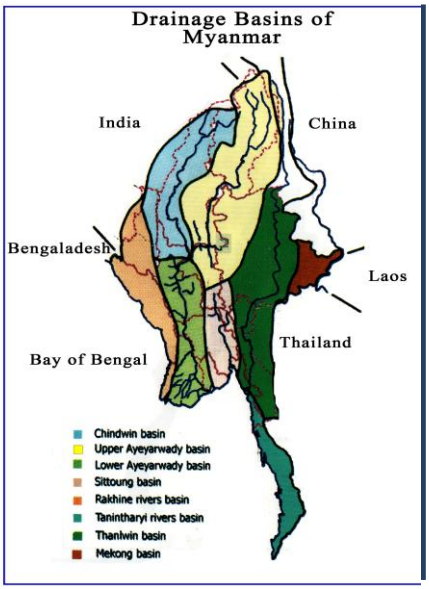
Assessment on the National Water Policy of Myanmar

In recent years it has become increasingly clear that growing nationwide demand for fresh water has heightened the challenges of the water security.
The National Water Policy of Myanmar is summarized and briefly assessed with the following headings as per original report. The comments are mentioned at the end of each heading:-

1. Introduction



(a) Water is a finite resource with spatial and temporal variation. Myanmar processes 12% of the whole Asia's fresh water resources and 16% of the ASEAN nations. There are limits on utilizable quantities of water during the dry season across the country owing to uneven distribution of rain over time and space. Availability of utilizable water will be under further strain in future.

(b) The whole country needs to be aware of IWRM principle. The important point is not to reduce flows below minimum ecological needs in a river or stream.

(c) Several concerns mentioned about water resources management are:-

(1) Rapid growth in demand for water due to population growth, urbanization and industry use pose serious challenges to water security.

(2) Water governance has not been addressed adequately. There are several incidents of water related disasters such as floods, droughts, cyclones, landslides and sedimentation and erosion processes.

(3) There is a sea level rise in the delta and increased saline intrusion adversely impacting habitations, agriculture, roads, rails, and industry in such regions.

(4) The safe drinking water and basic sanitation and other domestic needs still continued to be a problem in many areas.

(5) Drinking and irrigation water standards should be formulated.

(6) Effluent discharge without proper treatment is one of the causes of pollution and must be controlled.

(7) Over exploitation of groundwater is as important as those of fresh water resources.

(8) Presently, water resources projects are being planned and implemented in a fragmented manner.

(9) Dam safety and sedimentation are issues for irrigation structures.

(10) To introduce ground water recharge in Myanmar is essential.

(11) Various economic activities of industries without treatment facilities is affecting the availability of safe water.

(12) Relationship between urbanization and environmental issues need to be seriously addressed.

(13) The public agencies in charge of taking water should consult with stakeholders.

(14) Watershed management should be promoted.

(15) Adequate undertaking using competent technique and budget to combat against rivers and coastal erosion should be addressed.

Comments

A brief country description should be mentioned about the Myanmar's climate and water resources potential according to the basins. They are mentioned as follows:-

(1) Myanmar has tropical monsoon climate with three distinct seasons namely summer, rainy and cold seasons. 90% of the rain received during rainy season. Annual rainfall ranges from 750 mm in the central dry zone to 1500 mm in the eastern and western mountains and 4000 to 5000mm in the coastal regions.

(2) Myanmar has the total area of about 700,000 sq km. It extends 2090 km from north to south and 925 km from east to west at its widest point. Myanmar shares international borders with Bangladesh, India, China, Laos and Thailand.

(3) There are 8 major river basins and the catchment area of these basins cover 90% of the country's territory. These basins contribute 1082 cu km of surface water, 495 cu km of ground water potential and 28 cu km of renewable ground water annually in Myanmar.

(4) Nowadays, Myanmar has reached a serious turning point in the use of water resources in an effective, efficient and equitable manner.

(5) Women participation should be upgraded in water sector. Gender Mainstreaming efforts are important role in Water Management.

2. National Water Policy in Myanmar Goal

The goal is to apply IWRM for sustainable development. The policy covers 2 broad areas such as (1) water resources management and (2) water resources use.

Vision

Myanmar will become a water efficient nation based on IWRM by the year 2020.

Mission

To implement Water Policy to all the agencies of water sector to further develop respective rules and regulations.

Objectives

(a) To prepare national water policy

(b) To establish water apex body

(c) To invest in water sector and to manage water resources and priority river basin

(d) To increase efficiency and accountability of service provider in water sector

(e) To provide national policy on use of transboundary water courses

(f) To invest in water education

Guiding principles

(a) To cooperate and coordinate between regional and union Government for planning, development and management of water resources

(b) Principle of equity and social justice should inform use and allocation of water

(c) Good decision making is guided by good governance, transparency and accountability

(d) Water needs to be managed as a common pool community resource

(e) Environment water should be left for sustenance of ecosystem

(f) To consider river basin as a basic hydrological unit for planning purpose

(g) Demand management should be given priority depending on the availability of water resources through maximum efficiency in use of water and water efficient technologies

(h) Water quality and quantity are interlinked and need to be managed in an integrated manner

Strategies

Main strategies are:-

(a) Demand driven approach should be applied to develop and use of national water resources

(b) To ensure proper land resource planning for extraction of ground water

(c) To ensure efficient means of domestic water supply.

(d) To protect all water resources including wetlands

(e) Polluter-Pay Principle should be enforced.

Comments

(1) Human Resources Development Initiative should be strengthened in water sector.
(2) Fundamental principle which is Principle to achieve the Vision should be addressed.

Vision

Myanmar Water Vision was formulated in 2003 in cooperation with UNESCAP, FAO and Irrigation Department with the participation of all the stakeholders. It stated that:

"By the year 2030,the country will have an attainment of sustainability of water resources to ensure sufficient water quantity of acceptable quality to meet the needs of people of country in terms of health, food security , economy and environment".

Principles

There are some principles that are fundamental to achieving the Vision.

- Water is a prime natural resource, a basic human need and a pr**e**cious national asset.

- All water and water resources, and the beds and banks of watercourses and water bodies, wet lands are vested in the state.
- Drainage basins and aquifers are the fundamental units of water resources management, because these are where water naturally collects and flows. Water as a resource is one and indivisible: rainfall, river waters, surface ponds and lakes and ground water are all part of one system.
- Fresh water is a finite and vulnerable resource, essential to sustain all life forms, human development and the environment.
- Where it is naturally available, all people have the right to sufficient water for drinking, hygiene, and growing their food.
- High quality water is an increasingly scarce commodity, and it should be recognized and managed as an economic goods. Planning, development and management of water resources need to be governed by national perspective.

3. Water Framework Directive

(a) Essential legislation on water governance in every region and state of the Union under national legal framework of general principle.

(b) Existing laws and acts may have to be modified accordingly. To review of all water related existing laws, acts and regulation have to be done as a priority issues.

(c) Comprehensive legislation for optimum development of inter-state rivers should be formulated taking basin/ sub-basin as unit with the establishment of Basin authorities with appropriate power.

4. Fair water allocation

(a) A portion of river flow (environmental flow) should be kept aside to meet ecological needs.

(b) The different kinds of water infrastructure may also need for the navigability of Ayeyarwady River.

(c) Rain water harvesting campaign should be strengthened across the country.

(d) Water demands should be given priority in the following order.

(1) Drinking water
(2) Water for urban and rural sanitation
(3) Water for food security
(4) Water for other uses

Comments

(1) Presently, water allocation of the country's vast water resources are prioritized as Agriculture, Drinking and Domestic water, Industrial needs including Hydropower generation and other needs such as Transportation, Recreation, etc as per "30 years Agricultural Master Plan" by MOAI in 2000. Allocation should be re-scrutinized and well defined by the Government and required to review from time to time to prioritize the allocation.

(2) 2003 study for water sector profile indicated that about 90% of the water use is from Agriculture, 6% from domestic consumption, 3% from industry and some percentage for other uses could have been provided. Reassessment should be undertaken to register the withdrawals by different sectors.

5. Adaptation to Climate Change

(a) To enhance the capabilities of community to adapt climate resilient technological options. One option is to increase water storage in various forms namely ponds, small and large reservoirs etc.

(b) Drip or sprinkler irrigation could enhance the water use efficiency. Similarly, industrial water use should be made water efficient.

(c) Land-soil-water management with scientific inputs should be promoted.

(d) The criteria in regard to new and old water resource structures need to re-work in view of likely to climate change.

(e) Many reservoirs under Irrigation Department should be upgraded to optimize the water use to attain more irrigated lands.

Comments

(1) The importance of forestry sector should not be ignored. The forest cover throughout the country is depleting with an alarming rate. Forest cover status in 2010 was 47% with the participation of 20% full canopy cover. Legal or illegal logging should be restricted with law enforcement. Log Export Ban (LEB) was enacted by the Government since 1 April 2014. Afforestation and reforestation activities are to be ensured and promoted.

(2) To achieve Sustainable Forest Management (SFM) and to foster communication between foresters, water professionals, decision makers and the public.

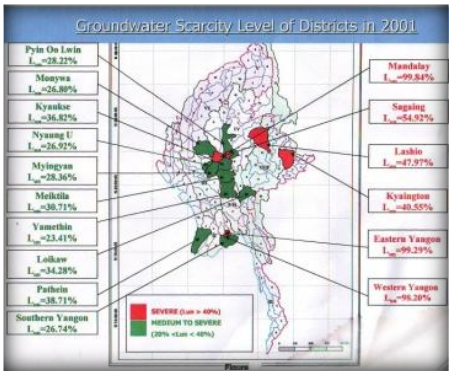
(3) Preparation of National Adapation Programms of Action (NAPA) was assigned to DMH in 2009. NAPA report was submitted in 2012 specifying effective climate change adaption for 8 prioritized sectors/themes namely (i)Agriculture (ii) Early Warning System (iii)Forestry (iv)Public Health (v)Water Resources (vi)Coastal zone (vii)Energy and Industry and (viii)Biodiversity. In the water resources sector, to implement in order are:-

(a) Assessing the status of dams (b) Constructing of small-scale water impoundments (c) Protecting human life and property against climate extremes (d) Estimating regional rainfall-runoff relationship

(4) Up to now, very limited activities on adaption to climate change have been carried out in Myanmar. Myanmar needs adaption measures in various sectors.

(5) The prioritized sectors/themes mentioned in NAPA report should be reviewed and assessed with the prevailing water security and climate resilience aspects.

6. Enhancing Water available for use



(a) The availability of water resources and its use need to be assessed at every five years interval.

(b) The internal renewable fresh water resources of the rivers amounted to 1082 km3 per annum. Of this, about 3-5% is utilized through present strategies. The availability of

water is limited so that direct use of rainfall and avoidance of evapo-transpiration are the new additional strategies should be augmented.

(c) To draw ground water aquifer map.

(d) Declining ground water levels in over exploited areas need to be addressed. Artificial recharging projects should be undertaken where necessary.

(e) To increase overall land and water productivity through Integrated watershed development activities.

Comments

(1) The first study on water scarcity variation throughout the country was carried out by MOAI, both for surface and ground water, with the assistance of FAO in 2003. The projection result identified that water scarcity index will reach to critical stage for Mandalay and Central Yangon areas according to the indicators of UN criteria. The status study report should be carried out as soon as possible with the projection by the year 2020.

7. Demand management and water use efficiency

(a) To evolve water foot prints, water auditing and water accounting studies for efficient use of water. Water foot prints should be applied particularly for industrial projects.

(b) Recycle and reuse of water are the general norms.

(c) Water saving in irrigation use is of paramount importance and micro irrigation is one of them.

(d) To encourage local level irrigation through small bunds, field ponds, etc.

(e) There should be a mechanism involving users to monitor the water problems.

Comments

(1) Financial sustainability is very important in the water sector. It should be encouraged to increasing the involvement of community, entrepreneurs and individual people for the empowerment and reducing the role of the state.

(2) For the development of community irrigation system, a specified irrigated area for example a network system of a secondary canal, should be progressively transferred to community-based organization to get involve for their operation, maintenance and re-investment from local sources.

8. Water Pricing

(a) The principle of differential pricing may have to install for drinking and domestic water supply. Water should be allocated on economic principle for other use.

(b) A water Regulatory Authority (WRA) should be established under each regional or state Government to fix water tariff system. Such tariff should be periodically reviewed.

(c) Water charges should be determined on volumetric basis.

(d) Recycle and reuse of water, after treatment to specified standards through a properly planned tariff system.

(e) Water User Association (WUA) should be given power to collect and retain a position of water charges and to manage the water allotted to them within their jurisdiction. WUA should fix the rates subject to floor rates determined by WRAs.

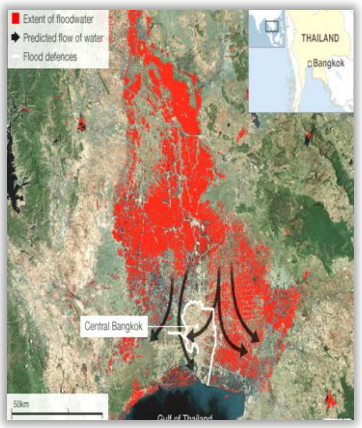
(f) Limited ground water use for agriculture at a subsidized rate is considered desirable.

Comments

(1) Water is an economic commodity. Present water rates are different under different ministries. The rates are classified under drinking & domestic water supply and irrigation water supply. Existing pricing policy need to be reviewed together with the use communities.

(2) Taxing water providers, users and polluters, exemption given to the needy on social ground should be established.

9. Conservation of river corridors, water bodies and infrastructure



(a) Conservation of river corridors, water bodies and infrastructure should be undertaken in a scientific manner.

(b) Encroachment and diversion of water bodies and drainage channels must not be allowed.

(c) Any development activity in the watershed area and aquifer recharge area should be strictly regulated.

(d) Aquatic ecosystem, wet lands and flood plains need to be recognized for planning.

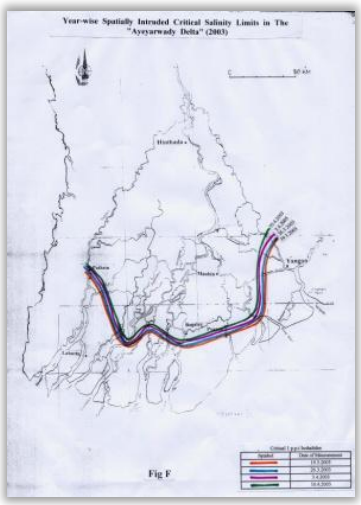
(e) Sources of water and water bodies including marine water should not be allowed to get polluted.

(f) It needs to ensure that industrial effluents and other chemical residues should not be allowed to reach ground water table.

(g) Early warning notifications are required to issue to release of flood water from dam to save the valuable assets at the downstream.

(h) During the past years, significant numbers of bridges were washed away due to frequent floods. The notified design flood magnitude must be undertaken by responsible departments.

(i) Sea water and coastal water, with their related natural activities are part of national water resources. Climate change may also increase the sea level and saline intrusion.



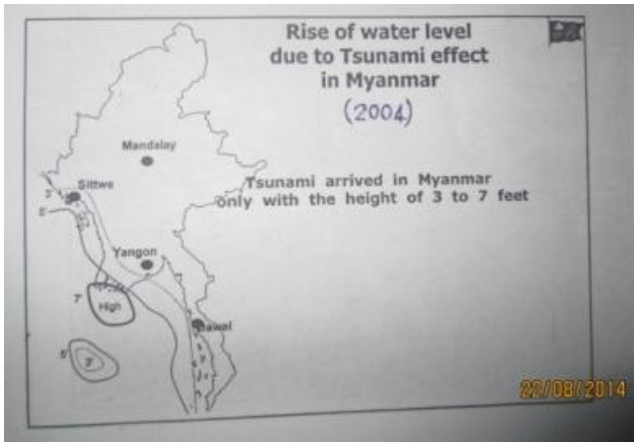
Comments

(1) A closer study along the coast line damages as a result of the Tsunami is a must and should be linked with IWRM.

(2) The detailed study of sea level rise at the Ayeyarwady delta which is designated as one of the severe affected zones in Asia, should be paid attention.

(3) The detailed study of sea level rise at the Ayeyarwady delta which is designated as one of the severe affected zones in Asia should be paid attention.

(4) Saline intrusion study at the Ayeyarwady delta was well underway by Irrigation Department and should be more anticipated and recognized.



(5) Flood water surrounding Yangon City was menacing the residential areas in 2008. Flood Defense system should be carried out to save Yangon City after studying Bangkok catastrophic Flood and its infrastructure development.

10. Project planning and Implementation

(a) Water resources projects should be planned based on likelihood of further worsening situation due to climate change.

(b) Water resources projects should be planned considering social and environmental aspects.

(c) Ecosystem compensation fund should be formulated for big infrastructure project to be used for ecosystem management.

11. Management of flood, drought and extreme weather events

(a) Structural or non-structural measures should be on preparedness for water related disasters.

(b) Soil erosion due to increase of rainfall intensity likely people lost their houses, should be given new places to live.

(c) Flood forecasting is important for flood preparedness and should be expanded extensively all across the country.

(d) Communities need to be involved in preparing an action plan for dealing with the natural disaster situation.

(e) Dam break study should be prepared with periodic updating action plan. Landslides and flood study in hilly areas should be carried out with modern techniques.

Comments

(1) Flash flood events throughout the country should be recognized. Repetitive events such as Man Chaung flash flood in 1987, Shwegyin flash flood in 1997, Wundwin flash flood in 2001, Kyangin flash flood in 2006, Pakokku (Shwechaung) flash flood in 2011 etc. should pay awareness due to climate change.

(2) The Desertification in the dry zone of Myanmar should not be underestimated. Preparedness for desertification should be upgraded.

(3) Integrated Flood Management Plan should be formulated.

12. Water supply and sanitation

(a) Efforts should be made to provide improved water supply in rural areas with proper sewage facilities.

(b) Water source with better reliability and quality need to be assigned to domestic water supply.

(c) Urban domestic water system needs to collect and publish water accounts and water audit reports.

(d) In urban and industrial areas, rain water harvesting and de-salinization should be encouraged to increase availability of utilizable water.

(e) Urban water supply and sewage treatment schemes should be integrated and executed simultaneously.

(f) Industrial water should be discharged to the drain after treated to a specified standard.

(g) Subsidies and incentive should be implemented to encourage recovery of industrial pollutants and recycling.

Comments

(1) The development of water quality standard by Ministry of health should be highlighted. The Ministry had organized several workshops and forums on water quality issues. The WHO standard was adopted as a reference for the present moment. Water quality control measures are being taken as case wise practices especially for bottled drinking water production. Arsenic and other parameters are also tested in collaboration with WRUD, DDA and UNICEF.

(2) An access to safe drinking water and adequate sanitation coupled with personal and environmental hygiene should receive high priority. The assessment indicated that it has progressed up to 71% for safe drinking water for national level based on WHO/UNICEF report in 2010. Target 10 of MDG is to halve the proportion of people without sustainable access to safe drinking water by the year 2015. To get more reliable data, Ministry of Health in cooperation with UNICEF should conduct periodical survey. Irrigation and other multipurpose projects should include a drinking water component whenever possible.

(3) Water supply services for a specified area ownership will be placed under the management of community-based organization as a part of the empowerment program with the coordination of YCDC. The beneficiary groups are expected to collaborate in matters such as planning of water needs, water distribution, organize repair works and resolve conflict among members.

(4) Latest development on groundwater forum was organized by Housing Department in August 2014 to formulate a ground water law.

13. Institutional Arrangements

(a) There should be forums at national and regional/state level to deliberate upon issues relating to water.

(b) A permanent water dispute tribunal at the union level under the auspices of NWRC should be established to resolve the disputes in an equitable manner.

(c) PPP should be encouraged to carry out water resources projects.

(d) Appropriate institutional arrangement for each river basin should be developed to collect data on regular basis both surface and ground water with appropriate water budgets and water accounts.

(e) Water quality monitoring both surface and groundwater for each river basin should be developed.

(f) NWRC should be a legislative body in national water sector and play a significant role in any water use program.

(g) NWRC can liaise officially with national and international organizations for close cooperation in water resources and related affairs.

14. Trans-boundary rivers and international cooperation

(a) Myanmar should enter into international agreements with neighboring countries on bilateral basis for exchange of data of international rivers on near real time basis.

(b) Negotiations about sharing and management of water of international rivers should be done on bilateral basis. Adequate institutional arrangements at the National level should be set up to implement international agreements.

(c) Myanmar should play an active role in international water conventions, treaties and water cooperation.

Comments

(1) Myanmar has many shared rivers and streams with the neighboring countries. These rivers and streams should be classified under 3 categories such as (1) National rivers (2) International Rivers and (3) Trans-boundary watercourses.

(2) Ayeyarwady River as nationally owned water asset is one of the few remaining free-flowing rivers of the world. The value of free-flowing River has increasingly been recognized and a number of protection mechanisms should be adopted.

(3) International River like Thanlwin now plans for large scale development at upper reach of the river are moving ahead. Other trans-boundary watercourses located at the eastern Myanmar may have water sharing problems in future. It might be judicious to handle the legal environment and economic aspects with fact and wisdom, avoid conflicts, on bilateral or multilateral understanding.

15. Data base and information system

(a) National Hydro informative center should be established to collect water resources data regularly from various data sources and to maintain in open and transparent manner on a GIS platform.

(b) NWRC should take up the role of a watch dog body and to check and balance in use of both surface and ground waters.

(c) NWRC must know current situation of water use by consumptive or non-consumptive sectors, including river basin, sub-basins and ground water basins, collected as relevant databanks.

(d) All water related data should be integrated with well defined procedures, formats compatible with, to facilitate development of data base.

(e) An IWRM related data bank should be established inside the National Hydro informative center. The National Water Informative Center should be placed under the focal ministry of NWRC which is Ministry of Transport.

Comments

(1) Reliable and convenient user friendly retrieval on line and off line systems should be incorporated in the system.

16. Implementation of National Water Policy

(a) National Water Expert Group should prepare a plan of action based on the National Water policy as approved by NWRC.

(b) The State Water Policy may need to be drafted in accordance with the National Water Policy.

(c) Every Citizen has a right to implement and execute for long term sustainability of Myanmar National Water Policy with appropriate safeguard and measures.