

# **Toxic Threat in Asian Wetlands**

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**Abstract. Wetlands in Asian countries are under big toxic pressure. In these countries, many wetlands are connected to rice fields, which are the most polluted agricultural fields with different types of pesticides, fertilizers, etc. Wetlands are the most important habitat for nearly all species of birds. Hunting and game birds are under different big threats, and some of them are already extinct. Many wetlands in Middle Eastern countries are already dried up, contributing to the dust problem.**

**Keywords: Wetlands, Exposure, Toxic pollution, Pesticides, Birds.**

## **1. INTRODUCTION**

Expansion of industrialism, overpopulation and the occurrence of two World wars in 20th century were the main motivations for man to discover and make better killing agents resulting in high numbers/types of chemical agents (called chemical universe) to destroy mankind, nature and biodiversity. Due to the diverse numbers of pesticides/chemicals imported/produced in Asian countries, used without regulations and enforcement, people and the environment in these countries are more exposed to chemicals as compared to other parts of the world. Wetlands in Asian countries are now polluted with different source and non-source toxic polluting agents from rural/urban activities, so different species of birds are under big threats, some species are already extinct. In Asian countries, exposure to anthropogenic and geo-genic polluting factors is also higher. Many people suffer from iodine deficiencies and fluoride problems, more heavy metal exposure and big recent problems of E-waste, toxic trade, dust, polluted rice (different heavy metals) and polluted fish (Hg, PCBs and other pollutants). Now, dust containing different types of toxics is killing people in Middle Eastern countries.

## **2. TOXIC THREAT IN ASIAN WETLANDS, THREAT TO PEOPLE, BIRDS AND GENERAL BIODIVERSITY**

Many of the protected wetlands in the developing world, mainly in Asian countries, are closely connected to rice paddy waters. Rice paddy waters have been under the most pesticide and chemical fertilizer pressure for many years and most of the pesticides, fertilizers and their metabolites end up in the wetlands, due to high levels of ground water in these areas, along with stream connections. This situation results in fast disappears of different species of fish, beneficial predatory insect species, frogs, snakes and many other vital parts of these ecosystems, which results in decreasing levels of ecosystem services available to man. Now, pesticide/chemical residues and their metabolites are found in all corners of the planet in all habitats and niches including some top carnivore species like eagles, sea birds and sea mammals. Some are already extinct due to the pesticide/chemical pollution. When pesticides and chemical fertilizers enter natural ponds and wetlands, it creates a disastrous eutrophication load, which occurs in most of Asian countries, changing wetlands to lagoons. The situation of Anzali in Northern Iran by the Caspian is evidence for all these problems, and according to my last visit, some months ago the invasion of species like "water hyacinth" is taking over the place in nearby wetlands. In many Asian countries there are not active NGOs and community workers to make the people aware about their exposure to pesticides/chemicals and consequences, people to stand against these dangerous compounds and people will not let the corporations follow only their profits. According to my long research on toxicity assessment of different pesticides for different fish species, including gammarids (amphipods) of the Caspian Sea, we found lots of exposure to different pesticides. On my last visit to the lake Oroumyeh in North West of Iran a few months ago I found a tragic situation observing a dried lake instead of a viable one, the second biggest salt lake in the world, please see pictures below.

### 3. RESULTS AND DISCUSSIONS AND CONCLUSIONS

We do have to bear in mind that toxic threats to birds and fish were the main motivations for Rachel Carson to start the whole story of environmentalism about 60 years ago. Since then, environmentalism has become an inseparable part of the lives of every person on the planet. The most direct use of Persistent Organic Pollutants (POPs) has already been stopped, but lots of them are still in nature, intoxicating all habitats and niches. The metabolites are the worst and big threats from new, sophisticated toxic agents like Neonicotinoids. So less and less cohort development for birds is happening and one of the most socially coevolved creatures on the planet, the honey bees are going extinct. Unfortunately in most Asian developing countries, due to the overpopulation, poverty, bad consumption habits; nobody cares about these threats, and many big wetlands in Middle Eastern countries are already dried up, with more dying and contributing to the big dust problem. Some dangerous properties of organochlorine compounds including POPs and their metabolites are: long persistency, bioaccumulation, sequestration, biomagnifications and in general, their incompatibility with nature and life, results in extinction of some important top carnivore species due to their inability to hold an offspring cohorts, even in protected areas. Finally, the beautiful process of evolution and coevolution are responsible for speciation of birds, other life, is not only stopping but going backward.



**Figure 1 : Oroumyeh Lake, Iran, 1984 to 2012**

#### Acknowledgements

I hereby thank Dr. Sarantuyaa Zandaryaa, PhD, Programme Specialist, Division of Water Sciences, International Hydrological Programme (IHP), Natural Sciences Sector, UNESCO, Paris, France; And Professor Yosuke Alexandre Yamashiki, Dr. Eng., Graduate School of Advanced Integrated Studies in Human Survivability (GSAIS), Kyoto University, Japan, their colleagues and other organizers for providing generous financial assistance for my travel and participation in the: UNESCO INTERNATIONAL SCIENTIFIC SYMPOSIUM, Scientific, Technological and Policy Innovations for Improved Water Quality, Monitoring in the Post-2015 SDGs Framework, Hosted by Kyoto University And Lake Biwa Environmental Research Institute – LBERI, Organized under UNESCO-IHP International Initiative on Water Quality – IIWQ.

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