facilities. EPA Headquarters and Regional Offices also sponsor or conduct monitoring projects designed to answer specific questions. EPA and state and tribal partners are currently working together on a series of statistically-designed surveys of the nation's waters that will for the first time provide valid data on water quality trends and key stressors. The first two such studies of national coastal and stream conditions are available on our water quality reporting homepage.

Other Federal agencies are also involved in water quality monitoring. The U.S. Geological Survey monitors surface and ground-water resources of the United States for physical, chemical and biological conditions over long time periods. Such monitoring has demonstrated changes in environmental conditions as a response to nationwide changes in chemical use or improvements in water treatment. Two examples are decreasing lead levels in stream sediments and biota from

[28] http://www.epa.gov/owow/monitoring/

the elimination of lead in gasoline products since 1972; and the occurrence of methyl-tert butyl ether (MTBE) in ground-water aquifers following introduction of MTBE into gasoline products to improve air quality in 1990. In addition, over the past 35 years, the large national investment in municipal and industrial waste-water treatment has resulted in significant reductions in bacterial contamination in rivers and streams, and generally in improved dissolved oxygen levels in many locations. Key programs of the USGS include the National Stream Quality Accounting Network (NASQAN)[29] which monitors chemicals at fixed locations on large rivers around the country and the National Water Quality Assessment Program (NAWQA)[30] which uses a regional focus to study status and trends in water, sediment, and biota.

The U.S. Fish and Wildlife Service[31], the National Oceanic and Atmospheric Administration[32], the U.S. Army Corps of Engineers[33], and the Tennessee Valley Authority[34] are other examples of Federal agencies that conduct water quality monitoring to support their programs and activities.

Lastly, private entities such as universities, watershed associations, environmental groups, and permitted dischargers also conduct water quality monitoring. They may collect water quality data for their own purposes, or to share with government decision makers. Volunteer monitors -- private citizens who volunteer to be trained in monitoring methods, regularly collect and analyze water samples, conduct visual assessments of physical conditions, and measure the biological health of waters -- are a rapidly growing contingent providing increasingly important environmental information. Volunteer monitoring data are used for local decision-making and often to supplement state water quality data. For more information on volunteer monitoring, visit our volunteer monitoring website - http://www.epa.gov/owow/monitoring/volunteer/ .

[29] http://water.usgs.gov/nasqan/
[30] http://water.usgs.gov/nawqa/
[31] http://www.fws.gov/
[32] http://www.noaa.gov/
[33] http://www.usace.army.mil/
[34] http://www.tva.gov/

## Part 4. Outcomes of Implementation of IWRM or Water Efficiency plans:

**Countries which have made some progress in *implementing* IWRM/Water Efficiency Plans or equivalent reform frameworks may already have achieved some of their intended objectives. Sharing these experiences as well as constraints in implementing water resources management reforms may assist other countries in their implementation efforts.**

**Answer questions a-c in the table below**

**(a) At the time when your country embarked on water resources management reform and planning process, what were the priority problems which were intended to be solved? (e.g lack of water resources for development, frequent floods, deteriorating water quality, wetland degradation, low water efficiency etc)**

**(b) What were the main water management measures implemented to address the problems identified under (a) above?—for example: new water policy or law, creation of new institutional structure, decentralization of water management to river basin level and water user associations, upgrading of water resources assessment and monitoring networks, application of economic instruments etc.**

**(c) Please provide an evaluation/assessment of the results achieved as a result of implementing the water management measures implemented under (b) above to address the problems identified under (a) above.**

In the table below please list three priority problems planned to be solved through water resources management reforms:

| A) Problem | B) Measures to address the problem | C) Evaluation of the result of implementing the measures |
|---|---|---|
| **Poverty in the Tennessee Valley Region: 1930**<br>▪ Per Capita Income $320<br>▪ 35% toilet units with flush sanitation<br>▪ 5% electricity<br>▪ No irrigation<br>▪ Frequent flooding<br>▪ Poor soil<br>▪ Poor access to energy<br>▪ Poor access to water | **Creation of Tennessee Valley Authority: a Federal corporation 1933**<br>▪ TVA built dams to harness the region's rivers to control floods, improve navigation, and to generate electricity<br>▪ TVA weighed each issue in relation to the others: power production, navigation, flood control, malaria prevention, reforestation, and erosion control.<br>http://www.tva.com/abouttva/history.htm | **Social, health and development gains in the Tennessee Valley Region 1960**<br>▪ Per Capita Income $2,700<br>▪ 93% toilets units with flush sanitation<br>▪ 100% electricity<br>▪ Industrial production increased by 500%<br>▪ Flood damages greatly reduced<br>▪ Typhoid, malaria and smallpox eliminated |
| **Arid West**<br>▪ In the 19th century the U.S. population expanded into arid areas west of the 100th meridian where finding and securing water was much more difficult than in the moist eastern states.<br>▪ Major industries west of the 100th meridian included water-intensive industries especially hydraulic mining and irrigation-dependant agriculture. | **Creation of the Bureau of Reclamation**<br>▪ Created in 1902 the Bureau used money from the sale of public lands in 16 Western States to locate and construct irrigation works in the 16 States. http://www.usbr.gov/ | **Successful infrastructure development**<br>▪ Reclamation provides water to over 31 million people and over 10 million acres of farmland.<br>▪ Reclamation assists in meeting the increasing water demands of the West while protecting the environment and the public's investment in these structures. Emphasis is placed on fulfilling our water delivery obligations, water conservation, water recycling and reuse.<br>http://www.usbr.gov/main/about/ |
| **Public Environmental concern**<br>▪ By the 1960's the American Public wanted projects that promoted recreation, water quality, and environmental preservation as well as irrigation, navigation, flood control and ecological restoration | **Environmental laws passed in Congress**<br>▪ Wilderness Act (1964)<br>http://www.wilderness.net/index.cfm?fuse=NWPS&sec=legisAct<br>▪ Wild and Scenic Rivers Act (1968)<br>http://www.rivers.gov/<br>▪ National Environmental Policy Act (1969)<br>http://www.epa.gov/region5/defs/html/nepa.htm<br>▪ Endangered Species Act (1973)<br>http://www.fws.gov/endangered/esa.html | **Successes of environmental legislation**<br>▪ Preserves 429,000 square kilometres of Wilderness<br>▪ Protects more than 11,000 miles of 165 rivers in 38 states<br>▪ All federal agencies must prepare Environmental Impact statements for all federal actions that will impact the environment.<br>▪ Protects over 1,312 species and has increased the population of 93% of protected species including 138 fishes currently on the threatened or endangered list. |

**(d) Please list constraints or obstacles that your country has experienced in IWRM implementation.**

The American principles of federalism, decentralization, and separation of powers make IWRM implementation generally challenging and the development of a single national plan/strategy extremely unlikely. That said, many local and state institutions promote the co-ordinated development and management of water resources with satisfactory results.

A second challenge is reevaluating how existing infrastructure can be operated to address multiple purposes, especially in the arid West where many of the rivers have been severely over allocated. Managing water resources in the United States today requires addressing a broader array of needs, including the environment and recreation in addition to hydropower generation, irrigation, municipal water supply, or flood control. Developing operational strategies to transparently manage American water resources to address this broader array of needs, within the context of hydrologic variability, changing values and needs, and a growing population, is a challenge. Each case is unique. In some river basins, such as the Colorado River Basin, there exists a strong Federal presence (i.e., the Bureau of Reclamation, see http://www.usbr.gov/lc/ ) while in other river basins it may involve more ad hoc arrangements involving stakeholders working together in a watershed council (see http://www.trwc.org/ ). River basin management strategies have invariably been adopted to reflect the uniqueness of each river basin and the private, local, state and Federal interests that are represented in that basin. It is stressed that flexibility, involving both the physical infrastructure and the management strategies employed, are key contributors to successful integrated water resources management.