



TRƯỜNG ĐẠI HỌC HÀNG HẢI VIỆT NAM
VIỆN MÔI TRƯỜNG

ENVIRONMENTAL LAW AND POLICY

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Lecture 3. CONTINENTAL WATER RESOURCE

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Major content

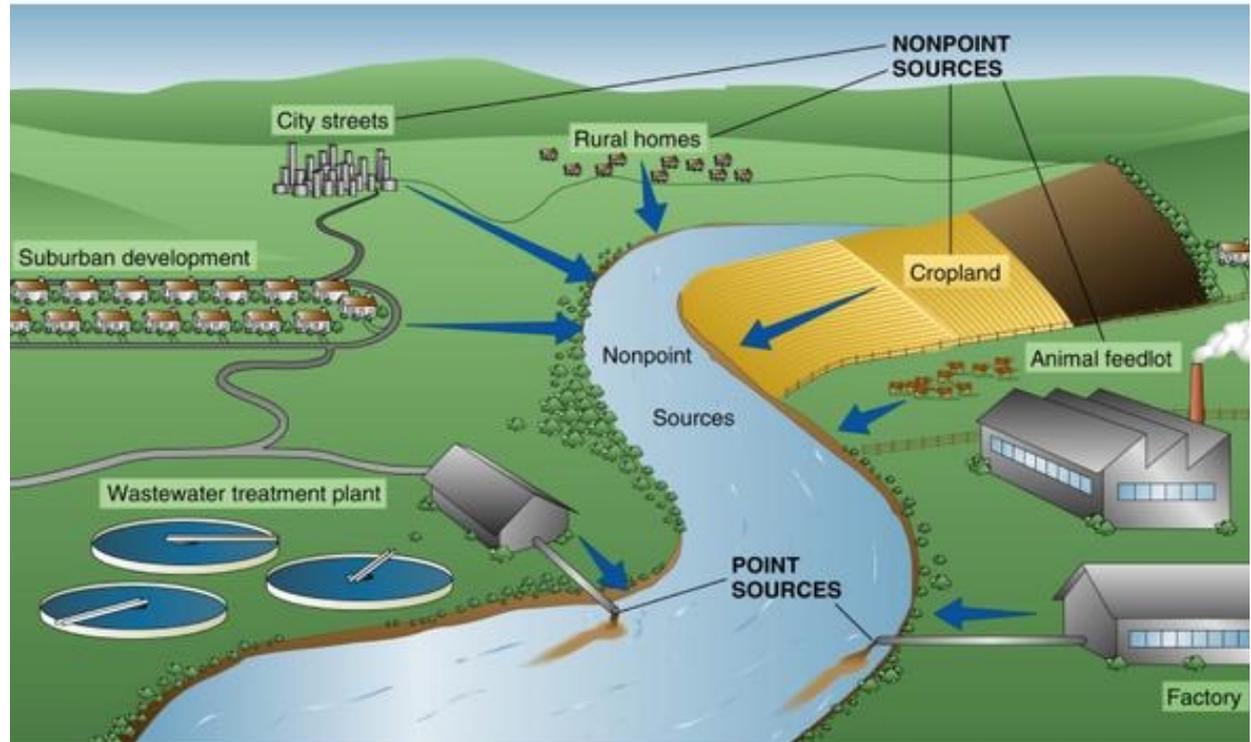
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1. An overview of water pollution
2. National legislation on water pollution
3. Convention on the Law of the Non-navigational Uses of International Watercourses

Point sources:

Many factories, commercial facilities, and sewage treatment works discharge sludge and other effluents directly into waterways.

These sources are known as point sources because they typically dump pollution into the waterway at a particular point along its shore through a pipe or channel.



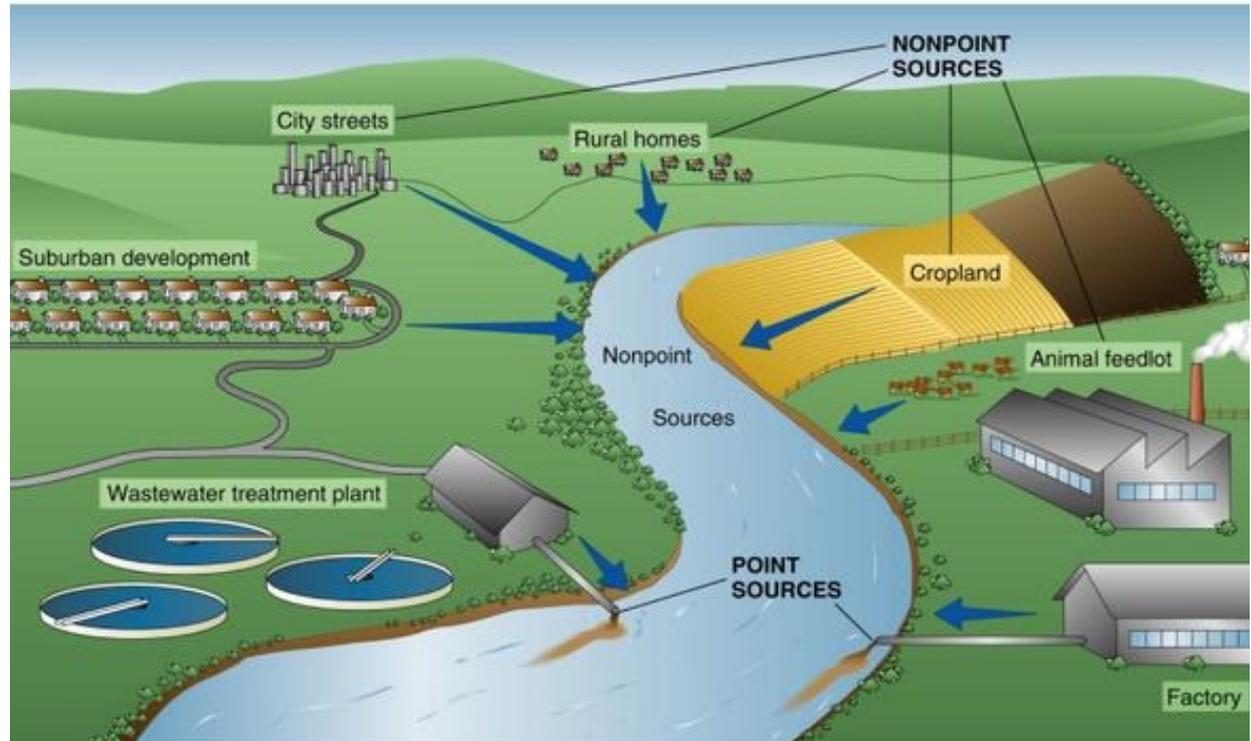
1. An overview of water pollution

Nonpoint sources:

Much of today's water pollution comes from farms, mines, construction sites, parking lots, and other land use.

Rain and snow may pick up soil from parking lots, debris from construction sites, or tailings from mines before flowing into local watercourses → diffuse runoff.

Storm sewers often collect such runoff from urban land, streets, and then convey the runoff to a waterway.



1. An overview of water pollution

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SOURCES OF CONTINENTAL WATER POLLUTION

- Few regulation has been issued to reduce nonpoint pollution.
 - → Agriculture is today the primary source of water pollution in rivers, streams, and lakes.
 - → Urban runoff is also a major contributor to river pollution.
- Air pollution is the major source of water impairment in the lakes and estuaries.
 - Pollutants can blow miles away from their source and then settle into local waterways.
 - Moisture in the atmosphere also can pick up or combine with air pollutants and then deposit the pollution as rain or snow into waterways or onto land where it again can run off into waterways.

1. An overview of water pollution

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- Dams can change the quality of downstream waters
 - Water releases from dams sometimes are low in dissolved oxygen, reducing the ability of the water to break down organic materials and other pollutants.
 - In other cases, the water released from dams can become “supersaturated” as it mixes with air, killing fish.
 - Water released from the lower “hypolimnion” layer (the lower layer of water in a stratified lake, typically cooler than the water above and relatively stagnant) of a reservoir can contain overly high concentration of various minerals and nutrients that can again harm fish, reduce the palatability of drinking water, and increase plant growth.
 - Water released from the upper “epilimnion” (the upper layer of water in a stratified lake) can be warmer than the natural river and injure or kill cold-water fish.
- Water pollution can arise naturally (Many rivers and lakes are naturally salty).

1. An overview of water pollution

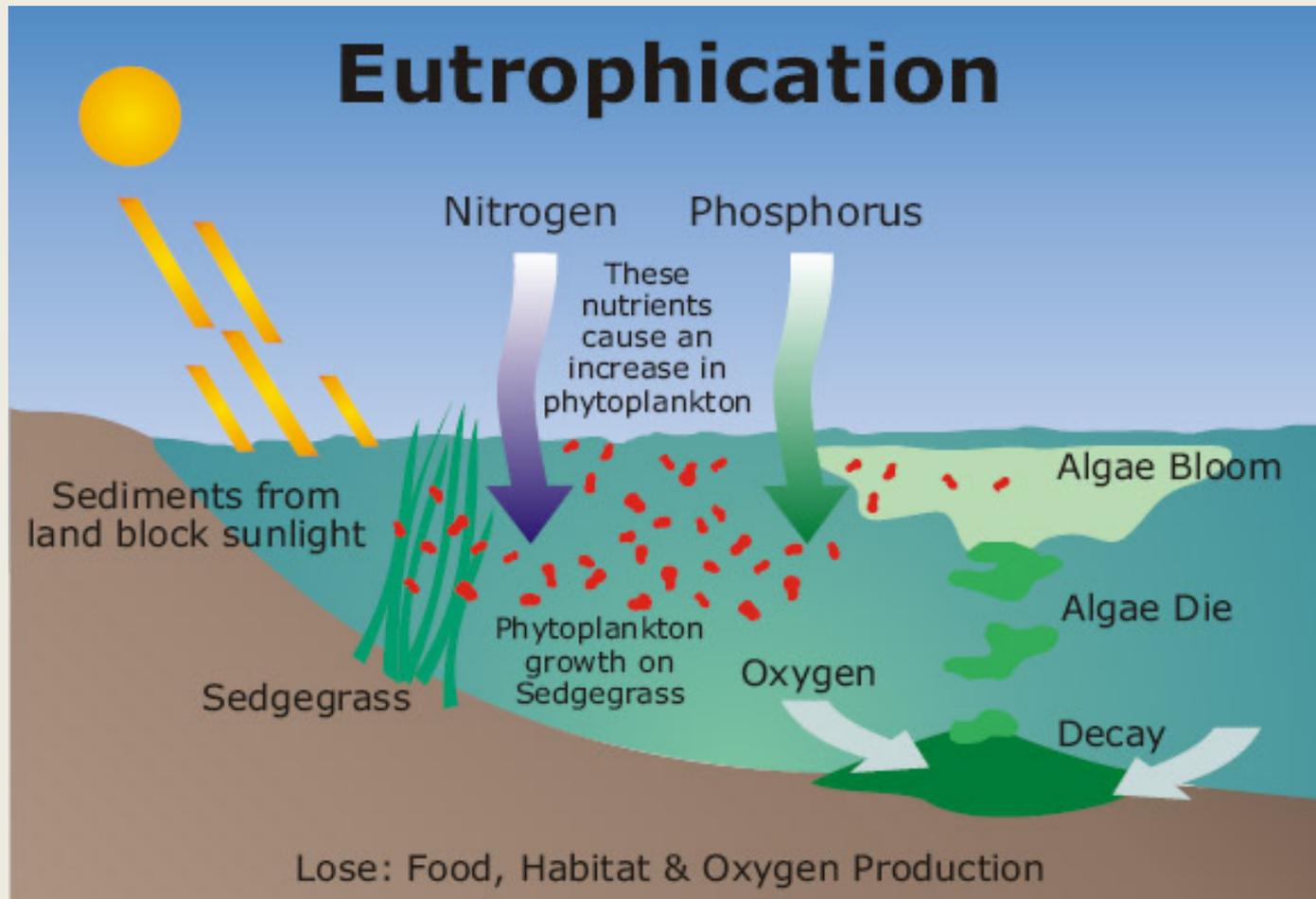
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EUTROPHICATION

- Eutrophication is characterized by excessive plant and algal growth due to the increased availability of one or more limiting growth factors needed for photosynthesis (Schindler 2006), such as sunlight, carbon dioxide, and nutrient fertilizers .
 - Occurs naturally as lakes are filled with sediments.
 - Caused by human through point source and nonpoint source of nutrients containing Nitrogen and phosphorus.
 - From agriculture activities (fish farming, excessive use of fertilizers), industry, sewage disposal, etc.

1. An overview of water pollution

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1. An overview of water pollution

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- Effects of eutrophication:
 - the creation of dense blooms of noxious, foul-smelling phytoplankton that reduce water clarity and harm water quality.
 - Algal blooms limit light penetration, reducing growth and causing die-offs of plants in littoral zones while also lowering the success of predators that need light to pursue and catch prey.
 - high rates of photosynthesis associated with eutrophication can deplete dissolved inorganic carbon and raise pH to extreme levels during the day → 'blind' organisms.
 - When these dense algal blooms die, microbial decomposition severely depletes dissolved oxygen, creating a hypoxic or anoxic 'dead zone' lacking sufficient oxygen to support most organisms.
 - Hypoxia (needs a little O_2) and anoxia (needs no O_2) as a result of eutrophication continue to threaten lucrative commercial and recreational fisheries worldwide.
 - Some algal blooms pose an additional threat because they produce noxious toxins.

1. An overview of water pollution

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- Strategies to control eutrophication:
 - (1) diversion of excess nutrients (Edmondson 1970),
 - (2) altering nutrient ratios (Downing et al. 2001),
 - (3) physical mixing (Huisman et al. 2004),
 - (4) shading water bodies with opaque liners or water-based stains, and
 - (5) application of potent algaecides and herbicides.
- In general, these strategies have proven to be ineffective, costly, and/or impractical, especially for large, complex ecosystems.
- Alternative: biomanipulation - the alteration of a food web to restore ecosystem health (removal of secondary consumers or introduction of tertiary consumer).



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2. National legislation on water pollution

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- In the USA: Clean Water and Safe Drinking Water Acts in the 1970s.
- In Vietnam: Environmental Protection Law (2014).

Discussion

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HOW TO DEAL WITH INTERSTATE POLLUTION?

- How to regulate?
- How to apply?

The 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses is the only treaty governing shared freshwater resources that is of universal applicability.

It is a framework convention, in the sense that it provides a framework of principles and rules that may be applied and adjusted to suit the characteristics of particular international watercourses.



3. Convention on the Law of the Non-navigational Uses of International Watercourses

The convention was negotiated in the Sixth Committee, convening for this purpose as a “Working Group of the Whole” as contemplated by the Assembly’s 1994 resolution.

The Convention was concluded on 21 May 1997, as an annex to General Assembly resolution 51/229.



3. Convention on the Law of the Non-navigational Uses of International Watercourses

Summary of the Convention's Key Provisions

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- The Convention contains 37 articles arranged in seven parts:
 - Part I. Introduction;
 - Part II. General principles;
 - Part III. Planned measures;
 - Part IV. Protection, preservation and management;
 - Part V. Harmful conditions and emergency situations;
 - Part VI. Miscellaneous provisions; and
 - Part VII. Final clauses.
- An annex to the Convention sets forth procedures to be followed in the event that States have agreed to submit a dispute to arbitration.

Summary of the Convention's Key Provisions

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- Part I contains the definition of the expression “international watercourse,” which is obviously of central importance. Article 2 defines the term “*watercourse*” broadly as “*a system of surface waters and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus*”.
- It will be noted that, importantly, this definition includes groundwater that is hydrologically connected with surface water, which is in fact the case for much of the world’s groundwater. The expression “international watercourse” is then defined as “a watercourse, parts of which are situated in different States”.

Summary of the Convention's Key Provisions

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- Article 5, contained in Part II, reflects the principle that is widely regarded as the cornerstone of the Convention, and indeed the law in the field: equitable and reasonable utilization and participation.
- It requires that a State sharing an international watercourse with other States utilize the watercourse, in its territory, in a manner that is equitable and reasonable to the other States sharing it.
- In order to ensure that their utilization of an international watercourse is equitable and reasonable, States are to take into account all relevant factors and circumstances.
- Article 5 also sets forth the principle of equitable participation. According to this principle, States are to “participate in the use, development and protection of an international watercourse in an equitable and reasonable manner”.
- Thus, affirmative conduct may be required by this principle, which is a further elaboration of the implications of equitable and reasonable utilization.

Summary of the Convention's Key Provisions

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- Another key provision of the Convention is article 7 (Obligation not to cause significant harm). This article requires that States “take all appropriate measures to prevent the causing of significant harm” to other States sharing an international watercourse.
- While there has been debate, both in the negotiation of the Convention and in the literature, about the relationship between the principles set forth in articles 5 and 7, the two are best seen as being complementary. The two articles work in tandem in the following way: if a State believes it has sustained significant harm due to a co-riparian State’s use of an international watercourse, it will ordinarily raise the issue with the second State.
- In the negotiations that follow, articles 5, 6 and 7 in effect provide that the objective is to reach a solution that is equitable and reasonable with regard to both States’ uses of the watercourse and the benefits they derive from it. The possibility that the solution may include the payment of compensation, to achieve an equitable balance of uses and benefits, is not excluded.

Summary of the Convention's Key Provisions

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- Part III of the Convention sets forth the principle of prior notification of planned measures and elaborates in some detail on the various aspects of that obligation.
- The essence of the principle is that if a project or other measures are planned in a State and those measures may have a significant adverse effect upon another State or States sharing an international watercourse, the State in which the measures are planned must provide timely notification to the other States of the plans.
- If the notified States believe the planned measures would be inconsistent with the requirements of articles 5 or 7, a process of consultations and, if necessary, negotiations follows which is intended to lead to an equitable resolution of the situation.

Summary of the Convention's Key Provisions

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- Part IV of the Convention deals with protection, preservation and management of international watercourses. It contains provisions on protection and preservation of watercourse ecosystems, prevention, reduction and control of pollution, and consultations concerning management of an international watercourse, among others.
- The importance of these provisions is perhaps obvious: watercourse ecosystems and watercourses themselves must be protected, preserved, and properly managed, if they are to support human and other forms of life.

The Influence of the Convention on Subsequent Legal Developments

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- The Convention and its preparatory work have had significant influence.
- In part because of its provenance, the Convention is widely viewed as a codification of customary international law with respect to at least three of the obligations it embodies, namely equitable and reasonable utilization, prevention of significant harm, and prior notification of planned measures.
- These and other provisions of the Convention have influenced the negotiation of treaties concerning international watercourses, as can readily be seen from even a cursory review of recent agreements, for example, the Revised Protocol on Shared Watercourses of the Southern African Development Community (SADC) of 7 August 2000.

Conclusion

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- The 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses represents an important contribution to the strengthening of the rule of law in this increasingly critical field of international relations and to the protection and preservation of international watercourses.
- In an era of increasing water scarcity, it is to be hoped that the Convention's influence will continue to grow.

Vietnam's participation into the Convention

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- Since April 2014, Vietnam has joined the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (based on Decision No. 818/2014/QĐ-CTN by the Prime Minister).
- Following this decision, Vietnam has made a declaration that the SR of Vietnam will select appropriate way in dealing with conflict without the dependence on decision of the other related States or a third party.
- Vietnam is the first member in ASEAN group to join the Convention and the 35th member of the Convention, which helps to put the Convention to work officially on August 17, 2014 (90 days after the participation of the 35th Parties).

Thanks for your listening

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ANY QUESTION?