

HIGHLY HAZARDOUS PESTICIDES (HHPs)

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According to The International Code of Conduct the term ‘hazard’ is defined as: ‘‘Hazard means the inherent property of a substance, agent or situation having the potential to cause undesirable consequences’’. **Pesticides are chemical substances designed to kill**, reduce or repel insects, weeds, rodents, fungi, and other organisms that can threaten public health and national economies. However, use of these chemical agents can also harm humans, other organisms and the environment. In the present time, probably the immediate response to the need for increasing production of food is a more intensive use of agrochemicals. Agrochemicals include two large groups of compounds: chemical fertilizers and pesticides. The use of chemical fertilizers tremendously increased worldwide since the 1960s and largely was responsible for the ‘‘green revolution’’, i.e. the massive increase in production obtained from the same surface of land with the help of mineral fertilizers (nitrogen, phosphorus, potassium) and intensive irrigation.

The use of pesticides, including insecticides, fungicides, herbicides, rodenticides, etc., to protect crops from pests, allowed to significantly reduce the losses and to improve the yield of crops such as corn, maize, vegetables, potatoes, cotton, as well as to protect cattle from diseases and ticks and to protect humans from malaria vectors. The world has known a continuous growth of pesticide usage, both in number of chemicals and quantities, sprayed over the fields. Most pesticides are chemical substances which may be extracted from plants or may be ‘synthetic’. Pesticides are poisons intentionally dispersed in the environment to control pests, but they also act upon other species causing serious side effects on non-target species. Residues of pesticides contaminate soils and water, remain in the crops, enter the food chain, and finally are ingested by humans with foodstuffs and water.



Moving to the term highly hazardous pesticides, these include all the major pesticides that are presently known to cause high level of acute or chronic human health issues as well as are immensely threatening to the environment and its components like contamination of water resources and soils, toxicity to non-target organisms that leading to disruption of ecosystem functions, such as pollination or natural pest suppression, according to internationally accepted classification systems such as or their listing in relevant binding international agreements or conventions. The WHO (World Health Organization) or GHS (Globally Harmonized System of Classification and Labelling of Chemicals) term may also include the pesticides that appear to cause severe and irreversible health harms.

A considerable proportion of pesticides still being used in our country can be considered as highly hazardous, based upon their high toxicity inspite of very low levels of exposure or their persistence and dissipation behaviours. The major and most common examples included are Carbosulfan, Chlordimeform, Chlorpropham, Clopyralid, Cyhalothrin, Fenothiocarb, Fenpropidin, Glufosinate-ammonium, Cyproconazole, Noviflumuron, Flufenoxuron, Calcium cyanide, Flupyradifurone, Propiconazole, Propineb, Sodium cyanide, Tioxafen, Chlorantraniliprole, and many more.

HOW TO RECOGNIZE THEM AND HOW MANY PESTICIDES ARE ACTUALLY HIGHLY HAZARDOUS

Officially, there is no proper list of HHPs. While, the Joint FAO/WHO meeting on Pesticide Management held in 2007, developed **eight criteria**.

Criteria 1: Pesticide formulations that meet the criteria of classes Ia or Ib of the WHO Recommended Classification of Pesticides by Hazard; or

Criteria 2: Pesticide active ingredients and their formulations that meet the criteria for category 1A and 1B carcinogens as used by the Globally Harmonized System (GHS) on chemicals classification and labelling; or

Criteria 3: Pesticide active ingredients and their formulations that meet the criteria for category 1A and 1B mutagens as used by the Globally Harmonized System (GHS) on



chemicals classification and labelling; or

Criteria 4: Pesticide active ingredients and their formulations that meet the criteria for category 1A and 1B reproductive toxicity as used by the Globally Harmonized System (GHS) on chemicals classification and labelling; or

Criteria 5: Pesticide active ingredients listed in Annexes A and B of the Stockholm Convention on persistent organic pollutants (POPs), and those meeting all the criteria in paragraph 1 of Annex D

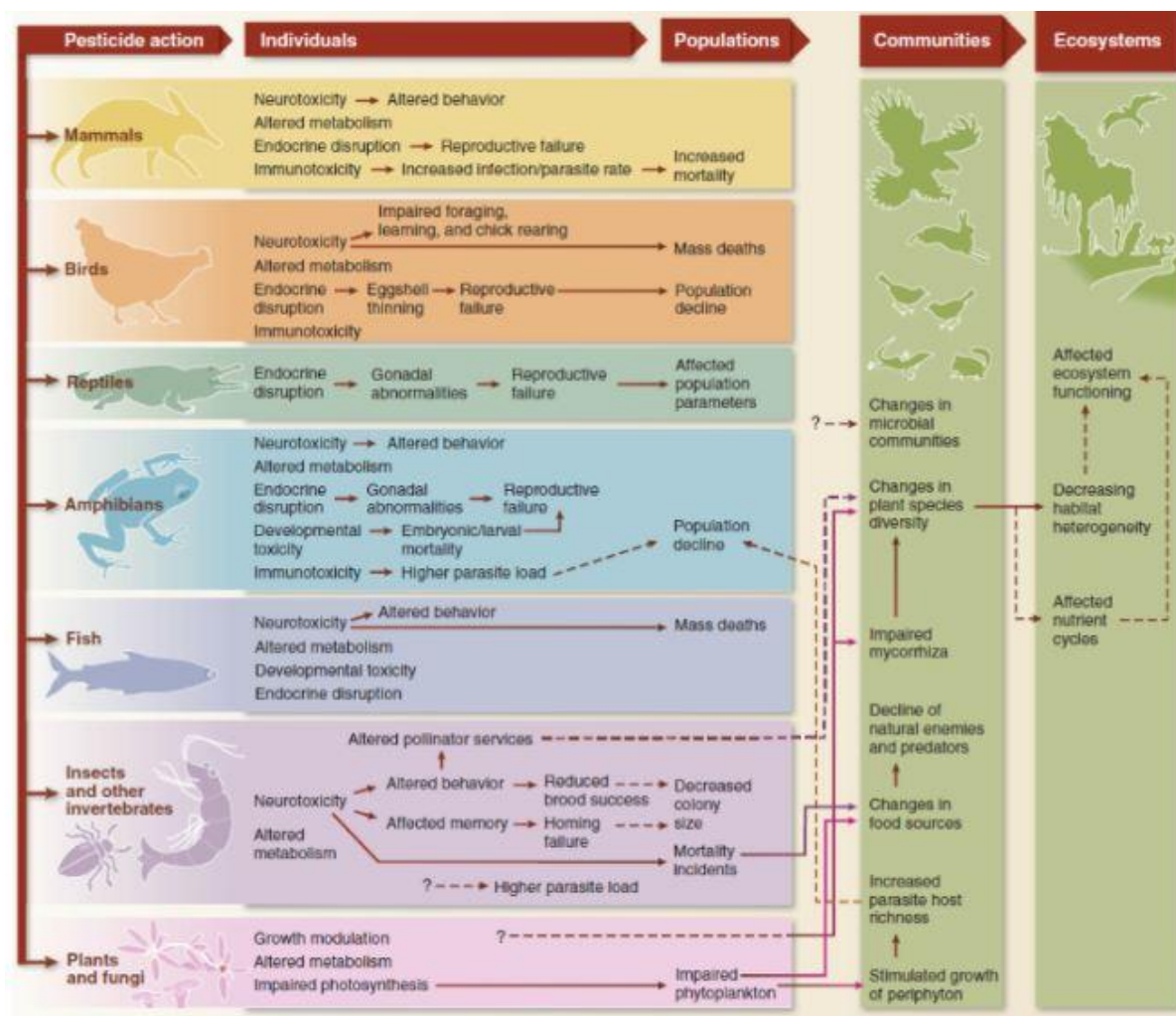
Criteria 6: Pesticide active ingredients and formulations listed in Annex III of the Rotterdam Convention on the prior informed consent procedure; or

Criteria 7: pesticides listed under the Montreal Protocol on ozone-depleting substances; or

Criteria 8: Pesticide active ingredients and formulations that have a high incidence of severe or irreversible adverse effects on human health or the environment.

ENVIRONMENTAL HAZARDS ASSOCIATED

The environment amalgamates entire living and non-living things that covers us, consisting the air, water, plants, soil and wildlife. Wildlife includes but is not limited to bees, birds, small mammals, fish, other aquatic organisms, and the biota within soil. The influence of pesticides on wildlife are extensive, and expose animals in urban, suburban and rural areas to accidental as well as unneeded risks. Wildlife can be impacted by pesticides through, direct or indirect modes of applications. Pesticide drift, secondary poisoning, runoff into local water bodies, and groundwater contamination probable hazards can be observed.



The figure above shows the documented pesticide effects on wildlife at different levels of biological organizations and known (solid arrows) or evidence-supported, anticipated (dashed arrows) interrelations among them.

Some animals could be affected by direct spray, while others may consume plants or prey already exposed to pesticides. A phase-out and ban of HHPs, along with new policies to support more sustainable alternatives, can make a change towards a healthy and sustainable world for all.