Foreword

Desertification in arid and semi-arid lands of the world is a major environmental problem. It is reducing plant and animal production and destroying natural vegetation, mainly through soil erosion and salinization. desertification is caused by rapid population growth, mismanagement of farm land, and other careless human activities. If we are not successful in stopping desertification, mankind is in danger of losing its basic understanding of life on earth. Therefore, we have to accelerate our research efforts to combat desertification and to establish sustainable agriculture as stated in the present United Nation Agreements.

Needless to say, it is very important to conduct research on combating desertification in arid and semi-arid lands. Most of these lands, however, are located in difficult areas for researchers to visit. Some locations have no power or water facilities which are necessary for conducting research at these sites. And religious and political concerns may also present some difficulties for researchers working at these sites. On the other hand, researchers themselves often have many problems conducting long-term, on-site research away from their institutes and home countries due to their heavy work load at home.

For the above mentioned reasons, we have planned to build an Arid Land Dome, a facility to simulate arid and semi-arid climatic conditions, and to raise the efficiency of our research. The construction of the dome, funded by the Japanese Government, will begin in the next fiscal year at our Center. The proposed Arid Land Dome is designed to provide various natural conditions of arid and semi-arid lands, ranging from tropical to cool zones. The dome has a diameter of 37.5 meters, a height of 15 meters and contains three greenhouses. Two greenhouses are for simulating weather conditions in arid and semi-arid lands, mostly by controlling the air temperature, and the other is for monitoring soil erosion and salt movement in soil, as well as for growing plants from arid and semi-arid lands. The facility will be connected with on-site research camps by satellite links. Field data from these camps will be gathered and analyzed, and the results will be sent back. Also, a genetic engineering laboratory for developing new drought and salt tolerant plants will be attached to this dome.

The Arid Land Dome will be open to all scientists who want to contribute to combating desertification and to help establish sustainable agriculture in arid and semi-arid lands. After completion of the dome in 1998, we plan to invite many scientists, both domestic and from abroad, who are interested in cooperating with us in using this facility.

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Director.