Crystal Water 2002

—the sheet for facilitating maximization of your training outcome—

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Training Group Name	Domestic/Regional Problems	Contents (Subjects) to be studied in each unit	Results of Training	Additional Information Hoped for
Execution Case of E.I.A. (Aug.5-8)	The physic-chemical microbiological and bacteriological quality of the wastewater. .	Inter relationships between climate, environment and water to meet each need.	In this section of our training course we studied the following items: 1-Enviromental-impact assessment in Japan. 2-Devolepment &environment in projects (Iran case study). 3-The study of Dar Es Salaam road development.	The relationship between weather, water and environment.
Water Storage and Supply Facilities (Aug.12-16)	The available water resources in desert lands are very limited and the annual precipitation is less than 150mm.	The ways for reducing evaporation in water storage facilities. Evaluation methods for water use facilities management.	We studied the following: -General principles of structure. -Reuse of construction materials of agric. products. -How we can calculate the safety factor of slope stability. -General view of water resources in world and Japan. Also Dams types.	Channels construction after building dams (big or small) types.
Farm / Forest Management and Food Policy (Aug.20-24)	Vegetable Production Green Houses & Wheat Production Using Sprinkler Irrigation System Not A re Under Control.	To learn the world food supply and economic Significant of agricultural development in arid areas.	*-General overview for Japan through statistics and information from ministry of Agricultural, Forestry and Fishers.* *-The importance of multi-sampling countries policy and try to maintain low costs in a long run.* *- The financial evaluation of forest, and the 1 Yen / m3 water taxes which will added to forest water users to improvement the forests*	I need more time about how we can build forests in arid areas.
Ground Water (Aug.26-29)	Earlier discoveries of such water led to hasty drilling and uncontrolled extraction from many wells. The design of earlier type of shallow hand-dug well-imposed limitations on the quality of water it could supply.	Runoff analysis. Determination of Aquifers Properties. The basics ideas of groundwater flow.	*-Principles of ground water hydrology.* *-Classification of ground water vertical and horizontal flow, also equations of ground water flow.* - *Basic and deifications of aquifers* *-Countermeasures against saline water intrusion.*	-Wells salinity problem. -Solving problems of desertification.
Soil / Water Quality Assessment (Sep.9-12)	We do not the Degree Of Damage Of Our Natural Resources.	Pollution and environmental assessment. Chemical properties of arid-land soil and irrigation water and their evaluation, soil management to improve agriculture production.	- *Classification of soils according to soil physical and chemical properties.* - *Basic studies on some important items as ESP, EC, PH, and their side effects on the soils.* - *Wastewater treatments.* - How we can use treated water from wastewater in irrigation and its limitations. - *General study tour in Tottori city on some places which treat wastewater.*	- I need more time in lab and how we can measure EC and PH using advanced technology.

Field Water and Soil Management (Sep.24-Oct.3)	Efficient Technologies Are too Costly. W.U.E. should be improving to reduce water losses especially in arid &semi-arid region.	Measurement and estimation of crop Evapotranspiration. Modeling soil moisture change in fields. Measurement and estimation of crop water requirements in arid zones. Evaluation of infiltration rate in irrigation system.	*First week:* **How we can calculate ET with penman method and with non-weighting lysimeter.* **The definitions of saline soils, saline sodic soils and sodic soils.* **Determination of leaching requirements.* **Considerations in water management for salinity control.* **Considerations which affecting the selection of water application methods.* **How to estimate water distribution performance.* **The water problems and water balance in the Aral Sea Basin through (1) Syr Darya River. (2) Amu Darya River.* **Impact of crop rotation system on water and salt balance behavior.* **Improve irrigation efficiency by decreasing conveyance losses and field application losses.* **Introduce biological of agro-metrological information, development of landlevelling performance, and development of low–cost-water-saving irrigation and management technology.* **Soil moisture management &evaluation of water saving irrigation on farm, to improve scheduling and operation.* **The importance of application of traditional water utilization, reuse of drainage water, reclamation of water and measures to prevent secondary sanitization.* **The difference between CU and Evapotranspiration ET and how we can determine both of them.* **The importance of green houses culture in Japan.* **How we can measure ET through different method and calculate KC.* *Second week:* ***Measurement and calculate of soil water content, potential head and soil water storage.* ***Factors affecting water movement in the soil.* ***How we can electrical conductivity using travel time and dissipation (Time Domain Reflectometry).* ***Soil physics measurements and relationship between hydraulic conductivity and water content.* ***Basic consideration of neutron scatting method and how we can calibrate curves of depth-type.* ***The new definition of arid lands.* ***How we can prevent salinity in ground water.* ***Secondary of Stalinization by mixing drainage water in rivers at the southern part for the river.*	I need laboratory and field training related to metrological and how I can observe data.
Design and Practice in Water Supply / Service System (Oct.8-10)	Drying of old water resources. Saudi Arabia doesn't have enough water Supply systems& need new methodologies to improve it.	How to establish sustainable operation and maintenance water supply systems. Functions of automatic water level regulating gates. Operation of actual units in plants and sites.	*** Technological limitations of the existing type of valves.* ***Valve operation under state, closing and opening conditions in low-pressure system.* *** Controlling the flow rate of semi-closed pipeline using a float type constant flow valve.* ***To understand hydraulic tests which are performed using an actual machine and device in an experiment facility to study the operation mechanism of the pump and check valve.* *** To understand the function of self – priming pump that requires no priming at the startup of the pump and non water hammer check valve that prevents water hammering occurring in case of emergency pump stop for the reason of a power failure or some other accidental*	

			occurrence. ***How we can develop of constant upstream and down stream water storage gates.* ***To understand the pressure reducing valves would block out the upstream hydrostatic pressure and the design internal pressure of the downstream pipeline would gradually decrease.*	
Crops Suitable for Arid Area; Plant Nutrition (Fertilization) (Oct.15-17)	In existence about crops which suitable for arid & semi arid regions. Plant nitration is not studied well except wheat crop.	The measure which leading to reduction in fertilizer use. Crops suitable for arid and semi arid regions.	***Salinity and drought tolerance for crops.* *** How the institute improved cultivation methods in the production of lentinula and some other edible fungi.* ***How we can use water culture to enable us to manage the composition and purity of nutrients without soils.* ***What is the CAM (Crassulacean Acid Metabolism), for example, pineapple could fix co2 much faster than c3plants.* ***Producing salts through salt fields in coastal zones in Japan.* ***Sid effect of salinity soils on germination period, also heat treatment for a short time to improve germination rate.*	
Preservation of Greens; Assessment of Vegetation (Oct.28-Nov.1)	Arid regions in my country are suffered from high vegetation degradation levels.	Methods to fix dune-sand.	***Defecation of arid land (Desert) through precipitation, vegetation and causes of arid land.* ***How we can control of desertification and revegatation in arid areas using;* *1. Prediction of climatic conditions.* *2. Anthropozoic pressure.* *Community, international aspect.* ***General overview of sand dunes in Japan.* ***What is the early wood and late wood?* ***Change of water potential in trees and its determinations.* ***General overview for JICA research project in Saudia Arabia in Abha for forest and trees to see the problems and how we can solve.* ***Mitigation cases in Japan and a case study.* ***Species, habitat, causes of crisis (human activities) and ideas to save threatened species and habitat.* ***Relationship between ecological impact assessment and mitigation.* ***Why the sensor system selected?* ***The importance of remote sensing.* ***The specialist person should apply remote sensing.* ***Realistic ecology of applying this remote sensing data will be different than expected.* ***The dendrochronological parameters for reconstructing the water level.*	

Remark:
The ideas shown in this table and the courses listed by the training staff in Tottori University are relevant to the region I came from.
Courses on E.I.A. and Appropriate Research methods are also very instrumental in my case and the region I came from.