

Abstract of Final Report

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**1. Please itemize your own personal goals in the units and the results of the trainings per unit concisely.
(Wrap up all the Crystal Water descriptions)**

Unit of Training	Your own objectives	The Result of the Training
(1) Water Storage and Supply Facilities / Facility Management	-Approach to how we can Design, construction, operation, conservation of open channels, and control structures, etc. -How we can develop irrigation system to ensure sustainability of the overall scheme. -Overview of management efficiency of water use in irrigation system. -Operation and maintenance of open channels, supply facilities within large-scale irrigation systems as well as assessment of the water use in large-scale irrigation systems,	<i>From the lecture of this particular unit, the following are gained:</i> -Design principles types of Dams according to many classifications. -Evaluation methods for water use facilities management. - Theory of dams' construction, dam design, prevention of piping and salutation reduction in dams. Assessment of efficiency in irrigation systems and facilities management. -Site visits to dam construction gave me a clear idea about water storage and supply facilities as well as facility management -How we can calculate seepage through earth dams.
(2) Farm / Forest Management and Food Policy	- General overview for water resources and agricultural development on the point of view an economic analytical in arid and semi arid areas. - The production growth of the major crops in the world from 1961-2000 by using simulation of world food supply including world population and growth up to 2150.	<i>From the lecture of this particular unit, the following are gained:</i> -How we can evaluate prices of crops production according to world market prices and relationships among crops production and consumption. -The importance of forests for natural world through absorbing and storage of fixed carbon dioxide in the form of timber. - The statistical analyses of the food economy and elastic ties of demand.
(3) Ground Water	-Types of aquifers and measurement of ground water pressure and ground water flow. -The effect of subsurface dam on seawater to fresh water	<i>From the lecture of this particular unit, the following are gained:</i> -We acquired the basic knowledge for Countermeasures

	intrusion. -Ground water table and appropriate ways for utilization -To learn the basic principles on ground water /Run-off resource development. -Ground water analysis and basics of ground water flow. -Contamination and countermeasures of aquifers	against saline water intrusion. -We acquired the basic knowledge for Groundwater pollution, classification and sources of pollution and countermeasures against ground water pollution. -We acquired the basic knowledge for the overflow analysis, mechanism of the ground water flow and prediction of the studied resources. - We acquired the basic knowledge for the basis of the subsurface dams. -Concepts related to Hydraulic conductivity and storage parameters of an aquifer -Types of investigations as; pumping test, laboratory test, water level observation, rainfall observation and water quality test.
(4) Soil/Water Quality Assessment	-Soil management in arid /semi arid areas to improve crop production. -Technologies in use as relates soil/water quality, and their possible application in Arid regions. -Water pollution. -Restoration of the soil deteriorated due to heavy metals - Farm products resistance to salt and chemical properties of arid-land soil and irrigation water and their evaluation.	<i>From the lecture of this particular unit, the following are gained:</i> -How we can make a management for salinity problems through tolerant crops and calculating leaching requirements (LR) in different irrigation systems. -The chemical properties of arid land soil and irrigation water. -How to improve agricultural production in sand dunes under irrigation without moisture deficit. -Knowledge on manufacturing process of compost and its importance as soil improvement material. -General overview of wastewater treatments according to WHO recommendations used systems in Japan
(5) Field Water and Soil Management	- Measurement and estimation of ET using different methods. -Environmental impact assessment on irrigation and drainage development and countermeasures. -Water management at field level -Basic knowledge on effective and efficient technologies for management of soil and water resources in arid regions. -Improvement of field water management to	<i>From the lecture the following are gained:</i> -The theory for the Penman- Monteith method and why its recommended method. -The method for observation and estimation of the Evapotranspiration from the vegetation and using metrological data. -Different ways of wastewater treatment and the possibilities to use the purified wastewater for irrigation

	reduce waterlogging and salinity problems in irrigated rice. - Applied computer models to evaluate and measurement soil moisture content and.	as means of water saving and prevention of environment. -Using simulation models to evaluate the changes in soil moisture. -Soil salinity (problem, causes, and possible ways of mitigation in irrigated areas). -The importance of drip irrigation system. -Economical considerations for drip and sprinkler irrigation application.
(6) Practice on the Design of Water Supply/ Distribution Systems	-Using different types and operation mechanisms of various water supply & distribution systems. -How to establish sustainable operation and maintenance water supply systems -Pumping irrigation water control.	<i>From the lecture of this particular unit, the following are gained:</i> -How we can test valves under different flow rates and pressures using new types of automatic pressure reducing valves. -General overview for semi-closed pipe line using a float type constant flow valve and its hydraulic characteristics. -Ways how to avoid water hammer along a pipe system -Yokota self-priming suction pump that has an outstanding self-priming mechanism (water and air separating mechanism). -Importance of low cost for low-pressure system including cost of facilities for example use of polyvinyl chloride.
(7) Crops/Plants suitable for Arid Regions	-Cereal crops which suitable for arid regions. -The current research findings pertaining to drought tolerant crops and their adaptability mechanism. - Drought and Salt Tolerant Crops, -Influence of Salt on Plants.	<i>From the lecture of this particular unit, the following are gained:</i> -The importance and technique for hydroponics. -Concepts related to the tolerant crops for salinity problems. -Influence of salt stress on plants was better clarified through the hydroponics experiments. -The importance of Osmotic pressure for crops in saline soils.
(8) Preservation of Greens/ Assessment of Vegetation	-Characteristics of vegetation, which can growth in arid and semi arid lands.	<i>From the lecture of this particular unit, the following are gained:</i>

	-Methods to fix dune-sand. -Design, construction, operation and evaluation of soil conservation. -Monitoring and Evaluation of vegetation and land use in Arid region through remote sensing.	-The importance of remote sensing such as: Topographic mapping that can be up dating, agriculture (crop monitoring, classification), geological structure, environmental ecology, fishery (fishing spot investigation), disaster, and military purpose. -The study of the ecosystems and the revegetation in arid and semi-arid regions -The tree-ring analysis, its principle and application to environmental science -Mitigation planning of dune oasis.
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**2. Please itemize the training contents that you acknowledged as effective and give clear summaries of the supportive reasons.
(More than three subjects , Mark all that apply.)**

Unit of Training	Training Contents	Reasons
1-Water Storage and water Supply Facilities	-Types of Dams and Differences of Design Method. -The security problem of water in the world. -About dams in Japan and World.	<i>Because:</i> -The purposes of Dam Construction (Flood control, constant flow, electric power generation, and others). -The importance of safety problem and sedimentation accumulative.
2-Field water and soil management	-Water management for salinity control and water saving -Management of irrigation systems -Water relations in soils and its movement and how we can measure these relations.	<i>Because:</i> -This lecture gives me, the present situation of irrigation in arid area and a few means to make irrigated agriculture sustainable. -Identify the nature of operations and maintenance activities by the main system management. -Identify principles of irrigation management.
3-Environmental Impact assessment (EIA) for sustainable Irrigation & Drainage Development.	-The main components of an EIA. -EIA Guideline for irrigation and drainage projects. -ICID checklist of possible environmental effects detailed descriptions and record of finding.	<i>Because:</i> EIA can contribute to the formulation of sound environmental management and planning strategies to help achieve sustainable development.
4-Soil /water quality assessment	-Chemical properties of arid land soils. - Wastewater treatment. -Irrigation by sewage reuse.	<i>Because:</i> To develop every possible water recourses and find way for economical and efficient use.
5-Groung water	-General outline of subsurface dams. -Countermeasures against groundwater pollution. -Investigation and Countermeasures against saline water	<i>Because the following are gained:</i> The systematic utilization of reserved water will contribute to

	Intrusion. -Classification of ground water.	increase harvests and reduced labor, resulting in modernized farm management and the development of regional agriculture and economy.
6-Farm /Forest Management and Food Policy.	-Farm management information science. -World food policy and economic significance of agricultural development.	<i>Because the following are gained:</i> How we can evaluate prices of crops production according to world market prices and relationships among crops production and consumption.
7-Design and practice in water supply system	-Studies on control function of automatic regulating valve. -Self-priming valve and non-water hammer check valve for pipeline	<i>Because the following are gained:</i> Principle of hydraulic design of piping using automatic regulating valve. The operation mechanism of various types of automatic regulating valves through hydraulic tests.

3. Please itemize briefly and to the point on the contents of the project(s) and/or action plan(s) that you are planning to carry out or to set up.
Please title each project planned and/or action plan to present a concise picture of the contents as well as practical problem(s) to be settled.
(More than three subjects , Mark all that apply.

Title(s)	**The outline of the project (s) or action plan(s)	**Practical Problems to be settled for the stated plan
<i>Irrigation Improvement For Old And New Delta In Egypt</i>	1-Available Water Resources for EGYPT	-The Nile River is the main source of water in Egypt. The Egyptians knew the Nile importance from the ancient ages. Egypt's share of the Nile waters according to the agreement signed between Egypt and Sudan in 1959 (55.5 milliard m3 annually). -Agricultural remains an important sector within Egyptian economy: it employs about 35% of total labor force. With only 3.6% of the land area of Egypt. -Moreover, there was 40% of the Nile income wasted into the Mediterranean Sea, to maintain the stability of Aswan Dam despite of the pressing need for these waters to reclaim and cultivate lands.
	2- The Project Necessity	
	3- The Project Key Elements	
	*Irrigation Department.	
	*Drainage Department.	
	*Environmental Impact and Water / soil Quality Department.	
	*Crop and economical evaluation Department	
	*Monitoring and Evaluation Department.	
	4- The Project Objectives	
	5- The Project Phases	

***Details can find in final report.*