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Regional and Global Impacts of Vast Pollution Cloud Detailed in New Scientific Study

Growing Threats to Food Security and Human Health in South Asia Challenges World Leaders at World Summit on Sustainable Development

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London/Nairobi/Paris, 12 August 2002 - A vast blanket of pollution stretching across South Asia is damaging agriculture, modifying rainfall patterns including those of the mighty Monsoon and putting hundreds of thousands of people at risk a new study suggests.

The findings, by scientists working with the United Nations Environment Programme (UNEP), indicate that the spectacular economic growth seen in this part of the world in the past decade may soon falter as a result of the "Asian Brown Haze".

Vital follow up studies are needed to unravel the precise role this three kilometre-deep pollution blanket may be having on the region's climate and the world's.

But the preliminary results indicate that the build up of the haze, a mass of ash, acids, aerosols and other particles, is disrupting weather systems including rainfall and wind patterns and triggering droughts in Western parts of the Asian Continent.

The concern is that the regional and global impacts of the haze are set to intensify over the next 30 years as the population of the Asian region rises to an estimated five billion people.

Klaus Toepfer, Executive Director of UNEP, told a press conference in London where the report was launched, that action was needed to have a better understanding of the scientific complexities of the phenomenon as well as measures to reduce the haze.

“The haze is the result of forest fires, the burning of agricultural wastes, dramatic increases in the burning of fossil fuels in vehicles, industries and power stations and emissions from millions of inefficient cookers burning wood, cow dung and other ‘bio fuels’,” he said.

“More research is needed, but these initial findings clearly indicate that this growing cocktail of soot, particles, aerosols and other pollutants are becoming a major environmental hazard for Asia. There are also global implications not least because a pollution parcel like this, which stretches three kilometres high, can travel half way round the globe in a week,” said Mr Toepfer.

“We stand on the eve of the World Summit on Sustainable Development (WSSD) which opens in Johannesburg on 26 August and comes ten years after the Rio Earth Summit of 1992. The huge pollution problems emerging in Asia encapsulate the threats and challenges that the summit needs to urgently address. These are how to achieve economic growth without sacrificing the long-term health and natural wealth of the planet. We have the initial findings, and the technological and financial resources available, let’s now develop the science and find the political and moral will to achieve this for the sake of Asia, for the sake of the world,” he added.

The findings on the Asian Brown Cloud have come from observations gathered by 200 scientists working on the Indian Ocean Experiment (INDOEX) supplemented by new satellite readings and computer modelling.

The UNEP Scientific Panel who have produced the new report are leading academics in the field and include Professor V. Ramanathan of the Scripps Institute of Oceanography, in the United States, Nobel laureate Paul Crutzen of the Max-Planck Institute for Chemistry in Germany and A. P. Mitra of the National Physical Laboratory in India.

The researchers have looked broadly at the impacts of the haze on the region’s climate, rainfall, human health and agriculture. The research is also trying to unravel links between the haze and its impacts on global warming.

The Main Findings

The haze appears to be having significant impacts on the **climate and weather patterns** of the region. This blanket of pollution is reducing the amount of sunlight or solar energy hitting the Earth’s surface by as much as 10 to 15 per cent.

Meanwhile, its heat absorbing properties are estimated to be warming the lower parts of the atmosphere considerably.

This combination of surface cooling and lower atmosphere heating appears to be altering the winter monsoon leading to a sharp fall in rainfall over north-western parts of Asia

and increase of rainfall along the eastern coast of Asia. However, the regional details of the predicted changes need to be verified with more comprehensive regional models and regional aerosol and climate observations.

The global models used in the report suggest that the haze may reduce precipitation over North West India, Pakistan, Afghanistan, western China and the neighbouring western central Asian region by between 20 per cent and 40 per cent.

“One should note recent conditions,” says the report, “there have been two consecutive droughts in 1999 and 2000 in Pakistan and the north western parts of India while increased flooding in the high rainfall areas of Bangladesh, Nepal and the north eastern states of India”.

“For Bangladesh, there have been severe floods at intervals of seven to 10 years, the recent floods occurring in 1988 and 1998. During the 1998 flood, as much as two thirds of the land area was inundated and nearly 1.6 million hectares of cropland was damaged,” it adds.

The aerosols and particles in the haze are also affecting rainfall in other ways. Raindrops are becoming smaller and more numerous triggering less frequent rainfall and longer-lived clouds. One potential consequence is to move precipitation away from populated regions.

A 10 per cent reduction in the levels of solar energy hitting the region’s oceans in turn reduces the evaporation of the moisture which controls summer rainfall.

The reduction in sunlight may be having significant impacts on **agriculture**, the UNEP report says.

Research carried out in India indicates that the haze may be reducing the winter rice harvests by as much as 10 per cent.

Acids in the haze may, by falling as acid rain, have the potential to damage crops and trees. Ash falling on leaves can aggravate the impacts of reduced sunlight on the Earth’s surface.

The pollution that is forming the haze could be leading to “several hundreds of thousands” of premature deaths as a result of higher levels of **respiratory diseases**, the report suggests.

Studies indicate that the level of fatalities is rising along with the levels of pollution.

Results from seven cities in India alone, including Ahmedabad, Kolkata, Delhi and Mumbai, estimate that some kinds of air pollution were annually responsible for 24,000 in the early 1990s. By the mid-1990s they resulted in an estimated 37,000 premature fatalities.

While this study focuses on the impacts on South Asia, the haze problem is comparable, if not more severe, in South East and east Asia including China.

The scientists are calling for an action plan to address the threats across Asia as a whole. The Project Asian Brown Cloud aims to establish observatories to study the haze as well as study the impacts on agricultural, health and water budget.

It is hoped that such as project will not only shed more light on the complex science linking pollution hazes in the region with issues such as global warming, but also help policy makers plan strategies that will help reduce pollution and ensure the sustainability of the impressive economic growth rates in the region.

Notes to Editors; The South Asian region includes the countries of Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka .

The “Asian Brown Cloud:Climate and Other Environmental Impacts” is a UNEP Assessment Report.

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A copy of the report is available at www.rrcap.unep.org/abc/impactstudy/

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