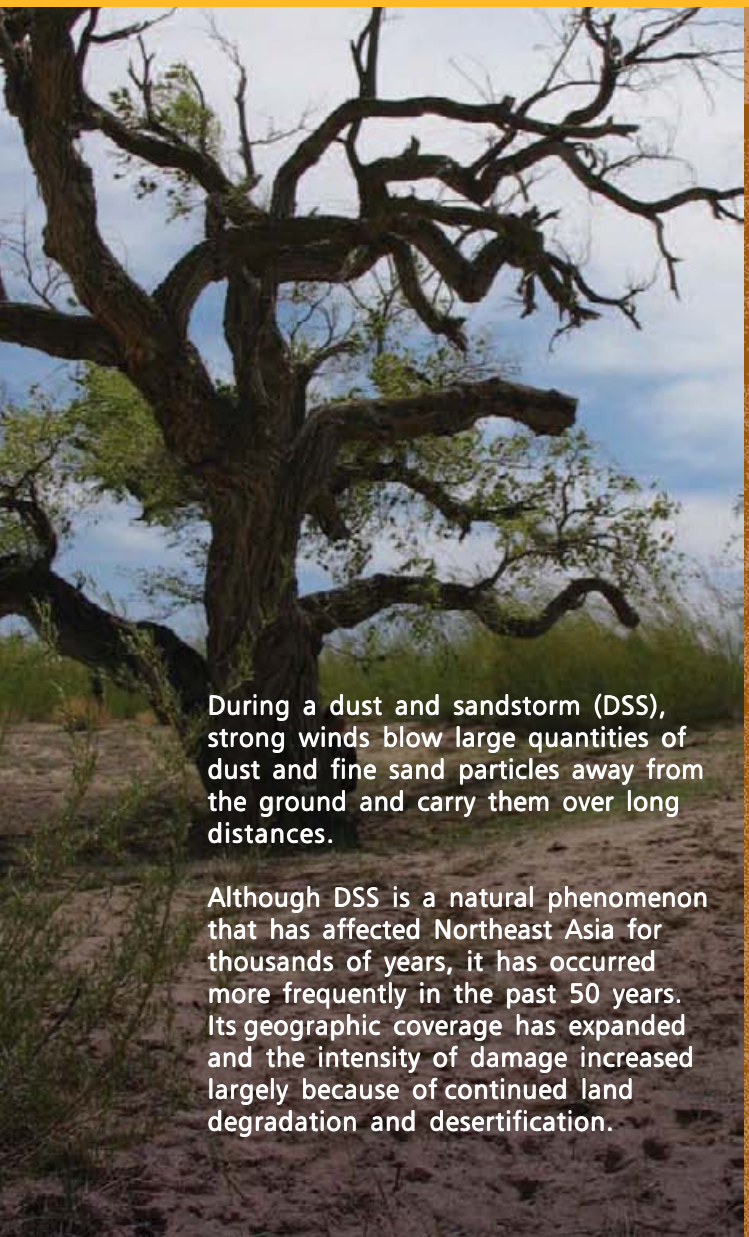
# Prevention and Control of Dust and Sandstorms in Northeast Asia



During a dust and sandstorm (DSS), strong winds blow large quantities of dust and fine sand particles away from the ground and carry them over long distances.

Although DSS is a natural phenomenon that has affected Northeast Asia for thousands of years, it has occurred more frequently in the past 50 years. Its geographic coverage has expanded and the intensity of damage increased largely because of continued land degradation and desertification.

The desert and semi-desert areas of the People's Republic of China (PRC) and Mongolia are the major sources of DSS in Asia.

DSS has become a severe social-environmental phenomenon in countries across Northeast Asia. The impacts of DSS, a transboundary problem, are not limited to the countries of origin. DSS causes considerable hardship and loss of income, disrupts communications, and presents serious public health problems. In extreme cases, it causes death, extensive destruction of livestock and crops, and damaged ecosystems.

The countries of PRC, Japan, Republic of Korea, and Mongolia sought assistance from the Asian Development Bank (ADB) in addressing DSS. Considering its transboundary nature, DSS can most effectively be solved through regional cooperation. Much more can be achieved if all affected countries coordinate joint interventions rather than act alone.

After a series of consultations and a fact-finding mission, ADB approved in December 2002 a regional technical assistance (RETA) project for the Prevention and Control of Dust and Sandstorms in Northeast Asia. ADB, through the Japan Special Fund from the Government of Japan, is cofinancing the project with the Global Environment Facility (GEF). Implementation began in March 2003.

All four ADB member countries participating in the RETA project— PRC, Japan, Republic of Korea, and Mongolia— represent major DSS originating and affected areas in Northeast Asia. Wind and weather patterns of DSS, however, may originate in the Russian Federation to the north and west, and in Kazakhstan to the west of the PRC and Mongolia with impacts that may be felt in North America.

The RETA project is implemented by ADB in collaboration with the United Nations Economic and Social Commission for Asia and Pacific (UNESCAP), the United Nations Convention to Combat Desertification Secretariat, and the United Nations Environment Programme (UNEP). A steering committee and three technical committees were formed. ADB is the executing agency and is responsible for overall management and administration.

**Objective:** Promote the establishment of a regional cooperation mechanism for the prevention and control of DSS in Northeast Asia

**Output:** A master plan to guide regional cooperation to alleviate DSS in Northeast Asia and an eight-party collaborative structure to facilitate the implementation of the master plan

The components of the regional master plan are

- a phased program to establish a regional monitoring and early warning network for DSS in Northeast Asia, and
- an investment strategy to strengthen mitigation measures to address root causes of DSS in source areas.

## Component 1
## Establishing a regional network for DSS monitoring and early warning

In Northeast Asia, countries affected by DSS have long been attempting to conduct DSS forecasting and early warning services. The PRC started its public forecasting and early warning services for severe DSS in 2001. The Republic of Korea did the same in 2002, Japan in early 2004, and Mongolia through its Meteorological Service is presently trying out similar public services.

Under the guidance and supervision of a technical committee chaired by UNEP, the first component of the master plan focuses on formulating a program to establish a regional network for monitoring and early warning against an occurrence of DSS. Through a regional monitoring network, early warning of impending DSS outbreaks can be significantly improved by sharing monitoring data and exchanging rolling assimilation on DSS progress and geographic extent.

To establish a regional DSS monitoring and early warning network, the following need to be addressed

- strengthening the monitoring capacity in two DSS source countries;
- establishing an institutional framework, technical standards, and operational procedure to guide data collection and sharing among the four partner countries; and
- improving the information flow for effective early warning services.

Short-term forecasting for early warning needs to be the initial focus. Long-term forecasting and expanding the network are the next steps. These fit into the overall proposal for developing the network.

## Component 2

## Preventing and controlling DSS through demonstration projects

The demonstration project approach was chosen because of the complexity associated with the DSS phenomenon. DSS is a nonpoint source of environmental concern that requires interventions and remedial measures on a scale commensurate with the DSS source areas through joint efforts of many stakeholders across different economic sectors. DSS impacts of various ground interventions need to be verified and evaluated before replication. Demonstration projects can be designed and programmed to suit diverse local conditions, operational requirements, and the availability of financial resources and implementation capacities. They can be a testing ground for evaluating the technical measures, innovative trials, and the institutional arrangements and policies advocated before implementing the proven effective interventions on a larger area.

This component of the master plan, formulated under the guidance and supervision of a technical committee chaired by UNESCAP, focused on

- selecting sites for nine demonstration projects (four in the PRC, four in Mongolia, and a subregional demonstration site that straddles the border of both countries);
- identifying best practices for demonstration projects for DSS prevention and control; and
- developing an investment strategy, including recommendations, on sustainable financing mechanisms for promoting and disseminating best practices in addressing the causes of DSS.

### Demonstrating and replicating DSS prevention and control

In consultation with the governments of the PRC and Mongolia, the following have been selected as focus areas for demonstration projects:

- **PRC:** Alashan, Ordos Plateau, Xilingol, and Hulunbuir, all located in the Inner Mongolia Autonomous Region along a 1,500-kilometer west-east transect in various environments in the DSS source areas. These areas represent four important grassland ecozones, i.e., Hulunbuir for mountainous meadow grasslands, Xilingol for typical grasslands, Ordos for dry grasslands, and Alashan for desert grasslands. The focus areas are degraded rangelands but damage is reversible, given appropriate measures and timely treatment.
- **Mongolia:** Ovorhangai, Omnogobi, Dornogobi, and Sukhbaatar, all located at the typical DSS originating source areas that often contribute to transboundary environmental effects of DSS across Northeast Asia.

- **Cross-Border Demonstration Focus Area** an area that is at the border region surrounding Erinhot on the PRC side and Zamiin Uud on the Mongolian side (or the Erinhot-Zamiin Uud focus area). This cross-border site may demonstrate and validate methodologies and approaches of coordinated cross-border interventions involving different stakeholders.

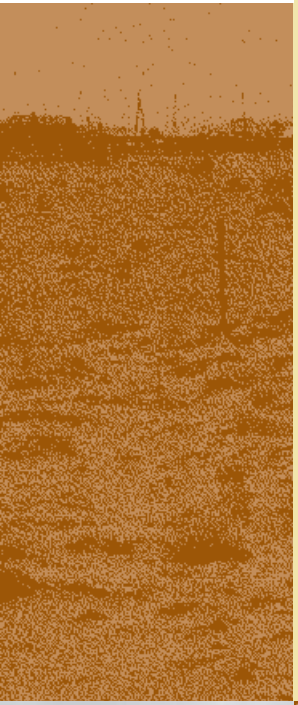
## Working for the future: an investment strategy to combat DSS

Preventing and controlling DSS is a long-term endeavor that requires firm commitment and massive investment.

Preliminary estimates of interventions at each focus area range from $3 million to over $22 million, but not all funds would need to be available at one time. The scale of the demonstration projects is flexible and can be tailored to preferences of development partners and availability of funds.

Project components can be funded as stand-alone measures or tackled through private sector partnership. Interested development partners may adopt some project components in their aid programs.

The establishment of a regional fund dedicated to preventing and controlling DSS has been discussed. This fund could receive contributions from the participating countries including private corporations, international funding agencies, and organizations.



**Available Reports**

Findings and recommendations of this collaborative regional technical assistance project have been endorsed by the steering committee in February 2005 and documented in a three-volume report published by ADB in October 2005 as follows:

- **Volume 1:** A Regional Master Plan for the Prevention and Control of Dust and Sandstorms in Northeast Asia
- **Volume 2:** Establishment of a Regional Monitoring and Early Warning Network for Dust and Sandstorms in Northeast Asia
- **Volume 3:** An Investment Strategy for the Prevention and Control of Dust and Sandstorms through Demonstration Projects

Volume 1 is also being translated into the local languages of the People's Republic of China, Japan, Republic of Korea, and Mongolia for publication and dissemination to stakeholders in these participating countries.

**For More Information**

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