

POLICY BULLETIN

WATER POLLUTION CONTROL

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A waste discharging pipe on
Ngu Huyen Khe River Bank, Bac Ninh
Photo credit: Dang Thuy Trang/CECR

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A waste discharging pipe on
Ngu Huyen Khe River Banks, Bac Ninh
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INTRODUCTION

Respectfully to: Members of the National Assembly,

Our dear readers,

Water contamination incidents in Vietnam's Central Coastline and in local rivers, lakes... earlier 2016 have caused severe damage to aquaculture industry, tourism, destroyed the ecosystem, paralyzed the livelihood of millions of residents depending directly or indirectly on these water resources and are an alarming alert about the emergency of controlling pollution resources which are discharging wastes into surface waters. Surface waters include rivers, water outlets, ponds, lakes, wetlands, coastal waters in Vietnam, which are directly or potentially susceptible to water wastes and wastes from human activities. Protecting water quality of surface waters is protecting the economy existence, protecting livelihood of millions of residents depending on aquatic benefits, tourism service and other water-related services. Thus, controlling water pollution must become a priority in environment protection activities.

In order to provide adequate information to Members of the National Assembly in regulation establishment, Center for Environment and Community Research (Vietnam Union of Science and Technology Associations) in cooperation with Regulation Research Institute under Regular Committee of the National Assembly have compiled and edited Policy Bulletin on water pollution control No. 1/2016. The bulletin will provide the most fundamental information for the Members of the National Assembly in terms of controlling water pollution resources in Vietnam.

In this first bulletin, the bulletin articles mention the following topics: Sustainable Development Goal (SDG) 6 and 14 with the focus on water pollution control; Current situation of surface water resources in Vietnam (water resources, water quality); Roles of water resources in the economy, especially in Aquaculture Industry and Tourism Analysis of policies relating to water pollution control such as the current provision of waste discharge permits in Vietnam and expert perspectives on this; Community activities in water resources protection; News update on the pollution situation and new relevant documents.

We proudly present Policy Bulletin on Water Pollution Control No.1 in 2016 to Members of the National Assembly and our dear readers.

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SUSTAINABLE DEVELOPMENT GOALS 6 AND 14 AND WATER POLLUTION CONTROL

2030 Agenda for Sustainable Development

At United Nations Summit (UN) from September 25 – 27, 2015, UN’s 2030 Agenda for Sustainable Development has been approved with 17 sustainable development goals (SDGs) in order to change the world with a special emphasis on the importance of integrating sustainable development into development policies of each nation. Also in this summit, our former President Truong Tan Sang affirmed that Vietnam would support and commit to concentrating every necessary resource, mobilizing all ministries, industries, localities, organizations, communities and citizens to successfully implement the 2030 Agenda and all the SDGs. Currently, Vietnam has started to construct National Action Plan to implement SDGs for 2030.

17 SDGs with 169 specific indices from 2015 – 2030, on one hand, in terms of principles, are inherited from Millenium Development Goals (MDGs) 2000 – 2015, on the other hand, are more thorough and specific. If out of 8 MDGs¹, only one goal is directly related environment, which is MDG 7: Ensure environmental sustainability, out of 17 SDGs, there is up to 3 goals directly dealing with environment factors. Thoses are SDG 6, 14 and 15.

- SDG6: Ensure availability and sustainable management of water and sanitation for all.
- SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- SDG15: Life on land.

Two out of 3 aforementioned goals directly deal with surface water protection, sea waters from pollutants and related facets. This demonstrates the significance and urgency of protecting water resources against serious pollution. According to the United Nations, above 80% water wastes from human activities are discharged directly into the river systems without pollutant processing. Everyday, nearly 1.000 children die of diseases relating to infection from water. Floods and water-related natural disasters have caused up to 70% mortality rate by natural disasters.

In 2015, important world events all raised the issue of protecting water resources from pollution and clean water management as core matters. At 2015 Inter-Parliamentary Union Assembly in Hanoi, IPU132, the core program discussed was water resources management. The World Economic Forum 2015 taking place in Davos (Switzerland) has concluded “Water crises are ranked top global risk. For 2 reasons: 1) the livelihood dependence on water; 2) impacts created by water-caused disasters”.

Even though human race has reached 21st century, according to *Bob Stanford, Canada Initiatives President*, “It is until recently that humans acknowledged the social and economic dependence on water”. United Nations Development Program Report confirms: “Water is at the core of sustainable development. Water resources, and the range of services they provide,

underpin poverty reduction, economic growth and environmental sustainability. From food and energy security to human and environmental health, water contributes to improvements in social wellbeing and inclusive growth, affecting the livelihoods of billions. In a sustainable world that is achievable in the near future, water and related resources are managed in support of human well-being and ecosystem integrity in a robust economy”.

Water pollution in Vietnam has gone out of control. Water wastes of Formosa Ha Tinh Steel Corp earlier 2016 has affected and contaminated the whole coastal waters in 4 provinces Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, which brought about mass fish death disaster and the marine ecosystem has not been recovered and the time for recovery is inestimable. As per the affirmation of the World Economic Forum 2015, when water is polluted, the disaster level is extremely enormous because after all, the overall livelihood of human beings, animals and plants depend on water..

Sustainable Development Goal 6 and 14

SDG 6 on Clean Water and Sanitation and SDG 14 on Life Below Water have set 17 specific goals the world needs to achieve by 2030. With the differences among countries on water resources environment situation, on pollution control capacity, management capacity, technology, each nation will build specific goals that fit with each nation’s conditions.

SDG 6: Ensure availability and sustainable management of water and sanitation for all.

Specific Goal 6 targets include:

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.
- By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.
- By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.
- Support and strengthen the participation of local communities in improving water and sanitation management.

SDG 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable

development

Sea water accounts for 97% water on earth, creating market value from resources and sea-related industries of 3.000 billion dollars, approximately 15% global GDP and 63% global ecosystem services is provided by water and coastal sea. SDG 14 aims at creating a sustainable management framework and protecting coastal ecosystem, sea creatures from inland pollution sources, as well as aims at settling the impacts of ocean acidification.

Specific Goal 14 targets include:

- By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
- By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.
- By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.
- By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.
- By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.
- By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.

Water pollution control and Sustainable Development Goals 6 and 14

The highest risk to human life and all industries of our country is that water pollution has become extremely severe and beyond control. Even though we have Environment Protection Law, Water Resources Law to protect water resources for decades, because Environment Protection Law only serves as a framework for all environmental factors such as air, water, soil, biological diversity, management,...while Water Resources Law focuses on water resources management, water pollution control activities, despite of being mentioned, have yet to be sufficient and strict to control water pollution sources. On the other hand, regulations relating to water pollution are instructive, lack science and technology base, lack information of basic statistics, lack necessary supporting and supervising tools and sanctions. In addition, luru vưc integrated management capacity is weak, technology processing capacity is primitive, stakeholders' awareness is limited. Lacking the participation of pollution causing parties has caused water pollution to not only be immitigated but also be increasingly worsened.

2 SDGs 6 and 14 are the necessary foundation to review carefully our country's water pollution control system, from legislations, regulations, information, technology to implementation, and awareness issues, responsibility as well as research activities in order to transform water pollution control activities one step at a time. Water pollution control in our country requires a separate law like other countries, on the basis of science and technology, effective transparency and strictly implemented sanctions. With a law regulating such a specific issue as water pollution, if constructed successfully in the 14th National Assembly Meeting and seriously implemented, hopefully by 2030, rivers, water outlets, inland and coastal surface waters will gradually be freed from water pollution, the ecosystem will be recovered step by step and contribute at least 30% to national GDP.

CURRENT SITUATION OF SURFACE WATER RESOURCES IN VIETNAM

Surface water resources in Vietnam

Surface water resources are categorized into the following major groups: Nguồn nước mặt được phân loại thành các nhóm chính bao gồm: (1) Sea and coastal waters (coastal waters include 2 typical categories, which are puddles, bays, river outlets, swamps and lagoons); (2) Transitional waters such as rivers, streams, canals; (3) Standing waters including lakes, ponds (both freshwater and saltwater areas) (4) Wetlands are land areas that are saturated with water, either seasonally, sporadically or permanently. Wetlands may include saltwater, brackish water or freshwater, in standing or slow moving mode.

Sea and coastal waters

According to United Nations Conventions on the Law of the Sea in 1982, Vietnam's territorial sea area is approximately 1.000.000 km² in East Sea, in which, the inland waters area is 4.500 km². Vietnam's coastal waters and continental shelf are part of the East Sea stretching along the coastal line of about 3.260 km, from Quảng Ninh to Kiên Giang, with numerous river outlets, swamps, lagoons, puddles, bays. As a result, 100 km² territorial inland area corresponds to 1 km coastline. This ratio is 6 times higher than the world average ratio (600 km² inland corresponds to 1 km coastline).

Coastal waters include 3 typical surface water categories, which are puddles, bays, river outlets, swamps and lagoons. Vietnam's coastal puddles and gulfs are considered part of the sea encroaching inland areas or closed waters created by barrier islands. Initial statistics have shown that in Vietnam's coastal areas, there are 48 puddles and gulfs in total with the areas summed up to approximately 4.000 km² with various complex and concentration levels. Even though the surface areas of coastal puddles, gulfs only account for 1.1% land area and about 0.4% sea area but they are situated in major locations, which is extremely important to the economic – social development and national security and defence. Vietnam's coastal puddles, gulfs are attached to the development of economic and residential centers and big cities such as Ha Long, Da Nang, Nha Trang. Such puddles and gulfs with wind-lacking conditions, deep waters, less sedimentation are favorable locales to build enormous sea ports, which will enable the development of industrial and service zones. Among 15 coastal economic zones which have been approved and officially established by the Prime Minister, many important zones such as Van Don, Vung Ang, Chan May – Lang Co, Dung Quat, Van Phong are all located on the baysides. Puddles and gulfs are also traditional onshore fishing grounds and have enormous potential for aquatic farming. In addition, puddles and gulfs are usually endowed with beautiful sceneries, abundant, diverse biological resources, high biological productivity and numerous peculiar ecosystems and, therefore, are potential and valuable to nature conservation as well as are an incentive for tourism development. Ha Long Bay with 2 times being recognized as World Heritage in terms of aesthetics and geology is a typical example.

River, streams, lakes, ponds, canals

According to Decision No 1989/QĐ-TTg on the promulgation of cross-province basin catalogue, our country has up to 3.450 fairly large rivers (more than 10 km in length). Among those, 13 big river systems have basin area of more than 10.000 km². The basins of 8 major river systems (Hong – Thai Binh, Bang Giang – Ky Cung, Ma, Ca – La, Thu Bon, Ba, Dong Nai, Cuu Long) account for nearly 93% the total basin area of all rivers across our country and 81,7% national territory. It can be said that most of our territory is attached to certain river or stream basins. Despite such dense river systems, in terms of water reserves from these resources, Vietnam is only categorized into groups of countries of average water resources, and nearly 2/3 water amount of our country originates from outside the country.

Wetland

In Vietnam, wetlands are very diverse with the area of approximately 5.810.000 ha, accounting for about 8% the total wetland area of Asia, in which, freshwater wetland area account for about 10% that of the whole country. According to the record of Vietnam Environment Administration – Ministry of Natural Resources and Environment (2001), currently, Vietnam has 68 wetland areas (approximately 341.833 ha), which are of significance regarding biological diversity and environment. Wetland confers a lot of benefits such as maintaining and improving water quality, providing living environment for numerous animals and plants, reserving floods, maintaining the flow during dry seasons, and providing natural products for humans. Many wetlands have beautiful landscapes, allowing entertainment and tourism services to develop.

Quality of surface water resources in Vietnam

Quality of surface water resources before 1990s

Currently, there is no specific statistics to evaluate the quality of surface water in Vietnam before 1990s. However, surface water for daily activities and irrigation was then taken by the residents directly from lakes, ponds, rivers, streams, and there was almost no record of mass fish death to the level of catastrophe or to negatively influence humans' health. Even the records of fish and human poisoning at small scales are not found in the documents.

Even the rivers, water outlets, ponds, lakes in Vietnam became the inspiration for poetry, music, painting, which proves the beautiful sceneries and good water quality. Take a folk verse about To Lich river in Hanoi as an example “To river water is both clear and cool/I park my boat beside yours” or in Bac Ninh Quan ho-style folk music, there is a verse about Cau River: “Dropping by the river, drinking the water/ to satiate the longing”, or 2 famous verses by the poet Te Hanh about Tra Bong River (Quang Ngai): “My homeland has a beautifully green river/The mirror-like water reflects the luxuriant bamboos...”. Many water resources then were so clean that they can be used for instant drinking. For example, Bung Cu Spring (Binh Duong) had been used by secret revolution soldiers as a water supply before

and it was this very spring that also served as a food supply during the war of resistance against the Americans.

Current surface water quality

Currently, surface water quality in Vietnam has been facing a severe degradation. Of all 63 provinces, water pollution has always been a troubling, pressing problem. According to the categorization of pollution and environment management news published in the Environment news feed of Vietnam Environment Administration website from October 1 to November 6 in 2013, news relating to water pollution accounted for 45%. Other news included environment management in general, solid waste pollution, chemical-virulent wastes pollution, soil, forest, mineral resources management, air pollution (55%).

Surface water quality of rivers, water outlets, canals, especially in urban areas and industrial zones has been degraded to the point of near transmutation and is dangerous to humans and aquatic creatures. Chất lượng nước mặt của các sông, ngòi, kênh, rạch đặc biệt ở các vùng đô thị và vùng công nghiệp bị suy thoái tới mức gần như biến chất và nguy hiểm đối với con người và sinh vật thủy sinh. Such rivers as To Lich, Set, Kim Nguu,... indeed has become part of drainage system of Hanoi and the river water turned blackish and is giving out unpleasant sewage-like smell. Other rivers such as Ngu Huyen Khe (Bac Ninh), Buoï (Thanh Hoa), Nhue-Day (the segment flowing through the old Ha Tay, Ha Nam), Thi Vai (Dong Nai), Bo Ca Spring (Son La), Da Do (Hai Phong), Gam (Cao Bang) Nhat Bich Tri lake (Lang Son), Nam Cat (Bac Can), Ngoi Lao (Phu Tho), Na Bo Spring (Lai Chau),...are all in alarming condition of pollution, which has been disseminated across mass media recently.

The quality of coastal waters has also severely degraded: from Doc River's water front (Ca Mau), to coastal areas in Hai Phong and especially coastal areas in Central Vietnam with mass fish death caused by the environmental disaster in April 2016. This has shown that water pollution has distorted water and ecosystem quality. Normally, when water quality has deteriorated to such level, the recovery is very challenging, costly and time-consuming.

Rapid industrialization and urbanization within the last 3 decades have discharged an enormous amount of waste, chemical pollutants into surface waters, causing water quality to degrade widely and profoundly. This shows that water pollution has almost gone out of human control.

According to National Environment Report in 2012 on water environment, water quality in the upstream of big rivers are still pretty good. However, in the downstream, many areas have been heavily polluted, especially those with higher density of urban cities and industrial zones, craft villages, mineral exploiting areas. Water pollution is caused principally by pollutants in sewage and wastes. Water pollution levels will depend on the toxicity and content of the pollutants discharged into the water resources and depend on waste sources management efficacy. Water environment in lakes, canals, small rivers systems within urban areas in big cities mostly is heavily polluted.

CLEAN WATER RESOURCES – THE ESSENCE OF THE ECONOMY

Aquaculture Development – The essence is water quality

The role of aquaculture industry in Vietnam’s economic structure

Aquaculture industry plays an especially important role in the economic-social development strategy of Vietnam. According to the statistics in 2015 of General Statistics Office, economic value of aquaculture is 91.185 billion VND, accounting for 3,17% national GDP. Aquaculture industry contributes to transforming agriculture economic structure in rural areas, ending hunger and reducing poverty, and creating jobs for about 4 million labors, in which, above 1,89 million labors specializing in aquaculture, contributing to life improvement for rural communities.

Water Quality – The key factor in developing aquaculture

Water is the living environment of aquatic creatures, water quality is among key factors directly affecting aquaculture industry. Polluted water environment will immediately influence aquaculture, for instance, reared aquatic animals which are poisoned will result in unsafe aquatic product quality; they stop eating, slowing down the growth speed and are susceptible to various diseases. The water resources being polluted will bring about numerous difficulties for manufacturing activities, which are increasing the investment cost in the infrastructure systems to precipitate, filter and process water before pouring into the rearing ponds; increasing costs of using chemicals, bioproducts to improve the environment; low growth speed of shrimps, fish leading to prolonged rearing time and increasing producing costs, namely food, water fan operations, aeration, water bumping replacements; increasing producing costs by using medicine or disease preventive chemicals for shrimps and fish, decreasing productivity due to high mortality rate and decreasing competition capacity in terms of markets and price because fish quality fails to meet the market’s requirements.

Damage level of aquaculture activities depends on levels of water pollution: slight pollution may merely decrease productivity and profits; higher-level pollution may lead to production loss due to low productivity, low price,...; heavy pollution may lead to mass death phenomenon, damage amounting to 100% of not only a fisherman but also the whole rearing areas.

River systems have enormous basins and numerous industries working within these basins, even when each activity only contributes, in a small part, water polluting factors, the downstream will be polluted, affecting aqua culture activities. In addition to other incidents such as oil spills, flooding causing water pollution is also threatening to aquaculture areas.

Water pollution – Enormous challenge for Vietnam’s aquaculture industry

With more than 3.000 rivers, springs longer than 10 km, thousands of ponds, lakes of various sizes, and the long coastal line, Vietnam has many advantages to develop aquaculture industry. But the inability to control pollution sources resulted in surface water quality in

Vietnam having faced serious degradation and causing considerable damage to aquaculture industry in Vietnam. The recent years have witnessed continuous mass fish death incidents due to water pollution, causing millions-worth damage to the economy. Statistics from mass fish or shrimp death incidents due to diseases caused by low rearing water quality from 2016 – 2017 estimates that the total damage loss amounts to 1.042 billion VND. Thus, on average, aquaculture industry loses about 160,3 billion from water pollution per year. This number is merely the tip of the iceberg, because it is believed that there are many pollution incidents which have not been taken into account.

The most severe damage to aquaculture industry as a result of water pollution is the mass fish death catastrophe in 4 provinces in Central Vietnam caused by Formosa Ha Tinh Steel Corporation's waste discharge into the sea. This catastrophe has caused enormous damage to not only the rearing and cultivation industry but also to fishery industry. Most dangerously of all, it also influences coral reefs and sea creatures, directly affecting the livelihood of thousands of households depending on marine products resources.

In short, water resources are the core of the aquaculture industry development. If we fail to maintain the safe water resources, it will cause considerable damage to the industry, influencing the livelihood of millions of labors depending on aquaculture industry.

Protecting clean water in surface waters areas including rivers, water outlets, ponds, lakes, coastal waters, ensuring the natural growth of fish, shrimps, crabs, and other molluscs, living creatures under water, ensuring the livelihood and every human activities relating to water must become the priority in environment protection activities. Having clean water means having everything: such as aquatic products, tourism services and every livelihood attaching to tourism, health, social welfare from water-relating services. Having clean water means having life.

Tourism Image – The dependence on water quality

The importance of water resources to Vietnam tourism

With the characteristics of long coastal line and dense river, water outlets, lakes, ponds, in terms of natural resources, Vietnam tourism development is closely attached to such resources. According to Vietnam National Administration of Tourism, sea and island tourism currently accounts for 70% activities of Vietnam tourism (focusing on exploiting 125 beaches, gulfs, island systems). Besides, other ecosystem tourism activities are mainly related to water resources, such as Southern Vietnam tourism with Mekong River system, Da Nang 0 Han River, Hue – Huong River, Ninh Binh – Trang An system, sailing boats through Phong Nha Ke Bang cave systems, Hanoi tourism with lakes or ponds systems such as Hoan Kiem Lake, West Lake and coastal mangroves systems, namely Xuan Thuy National Park, Tram Chim National Park, Cat Tien National Park,...

By analyzing tourism characteristics as above, it can be seen that tourism depends almost totally on sceneries as well as water quality in coastal areas, lakes, rivers,... Pollution

in surface waters, whether big or small, can destroy tourism industry and then all the following services such as restaurants, hotels, fishery, food manufacturing, transportation, commercial business,...those services are creating numerous jobs for thousands of people in tourism spots.

“Water is one of tourism’s main assets. Each year, millions of people travel around the world to enjoy water destinations both inland and in coastal areas. Water is also one of tourism’s most precious resources. Water powers all tourism industries, from hotels to restaurants, leisure activities and transport.”

Official message by UNWTO Secretary-General Taleb Rifai on World Tourism Day 2013

Water pollution’s impacts on tourism

As most of Vietnam tourism industry is attached to water resources, when the water resources are polluted, tourism industry will be immediately influenced. First of all, scenery value will decrease and thus reduce the number of tourists due to fear of health caused by polluted water resources. Therefore, the tourism value chain will be interrupted, specifically breaking the service catering chain – within region or cross-region, destroying and changing national tourism route, changing the tourism consumption trend. Tourism supply becomes passive and investments must be increased to adapt.

Particularly more severely, it can deteriorate destination image, especially with serious large-scale pollution incidents. The destination image degradation brings about an enormous setback for tourism as it can influence in a very long time, even when the incidents have been handled. It can even affect adjacent areas and countries’ tourism.

The mass fish death incident at 4 Central Vietnam provinces is the most convincing evidence for destination image degradation. Since the mass fish death incident, sea tourism at these 4 provinces has clearly deteriorated with the tedious business of the accompanying services such as restaurants, hotels, fishery services,...

There has not been many calculation on the specific number of damages to the tourism industry caused by water pollution. However, it can be seen that water pollution will create enormous damages to the tourism industry and livelihood depending on this industry.

Tourism depends on water resources to a significant extent. This is a necessary natural resources to provide services relating to basic needs of humans, such as hygiene or food. It is also a prerequisite for fuel manufacturing and is an essential driving force in numerous tourism activities, namely swimming, sailing, scene viewing, etc. Limited water resources, poor water quality or mass media describing a water crisis can be deteriorating to tourism destination image.

LEGISLATION ON WATER POLLUTION CONTROL

According to UNEP (1997), policies relating to water pollution control (WPC) are usually found in regulation systems of many countries in the world. Legislation on WPC often refers to 3 main law systems: Environment Protection Law (EP), action plans/water resources (WR) management framework and community health aspects. These three collars usually interact and are managed by various Ministries, often Ministry of Environment, Ministry of Water Resources or Ministry of Health.

Thus, water pollution (WP) control can only be effective when being made clear in different laws and policies, specifically those that are relevant to water resources management and environment protection.

In some countries, instead of policies scattered around different laws, one separate law on WPC is established. Basically, this law includes targets to achieve on water quality, policies, principles, waste preventive and processing tools before they are discharged into water, specific implementation responsibility of stakeholders. Laws on WPC usually base on a logical scientific regulating system on the basis of effective waste processing technology, suitable regulations, standards, with a clear budget plan and an effective water quality supervision system. Specially, the management personnel that will implement this law must fully understand the law, technology, the ecosystem under water, basin-based management approach as well as profoundly comprehend pollution resources and integrated methods to manage them. These human resources include lawyers, technicians, biological conservationists, environment managers. Regulations on the community participation in ecosystem reservation activities and water quality control are also specified in law implementation.

Throughout the analysis above, it can be seen that controlling pollutants before they get into water resources depends on numerous factors, from sanctions, technology, standards, etc. to stakeholders' participation. The decisive factors include: Waste discharge permits, Waste discharge standards and processes, processing technology, Finance, Human resources, Inspection; sanction, supervision.

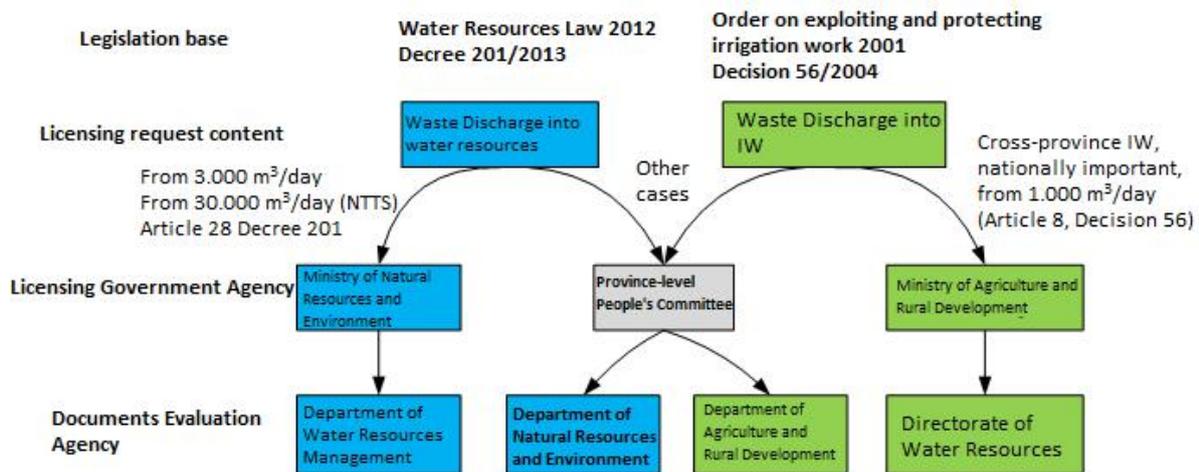
In Vietnam, regulations directly dealing with pollutant processing before discharging them into water resources are specified in 2 main laws, namely EP Law and WR Law. These two laws have several regulations relating to pollutants processing. Đây là hai luật có một vài điều khoản liên quan tới việc xử lý các chất ô nhiễm. Under this law is numerous decrees, circulars, decisions to specify the waste procession, management before discharging into water resources. In addition, laws in other fields that are related to water such as Aquaculture Law, Biological Diversity Law, Domestic waterway transportation law, ... all have regulations directly or indirectly dealing with WPC. Waste discharge permit is the most important tool in controlling water pollution sources. The next article will focus on analyzing policy aspects relating to granting waste discharge permits in Vietnam.

Regulations and acts over waste discharge permits

Waste discharge permit is the key tool in ensuring that pollutants emerged from human activities will not cause harm to the water resources, by making sure that the wastes before discharging into the environment are processed to meet the allowed standards. Even though Vietnam law has specified in details about licensing, managing and inspecting the conformity to the waste discharge permit contents, reality has shown shortcomings arised during the implementation of this important tool due to various reasons.

Overlapping management responsibility in licensing and managing permits

Waste discharge management is regulated by Water Resources Law (WR) và Order on exploiting and protecting irrigation work (OEPIW), which has specified that waste discharge activities and irrigation work system (IW) must be licensed by authorized government office (Article 37 WR Law, Article 26 OEPIW). The law has also identified the licensing competence of the government management agencies in both central and local level, in which: Ministry of Natural Resources and Environment (MNRE) and province-level People’s Committee license waste discharge permit, Ministry of Agriculture and Rural Development (MARD) and province-level People’s Committee license waste discharge permit to IW system.



Overview of waste discharge permits licensing

According to WR Law, water resource is defined as the accumulation of natural or artificial water that is exploitable and usable, including rivers, streams, canals, lakes, swamps, lagoons, seas, underground water chambers; rain, ice, snow, and other forms of water accumulation. This definition in itself includes water resources in IW systems. On the other hand, river, stream, canal, lake, pond water share the commonality of connecting circularly into a unifying system, taking pollutants from one area to another, thus, cannot be divided into 2 separate areas as illustrated above considering from pollution control perspective.

Therefore, in the same system, there are 2 different types licensed by 2 different agencies to manage one single problem is unreasonable, creating difficulties for management and supervision activities.

Besides, delegating licensing responsibility to agriculture agencies whose functions do not include environment management function also leads to shortcomings. ARD Departments are responsible for licensing waste discharge permits but have no supervision, inspection or sanction authority over businesses or enterprises which discharge wastes without processing or which have no waste discharge permit. IW management and exploitation units can only monitor, identify violations and report to authorized agencies such as Department of Natural Resources and Environment, environment police to proceed. Meanwhile, the water pollution in Vietnam primarily originates from pollution in irrigation canals, then spreads out and pollutes big rivers.

Lacking scientific foundation to license

The license of permits discharging wastes into water resources or IW grounds on the most important bases: standards, technical specifications of waste quality, water resources function, and water resources accessibility (Article 37 WR Law and Article 3 Decision 56 about authority and procedures of waste discharge permits into IW system). Not to mention the validity of waste quality standards, the identification of sewage acceptance capacity of water resources requires specific calculation over a certain river segment (or even over a bigger segment like a basin), putting into consideration all active waste discharge resources, hydrological and hydraulic factors and other factors affecting self-cleaning ability of the calculated river segment, not just bases on general information about receiving water resources or one single waste resource calculation as at present¹. Therefore, licensing agency and permit request evaluation council indeed do not have sufficient scientific foundation to ensure as to whether the waste discharge of licensed businesses is polluting or not. Moreover, the establishment of evaluation council is not a compulsory requirement in the permit request approval process. (Article 35 Decree 201 specifies in details the implementation of some articles of WR Law). As the decisions are subjectively made, the current licensing of waste discharge permit is following ask-and-give style, allowing corruption.

Inspecting the conformity to the permits

According to Circular 27/2014-BTNMT, businesses have to submit reports before 15/12 each year about sewage collecting, processing and discharging situation, emerging problems, flow monitoring results, sewage quality and receiving water quality. Thus, in short, whether businesses conform to the permit requirements totally depends on the integrity of the businesses and the monitoring agencies hired by the businesses. Management agencies do not

¹ In 2009, Ministry of Natural Resources and Environment enacted Circular 02/2009/TT-BTNMT, instructing evaluation method for water resources' sewage acceptance capacity. However, this Circular are almost not applied by local authorities during the licensing of waste discharge permits due to limitations in calculation methods and the lack of necessary data.

have sufficient human resources to inspect, examine annually every business, while there has not any regulations identifying selecting criteria for businesses that needs inspection (such as businesses with enormous waste discharging amount, having higher risk of polluting the environment). Remote supervision is very limited while there has not been any mechanism for automatic monitoring stations installation support, at the same time as statistics transmission system to the authorities. Serious violations in the recent years have been mostly discovered by local residents, when the violations have broght about an environmental disaster in such a long time.

EXPERT PERSPECTIVES

Clean water resources and sustainable development: Policy Issue – Opinions of Experts

At the seminar “CLEAN WATER RESOURCES AND SUSTAINABLE DEVELOPMENT: POLICY ISSUES” which took place on July 14, 2016 by the Vietnam Union of Science and Technology Associations in cooperation with Coalition for Clean Water organized, policy, law and environmental experts had the opportunity to openly discuss and construct the contents of different aspects in Water pollution control (WPC). The compiling article below reflect the opinions raised by experts in the aforementioned seminar.

Permanent Members, Law Committee of the National Assembly, Members of the National Assembly 14, Mrs. Trần Hồng Nguyên: “After accessing documents on “Water pollution: The situation and influences on health and the economy” compiled and edited by Coalition for Clean Water and CECR as reference materials for Members of the National Assembly, I have gained useful information and have had an overall picture of the current water pollution situation and am fully aware of the necessity to protect the water resources. Until now, we have started to concern about water pollution, which is already late, but as there are currently many shortcomings and troubling issues, especially to residents, I believe it is necessary for the legislation system to make adjustments to the issue of water pollution control in the context of the legislation system engaging many relevant specialized laws. Under the circumstance of having so many laws, to convince the management agencies of a separate law on WPC will require a route with careful preparation to prove the mentioned request is rational, well-founded and it is necessary to enact WPC Law”.

Vice president of Vietnam Union of Science and Technology Associations (Vusta), Members of the National Assembly 14, Mr. Nghiêm Vũ Khải: “We are all aware of the necessity to create WPC Law and the next step is to construct that law so that it can overcome the shortcomings and settle the overlapping, general problems in current laws. The large number of regulations caused difficulties for both the managing parties and the parties who are managed. In the matters of WPC, we need to emphasize the role of local communities where the pollution directly takes place. Moreover, we need to improve the role and functions of science associations like Vusta in consultancy, scientific debate, knowledge dissemination”.

Former Members of the National Assembly 10, 11 and 12, President of Union of Biology Vietnam, PhD. MS. Nguyễn Lâm Dũng: “Water pollution causes: wastes, industrial sewage, sewage from daily activities and agriculture. For instance, sewage from daily activities in Hanoi has turned Châu Giang river in Hà Nam, which was poetic and beautiful, into a dead river without a visiting person or boat! Sewage from industrial activities is a worrying issue. Indeed, Vietnam imported 1.643 active substances in plant protection, 4.100 pesticides while China, with 1 billion private citizens only uses 6.30 active substances in plant protection. In addition, 80% substances in plant protection imported to Việt Nam was from China. The problem is that the residues of such substances in plant protection on the

packages (200 tons/year) will go directly into water resources, polluting water and causing enormous consequences to human beings' health. Indeed, currently, people are losing faith and are extremely concerned when using food due to the improper use of pesticides”.

President of Union of Economy and Environment Việt Nam, Mr. Trương Mạnh Tiến: “Water pollution severely influences community health and our country’s economy. Thus, it is necessary to make changes in building policies and legislation in order to increase the law implementation capacity from Central level to local level. Vietnam has various legislative regulations, regulations on water pollution control tools, authorized managing agencies but the current situation is water pollution still happens. This probably results from our improper approach to policy and legislation making process due to the overlapping in management and responsibilities of agencies, lacking technology – finance – HR integration”.

Former Head of Directorate of Law, Government Office, Mrs Nguyễn Thị Như Mai: “Water pollution causes are subject to various managing ministries and laws but the locales of such pollution is at local level. Thus, WPC Law needs to have a collective approach and from bottom up. As a result, WPC activities need to develop the role of local communities. Prime Minister has approved general management program of river basins, in which the role of local communities are deployed and that is a general approach”.

Former Deputy Head of Directorate of Science, Technology and Environment, National Assembly, Mr Nguyễn Xuân Bạch: “Vietnam has more than 200 laws and thousands of secondary legislation documents (law forest) but the implementation efficacy is not high, which shows the various overlapping, complications, making Vietnam Law System Quality currently is going down. EP Law 2014 is a framework law with about 38 bylaws but the actual implementation is not effective. The Resolution 48 of Ministry of Politics 9 has mentioned the Vietnam Law development and construction strategy with the following criteria: Improve quality, efficacy and practicality of law; Limit to the maximum bylaws in order for laws to get into serious implementation. Thus, it is necessary to encourage government agencies, National Assembly to enact specialized laws on WPC with the purpose of helping subjects under the adjustment of this law understand with having to read through too many legal relevant documents, at the same time, environment management agencies will also easily manage without overlapping and avoid the lacking of cooperation between ministries. Moreover, we need to change the mindset of focusing on economic development and increasing GDP at any cost without considering the environmental consequences”.

Doctor Nguyễn Quang Vinh, Vice Head of Tourism Faculty, University of Social Sciences and Humanities – Vietnam National University Hanoi: “Surface waters are priceless assets to Vietnam tourism. Vietnam tourism activities are attached to rivers, lakes, wetlands. Thus, pollution in these waters will immeasurably damage tourism industry, including hotel activities, transportation, leisure activities. Besides, tourism industry, if not being closely managed, will become a pollution cause for surface waters. Tourism businesses in Vietnam must acknowledge this issue and raise awareness on water resources quality protection. Community engagement in water pollution control plays an important and

decisive role. The cooperation between businesses and local residents in protecting surface waters used for tourism in Bali, Indonesia is a paragon for this.

Former Vice Director of Directorate of Fisheries, Ministry of Agriculture and Rural Development, Mr. Phạm Anh Tuấn: “Surface water quality is a key factor deciding the existence of aquaculture industry. This has been proved by the immeasurable damage to Vietnam’s aquaculture industry caused by water pollution earlier 2016 in several provinces in Central Vietnam. Thus, resolutions in terms of policies relating to water pollution control need to be constructed on time, properly and viably, especially on aspects of waste discharge standards, waste discharge inspection and strict punishments for individual or organization violations. To effectively control waste discharge, we need the information about the processing systems and proper, effective and economical sewage processing technology”.

Director of Center for Environment and Community Research, Mrs. Nguyễn Ngọc Lý: “Without water, there can be no life. The essential role of clean water has been globally recognized when 2 out of 17 sustainable development goals (SDGs) of United Nations has mentioned clean water and life below water. Only in surface waters (rivers, lakes, seas,...) can we find the existence of aquatic creatures, the ecosystem that is an inseparable from life. Serious surface waters pollution occurs in many places all over the world and the situation is worse in developing and underdeveloped countries like Vietnam due to the shortage of human resources and science and technology levels”.

This seminar with 4 reports, 14 opinions has described clearly the surface water pollution in Vietnam currently and destructive damages caused by water pollution that are influencing economic development and livelihood of people. The seminar has also raised the shortcomings in legislation system on environment protection for discussion and the necessity to research and publish Water pollution control Law with viability, ensuring the prevention of water pollution, which is increasing in Vietnam now.

COMMUNITY AND WATER POLLUTION CONTROL

Controlling Water pollution caused by coffee preliminary treatment in the watershed providing water for daily activities in Son La City – Calling for a collective solution

The stream watershed basin providing water for daily activities in Son La city has an area of about 102,15 km², all the water amount of this basin leads to Tat Tong cave in Chieng An, Son La City – which Son La Clean Water Joint Stock Company is exploiting to provide water for daily activities for approximately 13.000 households. This upstream is also the area which has developed and is developing Son La's Coffee trees.

It can be said that Son La's coffee plantation over the past few years has brought about considerable progress in hunger and poverty reduction for local people. But with the increasing expansion of coffee areas, the outlets, which only bought and exported coffee before, now take on coffee preliminary treatment as well. At the same time, more and more households, which only planted, harvested and sold coffee before now carry out coffee preliminary treatment, which creates a challenging environment problem for Son La City.

Almost 100% coffee preliminary treatment outlets, and local households preliminarily process coffee by saturation method and completely having no sewage processing system. All the sewage and wastes from coffee preliminary treatment will be discharged directly into the environment. Particularly, coffee sewage is stored in self-made soil holes. When the rain comes, the sewage will automatically leaked to the stream systems as mentioned above.

In fact, pollution caused by coffee preliminary treatment has influenced the lives of people in the downstream (specifically Son La City). In the recent years, Son Ha water Provision Company's operation has been frequently interrupted due to water pollution, resulting in clean water shortage for residents in Son La City. This environmental problem has received attention from various media agencies, namely: Vietnam Television, Environment Magazine, Natural Resources and Environment Newspaper, People Newspaper...In this context, the authority and local people have had initial solution to control pollution sources, such as: Increasing inspection of coffee preliminary treatment outlets, households, applying financial punishments on environment polluting activities, conducting surface water monitoring in Tat Tong cave. Some production outlets, households are, to some extent, aware of the impacts of coffee preliminary treatment process on the environment by digging holes for wastes, sewage, using coffee peels for fertilizers, controlling coffee sewage. However, the environment pollution situation in this area has not been limited due to lack of wastes and sewage processing technology. In this context, local authority has issued documents directing relating agencies to seek water protection solutions for Son La City. Specifically:

+ On September 07, 2015, Son La People's Committee issued official letter no. 2547/UBND-KTN allowing the establishment of Technical Economic Report to implement several urgent duties relating to environment in the province, which includes the water pollution issue in Tat Tong cave, Son La City.

+ On March 08, 2016, President of Son La Provincial People’s Committee released Decision no. 521/QĐ-UBND on the approval of technology and science responsibility order in 2016, which included the topic: **“Current situation and solutions to protect water resources for daily activities in Son La City”**.

+ Son La Provincial People’s Committee is actively constructing Scheme of protecting the upstream area around Tat Tong cave by planting fruit crops which generates income for local people while limiting erosion.

However, to solve this problem, it is necessary to have a collective solution, including: planning, policy, technology, communication, community, which calls for more research and application in the future. With that, we need to focus on researching the sewage processing system for coffee preliminary treatment for households and businesses.

Project “Developing community engagement model in surface water pollution supervision in Hanoi: Piloting in Nam Tu Liem district”

Nam Tu Liem district was established by the Resolution no. 132/NQ-CP on December 27, 2013 of the Government and officially operated since April 01, 2014. This district includes 10 wards: Cầu Diễn, Mễ Trì, Mỹ Đình I, Mỹ Đình II, Phú Đô, Tây Mỗ, Đại Mỗ, Trung Văn, Xuân Phương and Phương Canh with the total population of 232.894 people.

Nam Tu Liem district is a typical district of Hanoi in terms of the quantity and area of ponds, lakes, canals. In this district, there are 2 river systems cutting through, which are Nhue river and Cau Nga river, in addition, there are about 47 big and small ponds, lakes with drainage function and providing irrigation for agriculture.

Currently, the water quality at Nhue river and Cau Nga river is seriously polluted and most of the water at local ponds, lakes, canals in this district has been polluted or signified pollution due to sewage from residents’ daily activities, sewage from industrial manufacturing activities, craft village and rubbish.

As this is a newly established district, environment management has still existing shortcomings. However, the local authority is determined to turn the district into a environment epitome of the city by building environment protection model which engages community.

The construction of community engagement model in surface water pollution supervision with the participation of businesses, residential community, local authority and district-level environment management agency will solve the difficult situation in water pollution control in Nam Từ Liêm District and contribute to the specification of policy on community supervision which has been regulated by Environment Protection Law in 2014.

Model of Community Supervision of Water Environment at the mangrove in Cam Thanh Ward

The mangrove in Cam Thanh ward, Hoi An City, is a special ecological buffer zone, which functions as a biological filter, reducing the polluting waste from mainland. However, this buffer zone is showing signs of organic pollution and is concerned by Hoi An city in the scheme “Building Hoi An into an Ecological city” in 2030. Water pollution in Cam Thanh ward, Hoi An city, is not severe pollution caused by industrial activities, but the pollution caused by various industries, such as wastes from restaurants, homestay, aquaculture and agriculture. Currently, the mangrove is facing the risk of being narrowed down and polluted as a consequence of opening roads for Cua Dai bridge construction and sewage processing factory for Hoi An city in Cam Thanh. Water pollution control at the Mangrove in Cam Thanh Ward, Hoi An city is not curative, but preventive and controlling pollution problems.

In 2015, with the support of Coalition for Clean Water, the model “*Community-based water pollution supervision at Cam Thanh ward, Hoi An city*” was established. Through deploying and implementing the model, aquaculture farming community groups – one of the subjects causing water pollution – has utilized their own advantages to supervise water quality in the ward and protect water environment in Cam Thanh. This model has the active participation between management agencies and local community in managing water environment. However, in order to increase the role and responsibilities of the community in protecting the environment, supervising and controlling pollution, the establishment of a local convention agreed by the community and managed by Government legislation is extremely important, especially in places of high community sense.

In the time to come, Danang Riverwatch with the support of Coalition for Clean Water will cooperate with Cam Thanh local authority and the community to continue developing the water environment supervision program, creating database for mapping the surface water environment quality – communicating and disseminating visual information to the community and this program is an effective tool serving environment management activities at local level. Moreover, a local convention “Water pollution control at the mangrove in Cam Thanh ward” will be established in 3 villages, incorporating the participation of different stakeholders. The local convention will be the bridge connecting community groups; community will be the main force supervising and protecting water environment in Cam Thanh.

In response to Earth Day 2016: “Clean water resources, strong economy”

Viet Nam with abundant surface water including about 3.450 rivers, streams more than 10 km long and thousands of lakes, ponds, wetlands, is facing the risk of serious water pollution. The annual program Earth Day in Vietnam was organized in order to encourage the participation of different parties in supervising and controlling water pollution, step by step changing the pollution tendency from heavily polluted to less polluted and cleaner.

Earth Day program 2016 was held in the morning on April 23, 2016 at Bach Thao park – Hanoi by Vietnam Environment Administration, Center for Environment and Community Research (CECR), Coalition for Clean Water, Hanoi Lakes Club with the message “**Clean water resources, strong economy**”. Also participating in organizing the event is: Standard Chartered Bank - Viet Nam, Lock&Lock Viet Nam Ltd. Company, New Quantum Viet Nam Company.

With meaningful activities such as cycling for Hanoi lakes, cleaning lakes and Bach Thao Park, exchange rubbish for trees and environment-friendly products, environment protection awareness-raising games.... The event attracted the participation of more than 1.000 volunteers from businesses, organizations, unions, science and technology organizations, students and youth from universities across Hanoi.

Speaking on Earth Day 2016, Mr. Hoàng Văn Thúc – Deputy Head of Vietnam Environment Administration – Ministry of Natural Resources and Environment said: “*The community participation in protecting, supervising environment in general and protecting water resources in particular is extremely important. This has been regulated in Environment Protection Law. Earth Day event will contribute to raising the awareness and encouraging community initiatives, which is very meaningful and should be multiplied.*”

As an organization organizing annual events in response to Earth Day, to increase the public awareness in protecting water resources in Vietnam, especially Hanoi lakes, Mrs. Nguyễn Ngọc Lý, CECR Director shared: “*We hope the Earth Day event will raise public awareness about the importance of clean water resources as an asset to our country’s economic development. To free water from pollution, gradually improve the quality, so our future generations can swim without worrying getting diseases, eat fish without worrying being poisoned, and the aquatic creatures can develop naturally. In order to do that, we need the companions of different parties such as businesses, community, mass media, and the strong leadership of the government*”.

In response to Earth Day this year, CECR, Coalition for Clean Water and Hanoi lakes Club also launched the composition contest with the topic of creating works that speak on behalf of rivers and lakes in Vietnam. Joining the event to speak and share about the contest, Mr. Trương Mạnh Tiến – President of Hanoi Lakes Club said: “*The Contest attracted many high quality submissions, rich in humanity, sincere and creative. The literature works aroused in the readers many emotions with the simple, sincere, heartfelt expression, showing the author’s emotion when witnessing serious water pollution, hearing the heart-wrenching laments of rivers and lakes in Vietnam currently. Many writing submissions was beautifully*

presented, some of which were handwritten in the most meticulous way. The video and painting submissions are imagery and brightly colored, with different creative styles, but all send out the common message about environment in general and water resources in particular”.

In response to Earth Day this year, at many locales in Hanoi, many practical activities were organized: mobilizing volunteers to clean the environment, collecting and processing wastes, rubbish, solving existing troubling environmental issues in the residential areas, organizations, unites, schools, manufacturing outlets, business outlets, widening the flow, dredging canals, lakes, ponds, drainage system.

Tan Phuoc Khanh authority and resident joint hands in revitalizing the holy stream Bung Cù

Bung Cù Stream is a small stream pouring into Dong Nai river. With the length of only 4 km but this stream has to receive sewage of more than 100 enterprises and nearly 1.600 motels in Tan Uyen commune and Thuan An town with sewage flow of more than 15.000m³/day and night. Almost 100% sewage discharged to this stream is not processed, which heavily polluted the stream.

Bung Cù stream pollution is considered a hot spot of environment of Binh Duong province, and has been mentioned by the press since late 1990s, up until now, 20 years have passed, the pollution was still unsettled and even worsened. The stream was increasingly narrowed down and become much more shallow than before.

In order to recover this stream, in 2016, Tan Phuoc Khanh ward People’s committee has proposed an action plan to achieve the goals mentioned above. Specifically, mapping the discharging sources, training to equip pollution supervision skills for local people, deploying canal dredging activities, unleashing the flow of seriously stuck stream segments, communicating to raise community awareness, building plans of collecting rubbish.

The first activities to be deployed was in the morning on April 24, 2016, Tân Phước Khánh People’s Committee organized launching ceremont and unleashed Bung Cu stream segment in the ward. Participating in dredging Bung Cu stream were 300 members, who are soldiers of regiment 141, battalion 16, rocket battalion, departments, organizations, local youngsters under Youth Union. Continuing the proposed activities, on October 02, 2016, the authority and community in Tân Phước Khánh ward organized more activities to unleash the congested stream segments. The frequent activities to unleash the stream flow serves to raise local community awareness on recovering and protecting Bung Cu stream, in the further future, to control discharging sources so that one day, the holy stream Bung Cu can returned to clear and clean condition.

NEWS UPDATE

Pollution news feed: Pollution situation in Vietnam with the first 6 months in 2016

From January to July this year, in Vietnam, there were many water pollution incidents, attracting the attention of mass media. With all the articles of water pollution situation on environment daily news of websites such as Vietnam Environment Administration and several big newspapers namely Dân trí, Vietnamnet, VnEpress, Tuổi trẻ, Lao động.....there has been a total of 600 articles on water resources situation. The newspapers focus on reporting the escalations of enormous fish death incidents, specifically the mass fish death catastrophe in 4 provinces in Central Vietnam caused by sewage of Formosa, the mass fish death in Bui river, in La Ngà River, in Chà Và River The information reflected by the newspaper include the fish death situation, damages, causes and incident settlements.

LIST OF SEVERAL POLICY DOCUMENTS RELATING TO WATER POLLUTION CONTROL FROM JANUARY – AUGUST 2016

1. Decision 3509 /QĐ-BTNMT on 30/12/2015 [Approval of Plan of disseminating, educating laws on natural resources and environment in 2016](#)
2. Decision 3507/QĐ-BTNMT on 30/12/2015 [Approval of Plans of Reviewing, examining, processing unifications of legal documents and codifying legal system on natural resources and environment in 2016](#)
3. Decision 3508/QĐ-BTNMT on 30/12/2015 [Approval of Plans of law implementation monitoring on natural resources and environment and on processing procedural violations on natural resources and environment in 2016](#)
4. Joint Circular no. 58/2015/TTLT-BYT-BTNMT on 31/12/2015 of Ministry of Health and Ministry of Natural Resources and Environment [Regulations on medical wastes management](#)
5. Decision 90/QĐ-TTg on 12/1/2016 [Regarding the approval of plans on network of monitoring national natural resources and environment period from 2016 - 2025, vision till 2030](#)
6. Nghị định 12/2016/NĐ-CP on 19/2/2016 [Environment protection fees on mineral exploitation](#)
7. Circular no. 04/2016/TT-BTNMT on 29/4/2016 [Enactment of National technical standards on environment \(QCVN 62 - MT : 2016/BTNMT - National technical standards on breeding sewage\)](#)
8. Decree 40/2016/NĐ-CP on 15/5/2016 [Detailed regulations on implementing several articles of Law of Natural resources, environment on seas and islands](#)
9. Joint Circular no. 05/2016/TTLT-BMARD-BTNMT on 16/5/2016 of Ministry of Agriculture and Rural Development and Ministry of Natural Resources and Environment [Instructions on collecting, transporting and processing pesticides packages after use](#)
10. Circular no. 94/2016/TT-BTC on 27/6/2016 about [Adjusting, supplementing Decision no 59/2006/QĐ-BTC on October 25, 2006 about evaluation fees, fees collecting procedures, fees management and use, licensing fees of investigation, exploitation, use of water resources, wastes discharge in to water resources and drilling practices; Circular no. 02/2014/TT-BTC on January 02, 2014 instructing fees under the decision authority of People's council at provincial level or city under Central government](#)