

## Foreword



In this fiscal year I would like to emphasize on the important achievements of the Arid Land Research Center (ALRC). The construction of the *Arid Land Dome* was completed in March 30, 1998; and its opening ceremony was held on June 13, 1998. The *Arid Land Dome* consists of a dome-shaped glasshouse, which has environment control system to simulate the climate of arid regions, and several attached facilities. The followings are some of the world's most advanced research equipment currently available at the ALRC:

*Real-time arid land field survey supporting system* for enhancing the accuracy of the arid land field survey abroad. Communicating color still pictures, voices and digital data between the ALRC and the field by means of communication satellite, the field survey are monitored and supported from the ALRC.

*Evapotranspiration measuring system* for establishing the appropriate water management in arid lands.

*Arid land climate information analysis system* for analyzing the environmental circumstances in arid lands of the world. Analysis of the arid land environments is through the use of climate, remote sensing and GIS data.

*Nucleic acid and protein analyzing system* for purifying and analyzing proteins and genes that are elicited or induced in response to salt and/or drought stresses. The objective is to provide information on physiological, biochemical and molecular biological bases of plant's response to environmental stresses. The information is to be used to develop transgenic plants with high tolerance to salinity and drought stresses.

*Complete system for monitoring and analyzing plant response to salinity stress.* The system consists of an LC/GC-Mass spectrometer and an aqua-culture system for monitoring and investigating plant growth, and accumulation of compatible solutes in response to salt stress.

*Monitoring system for water flow and solute transport* for carrying out non-destructive simultaneous measurement of water flow and salt transport in large columns during the process of salt accumulation from a shallow groundwater table and leaching of salts to the groundwater.

*Three-dimensional water erosion analyzing system* for analyzing soil surface erosion which causes soil degradation in arid lands. This system consists of solar energy assessing system, rainfall simulating system, inclined soil tray system, and water erosion analyzing system.

*Specimen display system* for assisting and improving educational efficiency to university students. It consists of 7 subsystems and exhibits natural environment, desertification process, agricultural and revegetation techniques in arid regions using diorama, audio visual aids, display panel, search system for arid land research, specimen and visual data brought from field survey.

Besides these, various characteristic plants of arid lands are planted in “*Glasshouse for Subtropical Desert*”, and “*Glasshouse for Conserving Arid Land Plants*”.

The ALRC has been receiving a large number of visitors, including diplomats and scientists from different parts of the world. Among those visitors was the Secretary General of the United Nations Convention to Combat Desertification (UNCCD), who paid a visit to the ALRC on May 27, 1998. The Secretary General of the UNCCD was on a mission of attending the first meeting of National Focus Points for the Convention to Combat Desertification (CCD) in Asia, which was held in Shiga Prefecture, Japan. Also a group of diplomatic representatives of Asian countries paid a visit to the ALRC on May 27, 1998, and discussed collaboration with the ALRC in combating desertification.

Furthermore, the ALRC hosted the Japan International Cooperation Agency/Institute for International Cooperation (JICA) seminar, entitled “Combating Desertification”, which was sponsored by JICA and the Japanese Ministry of Foreign Affairs. Two scientists from each of Egypt, Jordan, Israel, Morocco, Palestine, and Tunisia participated in the JICA seminar.

In December 3, 1998, the Conference of the Parties to the Convention to Combat Desertification (CCD), of which Japan became a member in December 10, 1998, was held in Senegal. The Head of the Japanese mission to that conference emphasized that the ALRC of Tottori University is Japan’s leading research institute on arid land and combating desertification.

At last but not the least, I invite scientists all over the world to participate with us in carrying out our research projects. For those who are interested, please refer to the ‘Visiting Foreign Research Fellow Program’ in this annual report. Contacts for this program should be made directly to the scientist concerned at the ALRC.

Shinobu Inanaga, Dr., Prof.  
Director