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## **Humans must change behaviour to save bees, vital for food production – UN report**



Bees under bombardment: new report shows multiple factors behind pollinator losses

10 March 2011 – The potentially disastrous decline in bees, a vital pollinating element in food production for the growing global population, is likely to continue unless humans profoundly change their ways, from the use of insecticides to air pollution, according to a United Nations report released today.

“The way humanity manages or mismanages its nature-based assets, including pollinators, will in part define our collective future in the 21st century,” UN Environment Programme ([UNEP](#)) Executive Director Achim Steiner [said](#). “The fact is that of the 100 crop species that provide 90 per cent of the world’s food, over 70 are pollinated by bees.”

But bee colonies have been collapsing in many parts of the globe, and the report – Global Bee Colony Disorders and other Threats to Insect Pollinators – cites more than a dozen potential factors ranging from declines in flowering plants and the use of memory-damaging insecticides to the worldwide spread of pests and air pollution. It urges that farmers be offered incentives to restore pollinator-friendly habitats such as flowering plants next to crop-producing fields.

“Human beings have fabricated the illusion that in the 21st century they have the technological prowess to be independent of nature. Bees underline the reality that we are more, not less, dependent on nature’s services in a world of close to 7 billion people,” Mr. Steiner said, calling on the world to factor in the often invisible multi-trillion dollar services provided by nature.

Listing the dangerous factors, the UNEP report notes that new kinds of virulent fungal pathogens that can be deadly to bees and other pollinators are now showing up worldwide, migrating from one region to another due to shipments linked to globalization and rapidly growing international trade.

At the same time, some 20,000 flowering plant species upon which many bee species depend for food could be lost over the coming decades without greater conservation efforts. An Anglo-Dutch study has found that since the 1980s, there has been a 70 per cent drop in key wildflowers among them the mint, pea and perennial herb families.

Meanwhile the increasing use of chemicals in agriculture is being found to damage bees, weakening their immune systems, with laboratory studies showing that some insecticides and fungicides can act together to be 1,000 times more toxic to bees. They can also affect the sense of direction, memory and brain metabolism, and herbicides and pesticides may reduce the availability of plants bees need for food and for the larval stages of some pollinators.

Air pollution, too, may be interfering with the ability of bees to find flowering plants and thus food, with scents that could travel over 800 metres in the 1800s now reaching less than 200 metres from a plant. Electromagnetic fields from sources such as power lines might also be changing the behaviour of bees who are sensitive as they have small abdominal crystals that contain lead.

Another factor concerns parasites and pests, such as the Varroa mite which feeds on bee fluids, and the small hive beetle, which damages honeycombs, stored honey and pollen. Endemic to sub-Saharan Africa, it has spread to North America and Australia and is expected to reach Europe.

Bees may also be suffering from competition by “alien species” such as the Africanized bee in the United States and the Asian hornet which feed on European honey bees. The hornet has now colonized nearly half of France since 2004.

Looming over all this is climate change which, left unaddressed, may aggravate the situation in various ways, including by changing the flowering times of plants and shifting rainfall patterns, in turn affecting the quality and quantity of nectar supplies.

Declines in managed bee colonies date back to the mid-1960s in Europe but have accelerated since 1998, especially in Belgium, France, Germany, Italy, the Netherlands, Spain and the United Kingdom.

In North America, losses of honey bee colonies since 2004 have left the continent with fewer managed pollinators than at any time in the past 50 years, while Chinese beekeepers have recently faced several inexplicable and complex symptoms of colony losses and a quarter of beekeepers in Japan have recently been confronted with sudden losses of their colonies.

In Africa, Egyptian beekeepers along the Nile river have reported signs of colony collapse although there are no other confirmed reports from the rest of the continent so far.

As the world prepares for Rio+20, the meeting in Rio de Janeiro, Brazil, next year marking the 20th anniversary of the Rio Earth Summit, and seeks to ramp up international efforts for a green economy and sustainable development, Mr. Steiner called for investment and re-investment in nature-based services, from forests and freshwaters to flower meadows and coral reefs.

“Rio+20 is an opportunity to move beyond narrow definitions of wealth and to bring the often invisible, multi-trillion dollar services of nature, including pollination from insects such as bees, into national and global accounts,” he said.

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