

## **LEGAL CONTROL ON WATER POLLUTION THROUGH AGRICULTURE, INDUSTRY AND MINING IN MYANMAR**

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### **Abstract**

Water pollution refers to the contamination of aquatic environments, including lakes, rivers, seas, oceans, and groundwater. It transpires when contaminants enter these water bodies untreated. Waste from residences, industrial facilities, and other structures contaminates water bodies, resulting in water pollution. This paper aims to elucidate the legal framework governing water pollution control in Myanmar. The research aims are to mitigate incorrect waste disposal, to avert water pollution by identifying and limiting principal sources of contamination, and to comprehend the effects of water pollution associated with agriculture, industry, and mining. Agriculture significantly affects the environment. Although the adverse effects are significant, encompassing pollution and the destruction of land, water, and air, agriculture can also influence the ecosystem. The industrial impact indicates that wastewater from manufacturing or chemical activities contributes to water pollution. The impact of mining includes the presence of life-threatening human infections in sewage, such as cholera, typhoid, and dysentery.

**Keywords:** water pollution, agriculture, industry, mining, environment

### **Introduction**

Water is a vital natural resource required for humans, animals, and plants. Water pollution is primarily influenced by the discharge of sewage and other liquid wastes from domestic water consumption, industrial effluents, agricultural runoff from livestock, and irrigation drainage. A further cause of pollution is spreading of chemical on the land to increase crop yields. The problem of pollution of rivers and streams has assumed considerable importance in recent years as a result of the growth of industries and the increasing tendency to urbanization. Environmental damage may affect the soil, the air, nature, waterways or groundwater. damage of natural environment relating to agriculture is described that the environmental impact of agriculture is the effect that different farming practices have on the ecosystems around them. Environmental impact based on the production practices of the system used by farmers. Damage of natural environment relating to industry is stated that industry is a huge source of water pollution, it produces pollutants that are extremely harmful to people and the environment. Many industrial facilities use freshwater to carry away waste from the plant and into rivers, lakes and oceans. Damage of natural environment relating to mining is prescribed that environmental impacts of mining can appear at local, regional and global scales through direct and indirect mining practices. Impact can result in erosion, sinkholes, loss of biodiversity or the contamination of soil, groundwater, and surface water by the chemicals emitted from mining processes. Mining can have harmful effects on surrounding surface and groundwater. The Government has enacted different laws to regulate water pollution. Pollution can be mitigated by regulating the application of some hazardous pesticides and promoting the use of organic bio-fertilizers as an alternative to chemical fertilizers. Effective management of water pollution necessitates suitable infrastructure and strategic plans. Sewage treatment facilities and industrial wastewater treatment plants are typically mandated to safeguard water bodies from untreated effluent. The mineral resources remain vital to the nation's economy. The mining sector can mitigate environmental impact by

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recycling mining waste, rehabilitating mining sites, terminating unlawful mining operations, and enhancing mining sustainability.

The major sources of water pollution are classified in the following:

1. Agriculture
2. Industry and
3. Mining

Water pollution can disturb and negatively impact the water cycle. A lot of water pollution comes from human activity. This paper aims to study how Myanmar's laws control water pollution from agriculture, industry and mining and to find out whether these laws are effective or need improvement.

### **Agriculture**

“Agriculture” is broader in meaning than “farming”; and while it includes the preparation of soil, the planting of seeds, the raising and harvesting of crops, and all their incidents, it also includes gardening, horticulture, viticulture, dairying, poultry, bee raising, and ranching.”<sup>2</sup>

The main agricultural water pollutants are nitrates, phosphorus, and pesticides. Rising nitrate concentration threaten the quality of drinking water, while high pesticide use contributes substantially to indirect emissions of toxic substances.<sup>3</sup>

Another polluting agent from agriculture is sediment load that enters in streams. Suspended sediment resulting from agricultural fields impairs aquatic life by reducing sunlight, damaging spawning grounds and becoming toxic to aquatic organisms.<sup>4</sup>

### **Case Analysis**

In 2019, about five miles, East of Kone Ywar village, Myintha village Tract, Gangaw Township, Gangaw District, Magway Region, Naing Takhon Coal Mines Company and Shwe Bumi Coal Mines Company dumped waste about one and half miles. This waste with irrigation water of Htan Thi Gyi stream runoff into the irrigate farmlands and paddy fields.

The incoming mud comprises coal particles and contaminated blue dust, rendering the streams less drinkable than they once were. Annual sedimentation from waste coal mines devastates agricultural land and impairs the cultivation of seasonal rice and sunflower crops, while also posing a threat to human and animal health and drinking water.

In August, 2019, the owners of the farmlands and paddy fields, together with the village administrator, reported the damage and impact of their farmlands and paddy fields to the office of the Prime Minister of Magway Region, to the representatives of the Pyithu Hluttaw, Amyotha Hluttaw, and Regiain Hluttaw, of Gangaw Township, to the Ministry of Environmental Conservation and Forestry of Magway Region, and to the Ministry of Environmental

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<sup>2</sup> Bryan A. Garner, *Black's Law Dictionary*, Thomson West, 8<sup>th</sup> Edition, 2004, P-213.

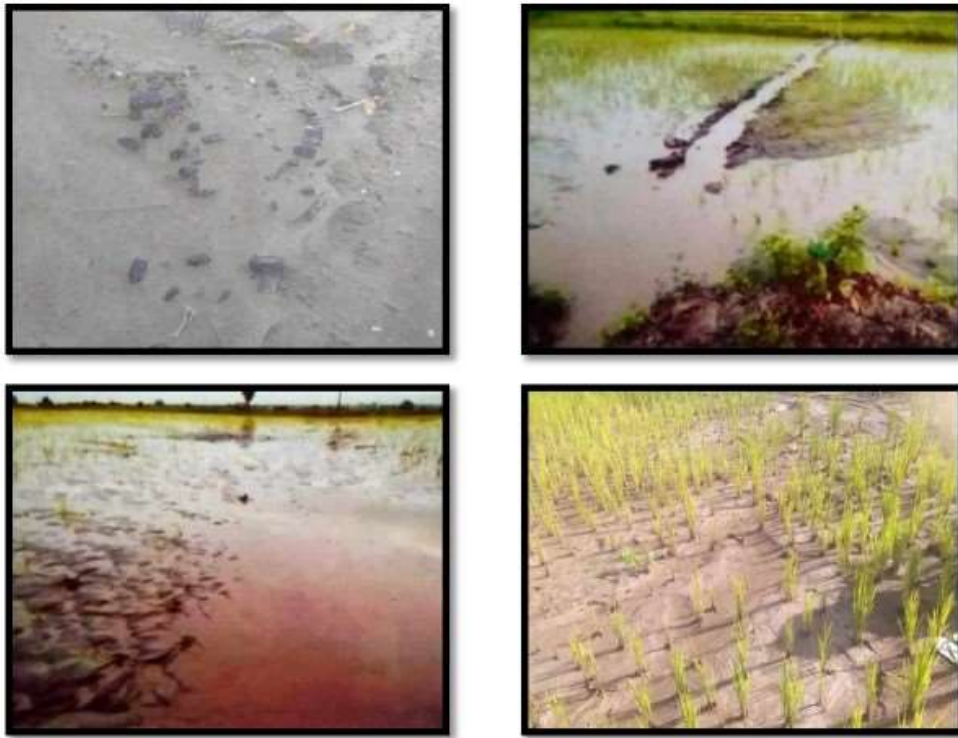
<sup>3</sup> Santosh S Mali, *Water Pollution and Agriculture*, National Academy of Agriculture Sciences, 2015, P-4.

<sup>4</sup> *Ibid*, P-6.

Conservation and Forestry of Union. As a result of the complaint, the Naing Takhon Coal Mines Company restored and re-excavated farmlands and the paddy fields that were damaged, by machinery to get back to normal as before damage. In addition, the company gave to the farmers only a small amount of crop damages per year. This compensation is insufficient and unsatisfactory for the proprietors of the farmlands and paddy fields.



**Figure 1.** Runoff Waste Water from Naing Takhon Coal Mines in Gangaw Township



**Figure 2.** Impact and Damage of Farms and Paddy Fields by Waste Water from Naing Takhon Coal Mines in Gangaw Township



**Figure 3.** Re-excavation of Waste in the Farms and Paddy Fields

## Industry

In Myanmar, numerous industries are the primary contributors to water pollution. Industries emit harmful chemicals and pollutants that contribute to water contamination. Industrial water pollution can exterminate wildlife and adversely affect the entire environment.

In Myanmar the cases relating to the water pollution from industries can be seen as follow: Mandalay Industrial Zone Area causes severe pollution such as tanneries, distilleries, sugar factories and battery factories. Since 2008, if not earlier, untreated wastewater has been released from the Zone into a canal that supplies water for the Nat Yay Kan fishery ponds and feeds into Taungthaman Lake.<sup>5</sup>

The pollution has caused a series of large die-offs in the several fish in Taungthaman Lake. Myanmar's Ministry of Industry made a list of 63 factories that were dumping wastewater into surrounding waterways, in 2013. Several factories have been found but none have agreed to stop dumping pollutants, despite the fact that the Mandalay City Development Committee is legally obligated to ensure that they do so.<sup>6</sup>

"Earth Right International efforts for appropriate remedies for the communities affected by the Mandalay Industrial Zone: these include an injunction to stop the pollution, remediation of the polluted waterways and ponds, and monetary compensation". In 2016, Earth right International organized a forum with communities affected by the Mandalay Industrial Zone and government stakeholders. Though several factories have since been ordered to close because of their emissions, many have continued to pollute with impunity. Taungthaman Lake in Myanmar is being slowly polluted by waste from Mandalay Industrial Zone.<sup>7</sup>

"The reason of Fish Death was as heavy as the rain these days driving sewage flows heavy from Industries into the Taungthaman Lake possible", remarked the cause Taungthaman Lake Fisherman.<sup>8</sup>

"Mandalay Industrial Zone, waste water has damaged ecosystems and livelihoods of communities. Earth Right International provides training and support to local lawyers and community groups on gathering evidence and legal strategies, so that they can seek injunctions before the courts to stop continuing pollution and pursue compensation. People have also pursued strategic litigation, action as legal Counsel for affected communities on complex large-scale pollution cases with the aim of setting precedents that can be used by other affected communities."<sup>9</sup>

"The Mandalay Municipal Government has suspended operations of 17 factories in one the City's largest Industrial Zones, citing diminished fish populations caused by water pollution in Taungthaman Lake."<sup>10</sup>

Wastewater from companies can provide health risks associated with microorganisms and harmful chemicals. Environmental authorities ought to oversee the methodical utilization of water.

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<sup>5</sup> [http:// www.mmmtimes.com](http://www.mmmtimes.com)> National -News/ indawgyi.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> [http://www.7 day Daily News.com](http://www.7daydailynews.com).

<sup>9</sup> [http:// www.mmmtimes.com/news/burma](http://www.mmmtimes.com/news/burma).

<sup>10</sup> Ibid.



**Figure 4.** Wastewater discharge directly into water channel without pretreatment

Source: <https://www.nrdc.org>industrial> water pollution and its effects

This case pertains to the treatment of contamination from wastewater generated by dyeing facilities in Wundwin by technological means.

“As colorful as it is, the traditional Myanmar longyi had left rivers in Myanmar's Wundwin town murky from decades of dye and wastewater pollution. Here is a Japanese technology company. A few miles south of Mandalay lies the textiles town of Wundwin.”<sup>11</sup>

For more than 60 years, the area has been the primary production hub of the longyi, a traditional Myanmar garment that is routinely dyed a variety of colors. “There are more than 500 factories that dye fabric in Wundwin, and for many decades wastewater from the factories has been discharged into the surrounding rivers. The technology used to analyze the scale of the pollutions in Wundwin was provided by Horiba, while the treatment process was provided by industrial services company Hitachi Zosen.”<sup>12</sup>



**Figure 5.** Polluted water in Wundwin. Image: Horiba

Source: <https://eco-business.com>> Japanese technology is cleaning Myanmar's polluted waterways

<sup>11</sup> [http:// www.mmmtimes.com>](http://www.mmmtimes.com>) Japanese technology in Cleaning Myanmar's polluted waterways.

<sup>12</sup> Ibid.

In Wundwin's water pollution problem, Horiba conducted survey of dyeing factories to gauge the scale of discharged water, and the impact on river in the area. After the initial assessment work was completed, a new method for cleaning the wastewater was tested. Some 2,000 liters of water was filtered per day using Hitachi Zosen's technology. This project lasted from September of 2015 to March 2017, Local workers were trained in wastewater treatment, using technology. In the end, the project lasted almost three years, and its effects were felt not only at the local level in Wundwin, but nationally.

## **Mining**

Mining affects fresh water through heavy use of water in processing ore and through water pollution from discharged mine effluent and seepage from tailings and waste rock impoundments.

The Myanmar Mines Law provided that "Mine means place, excavation or worksite where mining is carried on or various operations, building, land, machinery and equipment connected with mining or mineral processing at any place contiguous to such place of mining, excavation or worksite. The said expression also includes quarries where industrial mineral and stone are mined."<sup>13</sup>

The Law Amending the Myanmar Mines Law described that "Mineral means metallic mineral, industrial mineral and stone obtained from the earth by mining or by any other means. The said expression also includes the minerals mined from the sea bed and underwater ground of the ocean, river, stream and lake."<sup>14</sup>

In Myanmar, there are case relating to the water pollution from mining as follows:

In Dawei, the Heinda mine is tin-ore mining project, run by Thai firm Myanmar Pongpipat Company limited and Myanmar state-owned firm Mining Enterprise No.2. Since 2008, pollution from the Heinda mine and wastewater from the mine's overflowing tailing ponds have contaminated the Myung Phyo creek, the source of the surrounding communities' water for drinking, domestic use and irrigation. The wastewater also impacts farmland, reportedly damaging the quality of soil. The communities rely on agriculture, cultivating betel nut, rubber, durian, coconut, vegetables, cashews and bananas to sell. Through the project affects over a dozen villages, one of the most impacted is Myung Phyo village, located two kilometers from the mining site. Villages in Myung Phyo have built an earth barrier and a series of trenches to keep the black wastewater out of their homes.<sup>15</sup>

"A civil suit by villages in Tanintharyi Division has been accepted by the local Court, with plaintiffs claiming to have suffered years of negative environmental impacts from the activities of a Thai company and a Burmese government firm operating in the area. The tort is seeking compensation for damages to houses and farmlands allegedly caused by wastewater from the Heinda tin mine, and the legal action was accepted on 19 May, 2014 by the Dawei District Court. Mee Gan, one of nine plaintiffs said she was asking for 39.9 million kyats (US\$ 41.000) in compensation for damages to her home and crops, located on two acres of land in the village. Her

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<sup>13</sup> Section 2(a), The Myanmar Mines Law, 1994.

<sup>14</sup> Section 2(b), The Law Amending the Myanmar Mines Law, 2015.

<sup>15</sup> [http:// www.mmtimes.com/new/burma](http://www.mmtimes.com/new/burma).

request lies on the upper end of villager's demands, with other asking for compensation ranging from 10 million to 30 million kyats. She said she had lost a monthly income of about 80, 000 to 100, 000 kyats since more than 200 poles of betel nut plants died out due to mining wastewater that flooded her crops in 2011, Mee Gan also claimed that although the whole village had suffered varying degrees damage.”

Around 2009, Eastern Mining Company signed a contract Mining Enterprise, a Myanmar State-owned firm, to develop a tin mine in Tanintharyi Region. The mining facilities are located near to two tributaries of Pauk Tine Stream. Since 2009, communities along this stream have seen severe impacts to their health and livelihoods due to environmental damages. Tailing ponds with waste from the mine have frequently flooded and continue to contaminate the tributaries of the Pauk Tine Stream.<sup>16</sup>



**Figure 6.** Heinda Tin Mine, Dawei, Myanmar

Source: <https://ejatlas.org>print>heinda> tin mine

Flooding has become more severe and frequent, streambeds lie empty in the dry season, groundwater, wells and streams are no longer usable for irrigation or bathing and livestock are dying off at an increased rate. Since 2014, there have reportedly been no fish or crawfish in the stream. Lead levels in Pauk Tin Stream were to times the level recommended by the World Health Organization's Drinking Water Standards. In 2016, Eastern Mining Company was ordered to stop operations by the Tanintharyi Ministry of Natural Resources and Environmental

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<sup>16</sup> [http:// www.irrawaddy. com/news/Burma](http://www.irrawaddy.com/news/Burma).

Conservation. In a judgment, the companies were asked to pay damages of up to K 114, 800, 000 (US\$ 82, 536) for each claimant. Both companies have appealed the judgments against them.<sup>17</sup>

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Sagaing Region's Government says it has scrapped permission for a Chinese company to do studies for a new mine after a series of protests by residents. Myanmar Yang Tse Copper limited, a subsidiary of Beijing-based Wanbao Mining Limited, which is already running a controversial mine in Salingyi Township, had sought permission for preliminary ground inspections for another mine in Salingyi, Yinmabin and Kani townships. The proposed mine would span 40, 000 hectares with Myanmar Yang Tse first requesting permission in 2018.<sup>19</sup>

The company had been due to invest between US\$ 6 million and US\$ 10 million in the inspection which is due to take about five years, covering more than 120 villages, 86 schools, 139 monasteries and affecting more than 80, 000 residents. Let is a joint venture between the military-owned Union of Myanmar Economic Holdings Limited and Wanbao Mining launched in 2010. Farmers who lost crops in 2014 and 2015 during land confiscations for the mine project have demanded proper compensation from Wanbao. The company, however, has said that it has offered them money, but they refused to accept it. The Parliamentary inquiry commission on the Letpadaung project called for more transparency in Wanbao's land appropriation process and for policeraid-control training in the wake of a violent raid on protesters at the mine site in 2012.<sup>20</sup>

The above cases mentioned that in agriculture pollution is the issues relating to Gangaw Township's farmlands. In this case, according to section 12 of the Environmental Conservation Law, 2012 prohibits causing environmental pollution without permission. And there are no specific legal standards for agricultural runoff, sedimentation or pesticide contamination. Company was ordered to re-excavate and compensate. This showed weak of legal enforcement mechanism.

In industry, although the provisions of Environmental Conservation Law, 2012 and Environmental Conservation Rules, 2014, industrial water pollution remains widespread. The Mandalay City Development Committee is legally obliged to oversee wastewater discharge. But it was lack of resources and technical capacity to monitor all factories.

In mining, while Myanmar has several laws governing mining activities, such as the Myanmar Mines Law (1994) and the Law Amending the Myanmar Mines Law (2015). These laws mainly regulate mineral extraction and licensing rather than environmental protection. There is lack of specific legal provisions on mine wastewater management. Existing mining laws do not contain clear standards or requirements for wastewater treatment, storage of tailing or prevention of water contamination.

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<sup>17</sup> Ibid.

<sup>18</sup> [http:// www. frontiermyanmar.net/](http://www.frontiermyanmar.net/) the Burma of environmental justice.

<sup>19</sup> [http:// www. frontiermyanmar.net](http://www.frontiermyanmar.net/)> Letpadaung mine.

<sup>20</sup> Ibid.

## National Action Plans

The Government is implementing plans for water conservation with appropriate management and planning practices for the development of Country. Government has laid down many policies and has been implementing many projects to control water pollution.

The Constitution, 2008 provided that “the Union shall protect and conserve natural environment.”<sup>21</sup>

And then, the Constitution, 2008 provided that “every citizen has the duty to assist the Union in carrying out the following matters:

- (a) preservation and safeguarding of cultural heritage,
- (b) environmental conservation,
- (c) striving for development of human resources,
- (d) protection and preservation of public property”<sup>22</sup>

With regard to the safety and health of the public or the environment, and ecosystem, defines that Environmental Emergency means the situation which may affect the safety and health of the public or the environment and ecosystem if nature or man-made disaster or pollution is not taken action immediately.<sup>23</sup>

With respect to the protection, avoiding and mitigation environmental impacts, states that “Environmental Management plan means the method and the plan to be adopted to protect, avoid and mitigate environmental impacts due to each project phase like planning implementation, operation, decommissioning and after decommissioning of a project, business, service or activity or any other reasons because of the project. Such plan includes monitoring plan to monitor the change of environmental condition and environmental conservation activities and precautionary measures in response of environmental emergency.”<sup>24</sup>

The legal definition of Environment Impact Assessment is defined in Environmental Conservation Rules, 2014 that means the process of systematic study which is required as business, service or activity whether there are potentials or impact processes that may cause an impact on physical environment, human and living things, social and socio-economic because of the project.<sup>25</sup>

The process of Environmental Impact Assessment (EIA) is an important mechanism for the integration of environment and development. The establishment of a transparent and participatory process of environmental impact assessment shall bring about optimal integration of environment and development.<sup>26</sup>

The Environmental Conservation Law, 2012 enacted some provisions. They are as follows;

- (a) to enable to implement to Myanmar National Environmental Policy;

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<sup>21</sup> Section 45, The Constitution of the Republic of the Union of Myanmar, 2008.

<sup>22</sup> Section 390, *ibid*.

<sup>23</sup> Section 2(p), The Environmental Conservation Law, 2012.

<sup>24</sup> Section 2(g), The Environmental Conservation Rules, 2014.

<sup>25</sup> Section 2 (d), *ibid*.

<sup>26</sup> Myanmar Agenda 21, National Commission for Environmental Affairs, 1997, P-184.

(b) to enable to lay down the basic principles and give guidance for systematic integration of the matters of Environmental Conservation in the sustainable development process;

(h) to enable to cooperate with Government Departments, Government Organizations, International Organizations, Non-Government Organizations and individuals in matters of environmental conservation.<sup>27</sup>

The Environmental Conservation Rules described that “the Ministry of Environmental Conservation and Forestry shall prepare the necessary policies relating to environmental conservation for each relevant sector in coordination with suitable organization or an individual from the Government Department, Government Organization and private sector concerned and submit them to the Union Government. Environmental Conservation policies approved by the Government shall be disclosed to the public with suitable means.”<sup>28</sup>

The relevant Government Departments and Government Organizations shall, in accord with the guidance of the Union. Government and the Committee, carry out the conservation, management, beneficial use, sustainable use and enhancement or regional cooperation of the environmental natural resources;

(c) fresh water resources including underground water;

(d) mineral resources;

(e) agricultural resources;

(i) natural areas, wildlife, natural plants and biological diversity;

(j) other natural resources stipulated by the Union Government<sup>29</sup>

The Environmental Conservation Rules provided that “the Department shall implement the plans for environmental conservation and enhancement, protection of pollution in environment control and reduction of pollution in environment in accordance with the guidance of the Ministry.”<sup>30</sup>

In Myanmar, existing policy and regulations: “the importance of environmental protection in Myanmar is recognized in national and local policy, which is in part due to the country being a signatory to various multilateral environmental treaties and agreements, including the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel) 1989, the 2030 Agenda for Sustainable Development (SDGs) 2015 and the Paris Agreement on Climate Change 2016.”<sup>31</sup>

Myanmar's National Environmental Policy of 1994 instituted environmental regulations on the utilization, conservation and prevention of environmental degradation including water, land, forest, mineral, marine resources and other nature resources. Following the development of this national policy, the country prepared its Agenda 21 commitment (1997) to implement integrated management of nature resources. Myanmar's Environmental Conservation Rules (2014), the Procedure for Environmental Impact Assessment and Environmental Quality

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<sup>27</sup> Section 3, The Environmental Conservation Law, 2012.

<sup>28</sup> Section 3, The Environmental Conservation Rules, 2014.

<sup>29</sup> Section 18, The Environmental Conservation Law, 2012.

<sup>30</sup> Section 23, The Environmental Conservation Rules, 2014.

<sup>31</sup> Ministry of Natural Resources and Environmental Conservation, National Waste Management Strategy and Master Plan for Myanmar (2018-2030), P-16.

(Emission) Guidelines (2015) were instituted with a view to ensuring project developers implement appropriate measures for reducing pollution and promoting environmental conservation.<sup>32</sup>

The strategic policy issues will require attention in many related sectors in Myanmar. Strategic policy frameworks and action plans under the National Environmental Policy will need to ensure these strategic policy issues are integrated into policy agendas for the following key sectors.

- (a) industry and manufacturing
- (b) urban areas
- (c) electricity and energy
- (d) agriculture
- (e) fisheries
- (f) mining
- (g) forestry<sup>33</sup>

The Government of the Republic of the Union of Myanmar is dedicated to executing the National Environmental Policy via a strategic framework and a succession of master plans. The strategic framework implements the concepts of the National Environmental Policy across prioritized subject areas and sectors. It also delineates environmental governance prerequisites for effective execution, encompassing institutional fortification, oversight and enforcement, public engagement, conflict resolution, and funding. The strategic framework offers direction for the development of master plans for States and Regions, as well as for key theme areas and sectors. The master plans will contain specific activities, timeframes, budgets and performance targets for achieving the Strategic Framework objectives and ultimately, the National Environmental Policy vision.”<sup>34</sup>

The Environmental Conservation Law provided that, “no one shall violate any prohibition contained in the rules, notifications, orders, directives and procedures issued under this law.”<sup>35</sup>

The Environmental Conservation Law provided that. “no one shall, without permission of the Ministry, import, export, product, store, carry or trade any material which causes impact on the environment prohibited by the Ministry.”<sup>36</sup>

The Environmental Conservation Law provided that, “whoever, without the prior permission, operates business, word-site or factory, work shop which is require to obtain the prior permission under this law shall, on conviction, be punished with imprisonment for a term not exceeding three years, or with fine from a minimum of one hundred thousand kyats to a maximum of one million kyats, or with both.”<sup>37</sup>

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<sup>32</sup> Ibid.

<sup>33</sup> The National Environmental Policy, 1994.

<sup>34</sup> Ministry of Natural Resources and Environmental Conservation, National Environmental Policy of Myanmar, 2019, P-13.

<sup>35</sup> Section 29, The Environmental Conservation Law, 2012.

<sup>36</sup> Section 30, Ibid.

<sup>37</sup> Section 31, Ibid.

Whoever voluntarily corrupts or fouls the water of any public spring or reservoir, so as to render it less fit for the purpose for which it is ordinarily used, shall be punished with imprisonment of either description for a term which may extend to three months, or with fine which may extend to fifty thousand kyats or with both.<sup>38</sup>

Governments have a crucial role in the conservation of surface water, groundwater, and the mitigation of pollution from agricultural, industrial, and mining waste. The Government should instruct and inform the people to recognize and implement wastewater treatment strategies for water contamination.

### **Research Methods**

This study adopts a qualitative and analytical research approach to examine the legal framework governing control of water pollution in Myanmar, particularly in the sectors of agriculture, industry and mining. The research focuses on analysing existing laws, regulations and enforcement mechanisms. The study relies mainly on secondary sources and limited primary data. Primary data were collected from interviews and communications with the Administrator of Myintha Village Tract, Gangaw Township in Magway Region. Secondary data were obtained from academic literature, government publications, journal articles and newspaper like the Myanmar Times and the Irrawaddy and official report issued by the Ministry of Natural Resources and Environmental Conservation.

### **Research Questions**

1. Why is water pollution increasing around the world?
2. What legal protections exist to prevent water pollution?
3. How should water pollution be reduced?

### **Research Findings**

A primary cause of water contamination in Myanmar is the populace's inadequate comprehension of its detrimental effects. Consequently, national awareness of water contamination and its ramifications could be enhanced. The issue of water contamination stems from the inadequate enforcement of current rules and regulations designed to mitigate it. Myanmar lacks a dedicated law for the control of water pollution pertaining to agriculture, mining, and industry. Myanmar must implement measures to regulate water pollution. Citizens of Myanmar must adhere to the laws and regulations established by the Government for the reduction and control of water pollution. The Environmental Impact Assessment (EIA) must be conducted systematically, adhering to pertinent guidelines and regulations.

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<sup>38</sup> Section 277, the Law Amending the Penal Code, 2016.

## **Conclusion**

Pollution of water from agriculture, industries and mines wastewater has been taken up in recent years. Thus, the Government of Myanmar enacted the “Environmental Conservation Law” in 2012. In Myanmar, water pollution can be occurred by the agriculture, industry, and mining. In this water pollution, they occur in the respective in various types of water pollution. This water pollution can affect not only health of human beings but also the environment. Therefore, the Government and Respective Authority, and the people need to control the water pollution. Water pollution occurs when unwanted materials enter into water, changes the quality of water and harmful to environment and human health. The impact of agriculture on surface and groundwater is determined as negative. Agricultural pollution is the main important for the economic growth and development of a society and it can also be harmful to the environment. Mine can pollute drinking water and harm wildlife and habitat. Mines are responsible for significant environmental damage throughout the world. Chemicals from agriculture, industry and mining and trash dumping can also make people's water unsafe and cause illness such as skin rashes, cancers and other serious health problems. Reducing to hazardous chemicals from agriculture, industry and mining play an important role in Myanmar. Cooperation of men, social organizations, national government and non-governmental organizations need for control of water pollution through different curative measures. The government should also take reasonable steps for control of water pollution.

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