

**Workshop on Developing Industrial Water Use Policy in Bangladesh**  
**May 5, 2019. Hotel Amari Dhaka, House # 47 Rd # 41, Gulshan-2, Dhaka 1212, Bangladesh**

*Rapporteur's Report:*

***Introduction:***

The workshop on developing Industrial Water Use Policy in Bangladesh has been jointly organized by United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) and Water Resources Planning Organization (WARPO). The workshop aims to identify challenges and opportunities to design and implement an Industrial Water Use Policy for limiting water use and pollution in the industrial sector of Bangladesh. It also seeks to foster a platform of collaboration for ensuring environment-friendly efficient water use in the industrial sector. Mr. Kabir Bin Anwar, Secretary, Ministry of Water Resources graced the event as Chief Guest. Eminent Water Sector Specialist Professor Ainun Nishat, PhD, Professor Emeritus, BRAC University; Dr. Sultan Ahmed, Director General, Department of Environment; Professor Umme Kulsum Navera Department of Water Resources Engineering, BUET were also present as Special Guests. Mr. Md. Mahmudul Hasan, Director General, WARPO made the welcome address and Mr. Arun Jacob, PhD from UN ESCAP presented a brief note on regional experiences and good practices for industrial water use. The workshop brought together a broad range of stakeholders including representatives from relevant Government Ministries, private sectors, academia, civil society and non-governmental organizations as well as from the UN system and other development partners in an interactive setting.

***Opening Session:***

Director General, WARPO Mr. Md. Mahmudul Hasan in his welcome speech, mentioned about the rationale for arranging the workshop. He mentioned that the industrial sector of Bangladesh is expanding and contributing the largest share to the country's GDP; and the expansion is expected to put increasing pressure on existing water resources in the coming years. He referred to the focus of SDG-6.6 that seeks to halt degradation and destruction of water related ecosystems. The National Plan of SDG implementation by Ministries / Divisions sets a policy compulsion for an Industrial Water Use Policy to be made as a prerequisite for implementing SDG 6.6, the Director General mentioned.

Mr. Arun Jacob, PhD, Environment Affairs Officer from UN ESCAP thanked everyone concerned for arranging the workshop. Referring to a latest report from UN ESCAP, he mentioned that Asia-Pacific region is not on track in terms of attaining any of SDG goals and the region is moving somewhat in the opposite direction for implementing SDG-6. He spoke about the regional landscape of industrial development, shifting of water and energy intensive

industries in South Asia and the importance of optimizing industrial water use in countries like Bangladesh. He cited examples of good practices from China and reiterated UN ESCAP's commitment for participatory policy making on environment friendly industrial development.

Professor Umme Kulsum Navera from the Department of Water Resources Engineering, Bangladesh University of Engineering and Technology (BUET) specified directives from Bangladesh Water Act, 2013 and National Water Policy, 1999 regarding industrial water use and pollution control. Apart from that, she tried to draw policy attention towards water use efficiency. She also spoke about 'valuing water' and setting enforcement and compliance mechanisms as delineated in the Bangladesh Water Act, 2013.

Dr. Sultan Ahmed, Director General, Department of Environment in his speech highlighted the importance of understanding water as an integrated resource with competing uses. He emphasized on standardization of industrial effluents that are disposed off in the common water courses; and sought to foster collaboration among concerned agencies for preserving water ecosystems. He committed continuous professional support on the part of Department of Environment for limiting industrial water use and reducing water pollution.

Chief Guest of the event, Mr. Kabir Bin Anwar, Secretary, Ministry of Water Resources emphasized on controlling water pollution at the source. He talked about the ways and means to revive degraded wetlands, some of which are potential sources of new water courses across the country. To that end, he referred to some of the recent initiatives of the Ministry of Water Resources for protecting and restoring water ecosystems. He mentions about the importance of home grown initiatives and best practices for policy development within local context. He thanked UN ESCAP and WARPO for bringing up the issue of Industrial Water Use into policy focus, and suggests making similar kinds of policy framework for other competing uses of water.

Chairperson of the Opening Ceremony, Mr. Mahmudul Islam, Additional Secretary, Ministry of Water Resources discussed about policy alternatives for industrial water use and asked for WARPO's initiative to produce a zero draft of the policy at the earliest. He expressed his optimism about fostering a collaborative platform for policy development through the workshop. He concluded the opening ceremony by thanking the Chief Guest, Special Guests, UN ESCAP Representative and WARPO authority, and all the participants for making the workshop a success.

***UN ESCAP's presentation on Industrial Water Use: Regional Experience and Good Practices:***

Mr. Arun Jacob, PhD, Environment Affairs Officer, UN ESCAP delivered a presentation titled "Regional perspectives on improving water use and limiting water pollution in key industrial sectors in Asia". He described the context, key challenges; lessons learnt from China, emerging

solutions for limiting industrial water use and pollution scenarios. According to World Water Development Report (2017), over 80% of the world's wastewater is released to the environment without treatment. As far as SDG-6 implementation progress in Asia is concerned, some of the targets are not only unfulfilled, but are rather going reverse than what was anticipated. The presentation made particular concerns about the poor performance in some areas for water efficiency across all sectors (SDG 6.4), implementation of integrated water resources management (SDG 6.5), and protection and restoration of water related ecosystems (SDG 6.6). Lack of information, inadequate institutions, insufficient incentives have been cited as the key challenges in this regard. China's key policy instruments like subsidies for water treatment and reuse, pollution discharge permit, discharge fee, environmental tax, tiered water pricing, industrial parks were discussed. China's "Water Ten's Tool Package" that looks into the entire industrial water pollution and use policy landscape, with stricter enforcement of "polluter's pay" principle was also mentioned. Some of the "Water Ten" innovations include clear accountability division of roles and responsibilities, provision to tackle emerging pollutants, flexibility of management at different levels, promoting viable technologies, ensuring adequate financing, promoting structural transformation through Theory of Change, enhanced transparency and public engagement. The presentation made suggestions for some emerging solutions like 'source to sea' management systems, water reuse and resource separation, smart and sustainable industrial parks, nature based solution, multi-stakeholder platforms, living rivers and zero discharge. At the regional level, cooperation could be extended to make regional effluent standards, regional standards on FDI guidelines and technological cooperation.

### ***Panel Discussion:***

The workshop schedule included a panel discussion session in which five discussants presented their views on specific topics, followed by an open discussion and question - answer session. The first presentation titled "Industrial Water Use Policy in Bangladesh: A Policy Review" was delivered by Mr. Md. Taufiqul Islam, Director (Technical), WARPO. The presentation looks into the definition of 'industrial water use', existing policy landscape, cross-cutting issues, and systems thinking approach for addressing the Industrial Water Use Policy. The panel discussant spoke of water zoning regulations, standardizing effluent disposal, making the 'Polluters Pay' principle functional, water quality monitoring, water use efficiency, making provision for safe abstraction of groundwater by referring to existing laws and policies. He highlighted emerging policy discourses like "Circular Economy" and "Zero Waste Approach", and linked those with existing policy framework like the National 3R Strategy. The presentation ended with the suggestion of adopting systems and developing a thinking approach for policy making and an appreciation of the Fourth Industrial Revolution's potential for water efficient industry growth.

The second presentation titled "State of Water Pollution from Industrial Effluents in Bangladesh" was from Mr. Syed Nazmul Ahsan, Director (Environmental Clearance), Department of Environment (DoE). The presentation described DoE's initiatives of surface water quality monitoring with a particular focus on nine hotspots of industrial pollution identified by the Institute of Water Modelling (IWM). The presentation vividly described the extent and nature of water pollution from industrial effluents in rivers like Turag, Balu, Sitalakhya, and Buriganga. Challenges of ensuring the regular use of effluent treatment plant (ETP) or central effluent treatment plant (CETP) were discussed, along with the DoE's initiative of establishing online monitoring system. It has been informed that, installation of ETP is mandatory for all effluent discharging industries, and up to March 2019, 1765 ETPs have been installed country wide. DoE also made submission of three year based "Zero Discharge Plan" mandatory for all effluent discharging industries, and so far they have approved 450 such plans.

Dr. Shoeb Ahmed, Associate Professor from the Department of Chemical Engineering, BUET discussed on "Alternative Water Source for Industrial Use: Enabling Factors". He spoke about sector wise water demand projection for year 2030. He also referred to 2030 Water Resources Group's study report on industrial water use in Bangladesh and presented the concerns of ever growing future water demand from textile and leather industries. Reclaimed wastewater, symbiotic water reuse, harvested rainwater and storm-water, gray-water recycling have been suggested as alternative water sources. Additional alternative sources also include optimizing use of surface water, groundwater recharge and water purification system discharge water was discussed. For resource efficient practices; challenges like lack of awareness, incentives, institutional capacity, financing and cost recovery, lower tariff of resources were mentioned. Considering the food-energy-water nexus, policy and regulatory framework, financing mechanism, capacity and knowledge building, suggestions for raising public awareness, and adoption of newer technology as enabling factors for alternative water use in industries were made.

Bangladesh Country Representative of United Nations Industrial Development Organization (UNIDO) Mr. Zaki Uz Zaman, PhD spoke about of "Promoting water efficient cleaner production market". The presentation provided insights and practical examples of cleaner production focusing on issues like good housekeeping, input change, better process control, equipment modification, technology change, on-site reuse and recycling, production of useful by-products, and product modification. These are the focus areas for "Resource Efficient and Cleaner Production (RECP)" practice that UNIDO promotes. Examples of UNIDO interventions like tannery sector cleaner production in Bangladesh and India, automotive in Thailand, textile and ceramics in India, food processing in Vietnam were cited. Batch washing instead of open

valve washing, Hair Save unhairing, ammonia free de-liming, high chrome exhaustion are some of the water efficient, cleaner production techniques applied for Bangladesh tannery sector.

Ms. Nishat Shahid Chowdhury, Program Manager, Bangladesh Partnership for Cleaner Textile (PaCT), International Finance Corporation made the final presentation of the Panel. She elaborated on the topic "Effective partnership for cleaner production". Addressing high water, energy, and chemical use through the adoption of industrial best practices throughout the supply-chain is the program objective for PaCT. The program tries to address four aspects of cleaner production: a) brands (lowering risk within supply chain); b) factory (doing more with less); c) improving the enabling environment for the sector; and d) investment facilitation for financing the pioneers. Factory engagement includes awareness raising, basic and in-depth cleaner production assessment. The presentation demonstrated some practical examples of Bangladeshi apparel company that makes good return of investment from cleaner production within short period of time. PaCT Decision Support Guidance, and establishment of Textile Technology Business Center and its potential for water efficient industrial growth were discussed in detail.

***Open Discussion / Question Answer Session:***

Q. Dr. Zakia Parveen, Professor, Department of Soil, Water and Environment, University of Dhaka to Dr. Shoeb Ahmed: Do we have any large scale rain water harvesting system in Bangladesh?

A. Dr. Shoeb Ahmed, Associate Professor, Dept. of Chemical Engineering, BUET: Currently we don't have any formalized rain water harvesting. RAJUK made decision 2 years ago but confined to urban areas.

Q. Any models?

A. Capture and store, if good quality, ready to use right away.

Q. Mr. Liyakat Ali, Water Aid Bangladesh to Director (Technical), WARPO: Since SDG goals are to be met by 2030, can we achieve the intended policy goal by that time? And if we do, will it be a policy only or a policy plus strategy?

A. Mr. Md. Taufiqul Islam, Director (Technical), WARPO – Here we understand the policy as broader decisions under which smaller decisions can be made or implemented. It's not a copy book definition of policy, but made from a practitioner's point of view.

Defining the scope of the policy always depends on context. For example, Bangladesh Delta Plan, 2100 is a major policy document, which is a macro level techno-economic plan for our immediate and distant future. This plan contains some very specific strategic directives, but we term this as "Plan". Broadly we understand policy as some set of principles based on which future course of action can be made. Our National Water Policy (1999) or National Industry Policy (2016) followed that structure. For Industrial Water Use Policy we expect to put principles, agreed upon metrics as well as standard procedures. As for the timeline, the policy should look into longer time horizon than 2030, and our commitment to preserve our water ecosystems must not end by 2030, it should be a continuous intervention.

Q. Mr. Mirza Md. Ali Reza, Deputy Secretary, Industry and Energy Division, Bangladesh Planning Commission to Mr. Zaki Uz Zaman, UNIDO: For energy efficient industrial development, UNIDO has done a lot of pilot programs in Vietnam and Bangladesh. What is your plan for replicating such initiatives for water efficient industry in Bangladesh?

A. Mr. Zaki Uz Zaman, Country Representative, UNIDO: One of the SDG goal is to build the institutional capacity. UNIDO established 47 institutional RECP setups. Instead of going from industry to industry, it is better to build national institution from which the Government and/or educational institutions can learn and take care to teach others.

Q. Mr. Mirza Md. Ali Reza, Deputy Secretary, Industry and Energy Division, Bangladesh Planning Commission to Dr. Shoeb Ahmed: Alternative sources of water have been mentioned. Several organizations in assistance with FAO are implementing rain water harvesting programs. Is there any cost estimation for using alternate source of water or whether it is viable for business purpose for switching to alternative sources?

A. Dr. Shoeb Ahmed: There will be costs associated. The basic idea is that surface water should be treated at the beginning, and groundwater at the end. But at some point, one has to stop, invest and recover the resource. The economic analysis as shown in the PaCT program presentation demonstrates that initially a good sum of money is needed to be invested but the payback time is short and it is viable for industries to employ rain water harvesting.

Q. Dr. Gazi Mohammed Saifuzzaman (Joint Secretary), Secretary to Bangladesh Economic Zones Authority – The title of the proposed policy could be changed into Industrial Water Management Policy, instead of Industrial Water Use Policy. And is there any zero draft of the proposed policy over which we can discuss?

A. Mr. Md. Taufiqul Islam, Director (Technical), WARPO – A zero draft of the policy will be made soon and that will be shared in the online interactive platform.

Q. Dr. Khondoker Azharul Haq, GWP SAS Chairperson to Mr. Arun Jacob, PhD, UN ESCAP and to the Audience in general: Answering to how many CTPs is working, there is only 1 sewage treatment plant Dhaka WASA operates and then it was declared dysfunctional. It was originally designed to treat 120000 m<sup>3</sup> of sewage water/day, when dysfunctional it was treating only 35000 m<sup>3</sup> of sewage. It was also supposed to reduce an incoming BOD load of 300 to 40, but these days the load is 800 BOD. Director, WARPO mentioned about Polluters Pay principle, but they never pay. If they pay, products would be costlier. Although symbiotic water was mentioned as an alternative water source, symbiotic water pollution is occurring now-a-days. In Gazipur, each hectare of agricultural land has 0.5 ton of chemical load and 20% of agrochemicals are not biodegradable. For advertising, some companies go beyond compliance. Some kind of incentives should be given. Rain water harvesting –should be practiced widely. Increasing its shelf-life is also important. Groundwater recharge is vital and rainwater is the cleanest water that can be found for free. In tanneries, cleaner technologies like chromium recovery was done before but are not heard of these days. A central effluent treatment was supposed to be built but after the shifting of tanneries to Savar, it wasn't; now pollution is transferred from Buriganga to Dhaleshwari river.

Q. Mr. Mihir Biswas, Joint Secretary of Bangladesh Paribesh Andolon (BAPA) to Director (Technical), WARPO and Director, DoE:

There are already many existing policies, do we need another one? The Zero discharge principle is already mentioned in other policies. After zero discharge, we need to develop a negative discharge principle. Also, what is the relation between 3R principles and circular economy?

A. Mr. Md. Taufiqul Islam, Director (Technical), WARPO: We know that 3R stands for reduce, reuse and recycle. The Circular economy speaks of a business model comprises of closing, narrowing, slowing, intensifying and dematerializing loops. As for example, the recycling is about closing the loop, efficiency is about narrowing the loop, phase extension is about slowing the loop and intensive use phase and dematerializing is about reducing the content. That's the relation between 3R principles and circular economy approach.

Q. Mr. Md. Abdus Salam Bepari, Superintendent Engineer, Dhaka WASA: What is the scenario of Bangladesh as a riverine country in terms of pollution? Sustainability as an issue has been with us for long, but it is important to actually sustain the health of rivers.

Q. Mr. Enamul Mazid Khan Siddique, Water Governance Coordinator, Oxfam: No issue has been addressed regarding impact on the community. How is it being monitored and a clear accountability mechanism should be in the policy, so that the communities can ask for remedies and can make the polluters accountable. How will civil societies participate in the policy and help communities to hold industries accountable?

Q. Dr. K. M. Kabirul Islam, National River Conservation Commission: Having worked as Chief Waste Management Officer at Gazipur City Corporation and Chief Revenue Officer, I have seen most industries do not maintain compliance with ETP. The industries use the ETP only during the audits. They need Trade License once a year, So, I tried to stop renewal of license but it wasn't possible. Representatives of big companies, even after being reminded to maintain compliance, it was enforced that license be issued and sent directly to them. Suggestion to WARPO will be to arrange meeting separately with business community, find a way to harmonize the profitability and corporate social responsibility so that we can have a great result.

Q. Mr. Imtiaz, Globe Water Solutions to Syed Nazmul Ahsan, Director, DoE: Basically ETPs are not functional. Those that are in operation, about 17% are functional. Our observation is that ETPs are not handled by professionals or with persons qualified enough to do that. DoE should be more focused and online monitoring system should be vital for monitoring quality of outlet waters. When will online monitoring be implemented?

A. Syed Nazmul Ahsan, Director, DoE: Preparation of development project proposal is underway. Within next month, opening will be possible. Large industries, like those in EPZ must have central ETP. All economic zones have been requested for having common ETP.

Q. Mr. Kazi Sarowar Imtiaz Hashmi, Environmental Consultant, Anwar Group of Industries, Hossain Dying and Printing: Hossain Dyeing and Printing have undersized ETP due to limited area. After WSSD, I worked on a 3 year strategy with UN Centre for Regional Development in Nagoya, where some targets were taken that by 2015 nothing will be released to rivers, but it did not work. Some projects are now in implementation in Dhaka city but it is not working. Circular Economy must be taken up; we have to choose

which raw material will give less waste and after production we have to be careful that whole life cycle needs to be studied. The last presentation spoke of End of pipe solution but we need to take step by step reduction so that circular economy comes first and such waste is reduced.

Professor Umme Kulsum Navera, Chair of the Panel Discussion: The policy is important. The first panelist rightfully said that we need an agreed upon definition of industrial water use. So we need to work on the definition of industrial water. DoE is doing so much, but if the monitoring results are only in website, it will be of no use. We need to identify barriers and with the appropriate policy intervention we need to stop pollution. Among options of alternative water sources, it should be identified which one is viable for Bangladesh. We need to target the residual effluents as pointed out by Mr. Zaki, but first it needs to be understood by the small, mid and big industries, they need to understand the total process. They need to know the effluent problems. After PaCT presentation, we should be happy that some good work has been done. The policy should be an open document that will be open to changes according to need. And I am hopeful that a zero-draft of the policy will be prepared soon.

***Group Work:***

An interactive group work session has been included in the afternoon session. There were four groups to work on four topics. It was a brainstorming session to bring out the views, thoughts and experiences of the participants on the topics which will help in developing Industrial Water Use Policy. Some facts and suggestion came out from that session. The groups were composed of professionals from Government agencies, academia, business organizations, international organizations and civil society groups. Professor Ainun Nishat moderated the presentation of the session.

Group-1 worked on the topic "People's participation in policy formulation". The group members acknowledge that people's participation is necessary in formulating Industrial Water Use Policy. Citizen from most affected and potentially impacted regions should be consulted prior to the policy formulation. Marginalized people should be included in this process. This group focused on two systems: Online and offline platform for people's engagement. Existing citizen platform can be used for consultation. Apart from this, consultation processes at the field level can be done through regional office and centers of the concerned ministries. The group also mentioned about the existing system that were used during formulation of Bangladesh Water Rules to be used for this purpose. The group suggested including proper monitoring and evaluation mechanism within the policy. Policy review cycle should be for every 5 years and to be integrated into the policy provisions. The group suggested including provision for releasing data on industrial water use to ensure transparency. Media and civil society engagement must be

emphasized during the formulation of Industrial Water Use Policy. Industry involvement and business sector involvement is important for the successful outcome of the policy. The group mentioned that online platform should be easily accessible and have easy to understand information package about Industrial Water Use Policy. Online platform should be open to all so that anyone can contribute to it and can raise their thoughts on policy gaps.

Group-2 worked on the issue of "Industry involvement". They tried to find answers for questions like why industry involvement is a pre-requisite for developing policy on industrial water use? Or, what are and will be the measures from industries / their umbrella organizations to limit industrial water use and water pollution? The group also tried to find out how industries or their umbrella organizations could ensure self-regulation for limiting industrial water use or resultant pollution. The group came up with suggestion of industry involvement from the very beginning of policy development. The group urged to make awareness among the industry owners about the benefit of the policy and to make them convinced why the policy is needed for their sustained growth. It was also suggested that industry associations should be engaged to create mechanism of self-compliance, and the zero draft of the industrial water policy should reflect international standard and best practices.

Group-3 focused their efforts on emerging trends and technologies that might have significant impact(s) on limiting industrial water use and associated pollution. The group gave emphasis on the recycling and reuse of waste water. They suggested provision of incentives to promote emerging technologies like sensor-based monitoring of water use and disposal. Examples of rainwater harvesting in coastal areas and southern parts of Bangladesh were cited. The group emphasized on improving environmental footprint, national capacity development through research and development, particularly by harnessing the knowledge and experience of expatriates.

Group-4 made their presentation on market forces and business models for water efficient industrial growth. They focused on business models and their interaction with market forces in order to reduce industrial water use and water pollution. They suggested robust business models could ensure competitive edge for the industry in both regional and global market. At the same time they opted for policy vision based on the idea of water security. Clustering of business based on water access and availability, designing of economic zones from the "water security viewpoint", creating enabling conditions for the industry to comply with the environmental standards, mainstreaming "polluters pay" principle, fostering regional cooperation (i.e. South-South Cooperation) mechanism for knowledge and technology transfer have been suggested by the group members. They emphasized that the governance structure should be vigilant to check whether the interests of the big business groups were mainstreamed or not into the proposed policy, instead of the concerns / common interests of the affected communities.

After the group presentations, Chair of the Session Professor Ainun Nishat, PhD, Professor Emeritus, BRAC University made his concluding remarks on the following aspects:

- Self compliance is the key for implementing the policy;
- Carrying capacity of water sheds must be evaluated prior to giving permission for industrial uses;
- WARPO should conduct a broad based stakeholder analysis for industrial water uses;
- Every river in UK has a separate board (i.e. Themes Water Board), we don't have any. So we need to think of authority devolution at an appropriate level.
- Policy must be with the intention of gradual improvement.
- Policy review should be done every five years or so.
- Proper and agreed upon metrics are very important for monitoring and enforcement;
- Water is becoming scarcer; we must address the issue from water security perspective.

Thereafter, Mr. Md. Mahmudul Hasan, Director General, WARPO thanked the Guests, Panel Discussants and all the Participants for their valuable contribution in the workshop. He expressed his gratitude to UN ESCAP for their assistance in arranging the Workshop, and expected to continue such collaboration in future. He sought policy suggestions / insights from all the participants and assures of establishing an online platform for exchanging views on industrial water use. Before formally concluding the workshop, the Director General mentioned that this is the beginning of the beginning for formulating Industrial Water Use Policy, and each and every progress towards the final policy document will be shared with all the stakeholders.

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