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)	• Salinisation due to poor drainage • Soil erosion/deterioration • Deforestation	• Salinity control methods • Soil conservation and fertility methods • Effects of deforestation and Mitigations	• Learnt on the EIA guidelines for a road project • Environmental inventory screening and checklists to be considered for EIA for various projects e.g. Roads, Dams etc. • Practical training on scoping and matrix preparation for a road project	None except those submitted after the class.
Water Storage and Supply Facilities (Aug.12-16)	• Lack of water storage facilities • Need for cheap and appropriate storage & supply technologies	• Maintenance and evaluation of storage & supply facilities • Simple storage & supply facilities e.g. Dams and design methods	• Got information on deterioration and improvement required for more durable and better performance concrete used in Irrigation facilities • Had a background history of Dam development in the world and the problems experienced. • Learnt on the design and specifications required in dam construction. • Understood the practical problems in construction of surface dams after visiting two dam sites i.e. Reinforced Concrete Dam and Earth Dam. • Learnt on the operation and mitigation of sedimentation in Dams. • Worked on design parameters for dam stability	The information hoped for was given. The target was achieved I am eagerly waiting to see an underground dam though.
Farm / Forest Management and Food Policy (Aug.20-24)	• Lack of farm/forest extension services • Ineffective food policy • Poor revenue from farming during market glut	• Farm/ forest management as per curricula. • Effective marketing and policy issues • Economic evaluation in crop production.	• Attained knowledge on World food production statistics and marketing methods. • Got new information on the importance of forests as an alternative to concrete dams. This is because forest cover acts as a natural reservoir. • I learnt on the current policies pursued in Japan in an effort to maintain & conserve its forests. I am thinking where applicable on how these useful ideas can be used to alleviate forest degradation in my country.	Relevant information was given
Field Water and Soil Management (Sep.24-Oct.3)	• Water losses in the field • Lack of water distribution and measuring equipment • Poor Irrigation scheduling	• As per the curriculum	• Identified the factors considered in design and management of an Irrigation system. These factors are the parameters related to the Irrigation area, Conveyance and distribution system and the water source. • Learnt on the parameters used to evaluate performance of an irrigation system. Apart from the Irrigation efficiencies, the distribution system performance can be assessed using the method proposed by Molden et al (1990) based on four indices, i.e. adequacy, efficiency, dependability and equity. These four indices were obtained for a case study and its assessment done. • The operational and seepage losses in an irrigation system many at times cause environmental problems. The main problems are rise of the water table leading to waterlogging, secondary salinisation of the neighbouring areas and health problems. A case example of salinisation and other environmental problems caused by poor water management and over irrigation was given on the Irrigation practised in the Aral Sea. • To reduce operational losses a mathematical model for unsteady flow analysis can be used to predict flow. This computer simulation helps in obtaining the arrival time and attainment of steady state conditions of water after release or adjustment from the water source.	Relevant information was given

			• Learnt on the various available methods used to estimate Evapotranspiration. Understood the factors considered on the FAO recommended Penman-Monteith method for obtaining ET. After this training, given the necessary meteorological data, I can prepare a computer Excel worksheet to calculate ET using Penman-Monteith method. Got information on the use of satellite data to obtain ET and the ongoing research for improvement and calibration for more accurate values. Satellite data method can be useful in future since we can obtain ET values for remote regions where meteorological stations are not available and cannot be easily installed. The problem of lack of meteorological data in short time and space is quite common in my country.	
Design and Practice in Water Supply / Service System (Oct.8-10)	• Siltation of existing storage & supply facilities • Deterioration of concrete & masonry dams	• Prevention of siltation and flashing methods • As per the curriculum	• Design considerations for a pressurised water delivery system • Visited a manufacturing company, which makes pressure and flow regulators. They produce special safety valves and pumps. • Visited a company making constant head regulators and saw one under use in an irrigation canal.	Information was enough
Crops Suitable for Arid Area; Plant Nutrition (Fertilization) (Oct.15-17)	• Unexploited water/soil resource in the arid & semi-arid regions • Little investigation on the suitable crops for the arid & semi – arid regions	• Crops for the arid regions • Water conservation & storage methods	• The use of hydroponics to evaluate the performance of crops under salt stress in Arid and semi-arid lands.	Information was sufficient
Preservation of Greens; Assessment of Vegetation (Oct.28-Nov.1)	• Deforestation for fuel wood.	• Agro forestry & preservation of greens in arid zones • Alternative cheap energy sources	• I understood that the main cause of deterioration of vegetation in arid areas has been due to artificial factors. Increasing human and livestock population causes this deterioration. • We can alleviate the problem by encouraging revegetation, conservation of plants and soils in arid areas. • History of sand dune fixation and vegetation in Tottori sand dunes, Japan. The various methods for measuring sand movement, construction techniques of sand dune barriers and revegetation using Japanese black pine. Importance of Maritime forests for wind breaking, tide prevention and fog prevention. • The effect on growth and physiology of woody plants due to drought and water stress. The reduction in height and cambial growth due to drought stress; Production of Absicis acid (ABA) under drought stress to promote stomata closure and reduction in rate of photosynthesis. The development of adventitious roots by trees subjected to flooding • Use of tree ring analysis (dendrochronology) for environmental science. Use of this analysis to get ideas on climatic, underground water, ecological and hydrological water changes. • Use of remote sensing as GIS data source on land use; the principle of satellite imagery interpretation. Use of satellite images to monitor changes in the vegetation cover in remote areas, which are inaccessible. It is also considerably cheaper than aerial photo mapping and we can do either sequential or multi-seasonal analysis. Due to the open sky policy data is available anywhere on the earth without limitation. • The indirect and direct benefits of biodiversity and the need for its preservation.	Relevant information was given

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.