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For More Information

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October 2005
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
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in Kazakhstan to the west of the PRC and Mongolia with impacts
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impacts. DSS impacts of various ground interventions need to be verified
for 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
cosmetic and effective measures are possible to protect the environment and public health.

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 procedures, including 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.

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

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 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
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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 1,300-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.

The desert and semi-desert areas of the People’s Republic of
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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 procedures, including 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.

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

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 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
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programmed to suit diverse local conditions, operational requirements, and the
availability of financial resources and implementation capacities. They can be a
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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
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• Mongolia: Ovorhangai, Omnogobi, Dornogobi, and Sukhbaatar—all located
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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 the 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 affected countries coordinate joint interventions rather than act alone.

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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 an eight-party collaborative structure to facilitate the implementation of the master plan.

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 institutional framework, technical standards, and operational procedures;
- Collecting 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.

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**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.

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October 2005

**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.
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