Roundtable Discussion on Irrigation Development and Rehabilitation
Traders Hotel
May 9, 2014

Role of the Academe on Irrigation Development

Armando N. Espino, Jr.
Central Luzon State University

Impact of Irrigation Facilities to Agricultural Production

- providing adequate water throughout the growing season, thus contributing to higher yields by eliminating water deficits and providing a measure of drought protection;
- supplementing rainfall in unfavourable areas to ensure high yields and quality, which generally leads to higher farmgate prices;
- enabling farmers to adapt timing of production to take into account market demand, higher prices, and avoid adverse weather extremes;
- reducing risk and raising returns in the use of complementary inputs such as improved seed and fertilizer.

Strategic Interventions in Irrigation Development

- Irrigation Systems Physical Development
- Extension, Capacity Enhancement and Information Campaign
- Strengthening of Public-Private Partnership
- Farmers' Support Services
- Institutional Development and Capability Building
- **Research and Development**

Research and Development in Irrigation

- R&D efforts should focus on cost-effective, appropriate and efficient irrigation and water management technology.
- The conduct of R&D activities should explore technologies that will lead to sustainable production like farm diversification and water saving technologies
- R&D efforts must also focus on environmental degradation, climate change, food insecurity and poverty.

Central Luzon State University

Water Resources Management Center

The Water Resources Management Center (WRMC) was created through the CLSU Board Resolution No. 62-95 on August 18, 1995

R & D THRUSTS

The Center gives priority considerations to the following areas:

- Water Sourcing and Conservation
- On-farm Water management
- Irrigation Systems' Management
- Application of Modern Irrigation & Drainage Technologies
- Water Quality Improvement
- Watershed and Environmental Management
- Agrometeorology

Trainings &Workshops for the Improvement of Utilization of Water in Agriculture


WELCOME! GUESTS AND PARTICIPANTS
2007 CENTRAL LUZON REGIONAL WATER SUMMIT
Organized by: CENTRAL LUZON AGRICULTURAL RESOURCES RESEARCH AND DEVELOPMENT CONSORTIUM (CLARRDEC)
Convened by: PHILIPPINE COUNCIL FOR AGRICULTURE, FORESTRY & NATURAL RESOURCES, RESEARCH & DEVELOPMENT (PCARRD)
WATER RESOURCES MANAGEMENT CENTER-CENTRAL LUZON STATE UNIVERSITY (WRMC-CLSU)
MAY 2-3, 2007
RET AMPHITHEATER, CLSU SCIENCE CITY OF MUÑOZ NE


CENTRAL LUZON STATE UNIVERSITY
WATER RESOURCES MANAGEMENT CENTER
PHILRICE IRRI NIA-UPRIIS
WELCOME!! Guests & Participants to the
SEMINAR WORKSHOP ON: ENHANCING THE TECHNOLOGY PROMOTION
OF CONTROLLED IRRIGATION FOR WATER SAVING IN THE UPRIIS
MARCH 28 2007 at the Water Resources Management Center (WRMC) Conference Hall, CLSU, Science City of Muñoz, N.E.


CENTRAL LUZON STATE UNIVERSITY
WATER RESOURCES MANAGEMENT CENTER
PHILRICE IRRI
Welcome! Guest & Participants
to the
"Training of Trainers on Controlled Irrigation (CI)
and S&T Updates on Rice Production
(NIA-MARIIS, NIA-ARIIP, DA-RFU 5)
August 18-19, 2009
Water Resource Management Center, Central Luzon State University, Science City of Muñoz, N.E.


Efficient Water Management in Agriculture
"Better water resources management – Greater resilience today, more effective adaptation tomorrow"
A. N. Espino, Jr.
Central Luzon State University
National Assessment and Planning Conference
Federation of Free Farmers
Montevista Resort , Pansol, Calamba, Laguna
TOSHIBA

WRMC Research Activities on Irrigation

Aerobic Rice Production System

Partner Agencies: IRRI, Philrice and BASC


WATER BY NITROGEN TRIAL
IN AEROBIC RICE
UNDER CLSU CONDITION
Funding Agency : IRRI
Implementing Agency : CLSU
Project Leader : DR. ARMANDO N. ESPINO, JR.
Study Leader : ENGR. MARVIN M. CINENSE
WIN


EFFECT OF IRRIGATION INTERVAL AND IRRIGATION METHOD USING RICE STRAW AS SOIL COVER ON RICE PRODUCTION UNDER AEROBIC CONDITION
Implementing Agency - CLSU
Cooperating Agency - IRRI
Project Leader - DR. ARMANDO N. ESPINO, JR.
Study Leader - ENGR. MARVIN M. CINENSE
I2W1 M2


IMPROVING CROP WATER PRODUCTIVITY OF AEROBIC RICE PRODUCTION SYSTEMS USING MODIFIED SPRINKLER IRRIGATION AND GROUND COVER TECHNIQUES
Researcher
JANAKA P. GUNARATHNA
Adviser
ARMANDO N. ESPINO Jr. (PhD)
Co-Adviser
RUBEN M. LAMPAYAN (PhD)

Alternate Wetting and Drying Technology

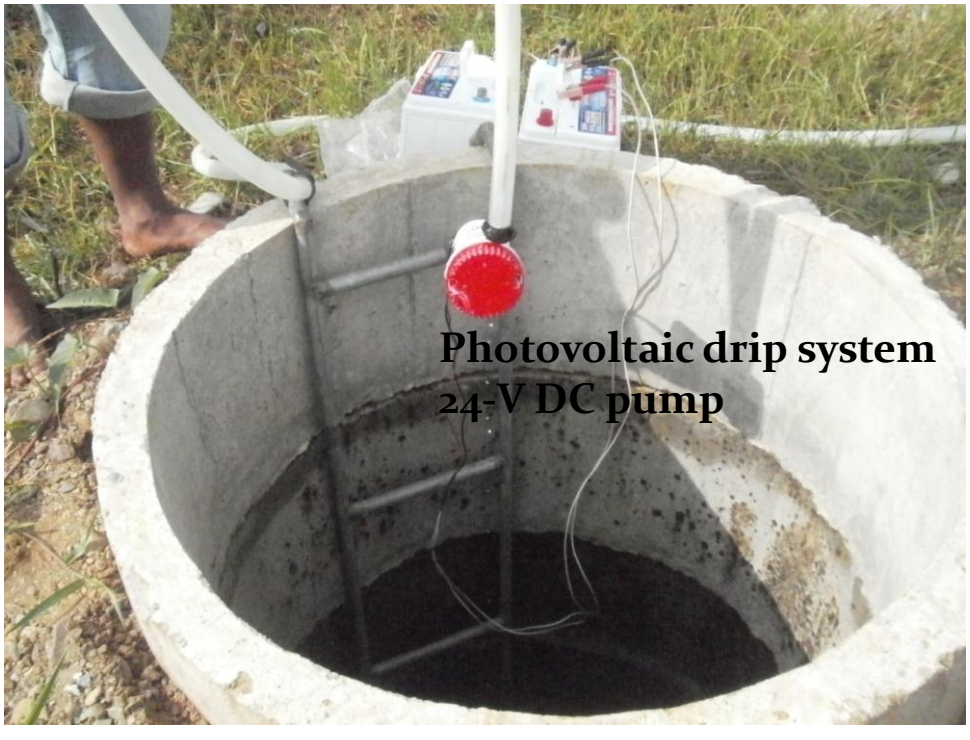
Partner Agencies: IRRI,Philrice and DA RFO III

Application of gravity-type drip irrigation system for rice-based farms

Partner Agency: Philippine Rice Research Institute

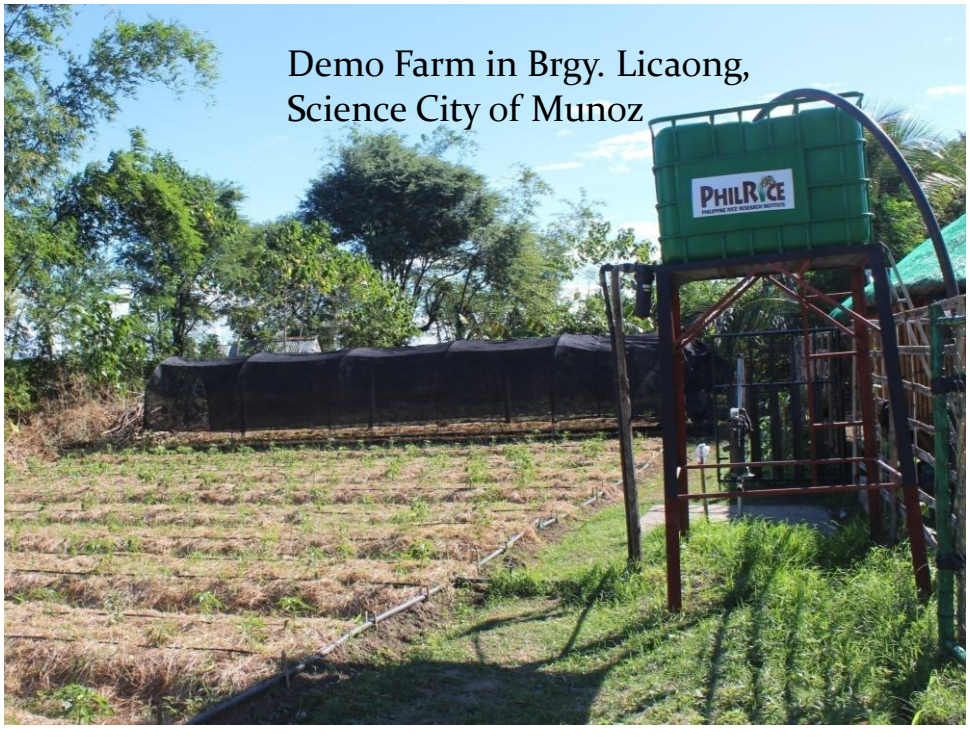

ARNEL

Venturi-type Fertigation system



Photovoltaic drip system
24-V DC pump

Photovoltaic drip system 12-V DC pump


Demo Farm in Brgy. Licaong,
Science City of Munoz
PHILRICE

Demo Farm in Langangilang, Abra

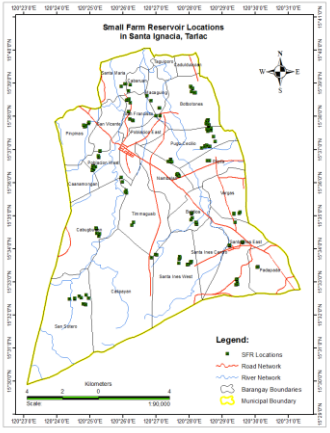
Installation of gravity drip irrigation in Maguindanao and Sultan Kudarat

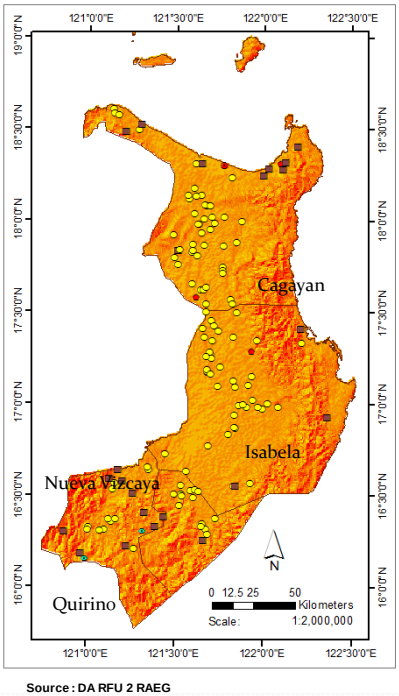
Minimizing Storage Losses in Water Harvesting Structures

Partner Agency: Philippine Rice Research Institute

GIS-based Inventory System for SFRs

Average farm area:	1.06 ha
No. of SFR per farmer:	1 unit/farmer (7
Location:	mostly on the upper portion of farm
Max surface area:	4,009 sq m
Minimum Surface area:	186 sq m
Average Surface area:	782 sq m
Avg SFR:Farm area ratio	0.108 or 10.8% o farm area
Depth of reservoir:	3.3 m
WS Service area:	0.75 ha
DS Service area:	0.47 ha





Source : DA RFU 2 RAEG

MAP OF EXISTING SSIP IN REGION 2
1975 -2011

SSIP	Units	Number of Beneficiaries	Service Area, has
SWIP	132	4,605	6,735
DD	33	1,338	1,565
CIS	4	251	285
STW	4578	4578	13734
PIP	1	126	100

SSIP Types	Cagayan	Isabela	Quirino	Nueva Vizcaya
SWIP	53	48	16	15
DD	15	3	2	13
STW	1913	1941	289	426
CIS	2	1	1	0
PIP	1	0	0	0

Legend
SSIP Type
- SWIP
- DD
- CIS
- PIS
- PIP

SWIP - Small Water Impounding Project
DD - Diversion Dam
CIS - Communal Irrigation System
PIS - Pump Irrigation System
PIP - Pressurized Irrigation System

SFR Water Balance Studies

Initial Storage	786.87
Rainfall	1350.27
Runoff	6.57
Final Storage	510.11
Seepage and Percolation	768.25
Evaporation	118.01
Irrigation	7.65
Overflows	739.69
Total Inflow, P+R	1356.84
Initial storage + Total Inflow	2143.71
Outflows =Initial storage + Total Inflows - Final Storage	1633.6
S&P%	**47.03%**
Evaporation %	**7.22%**

Minimizing Storage Losses Using Organic Lining Materials

- Four ponds with a dimension of 20 m x 10 m were used in the study.
- Two of the ponds were overlain with 15-cm thick carabao manure.
- The remaining two ponds were used as controls.
- Control ponds decreased their water levels at an average rate of 4.07 cm per day
- Ponds with carabao manure lining has lower average rate of 2.79 cm per day.

Minimizing Field Water Losses in Surface Irrigation System

Partner Agencies: DOST-PCAARRD, PNRI and BSWM


ECH2O EC-5 Moisture Sensor
DECAGON DEVICES
www.decagon.com
Patent 6904789 R03
CE


CVIARC, Cauayan, Isabela

Surface Irrigation Simulation, Evaluation and Design (SIRMOD)

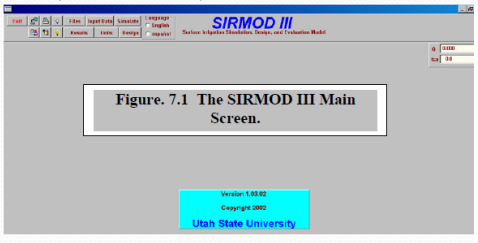
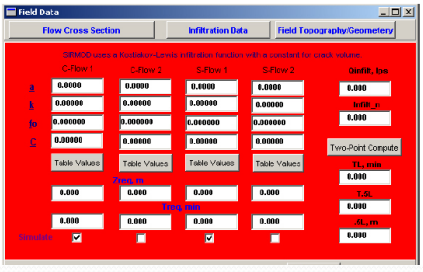
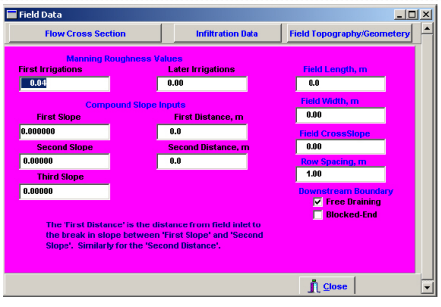
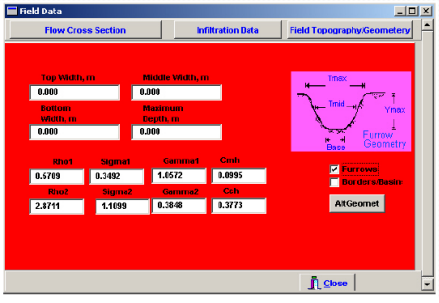


Figure. 7.1 The SIRMOD III Main Screen.





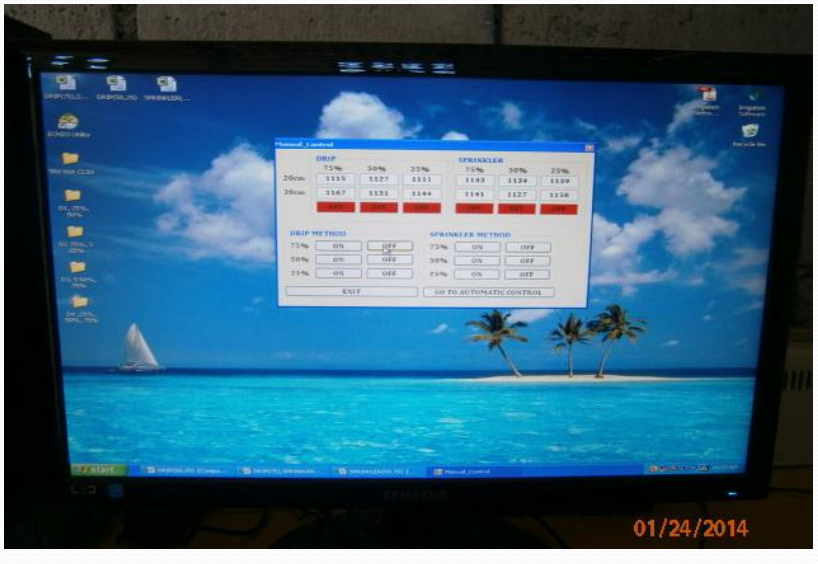


Real Time Soil Moisture Monitoring for Corn Irrigation Scheduling

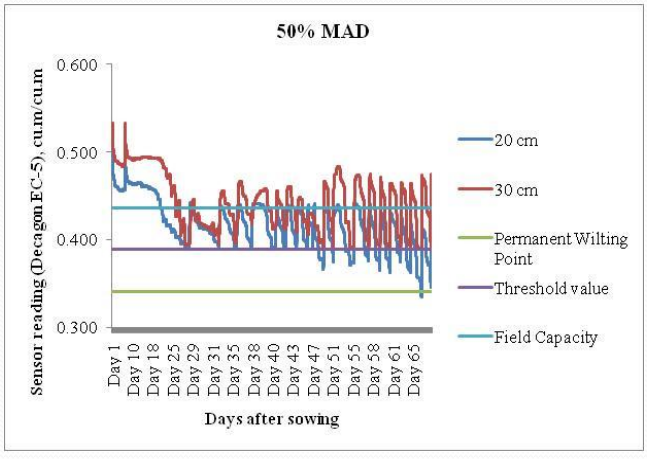
Partner Agency: CHED


BTC

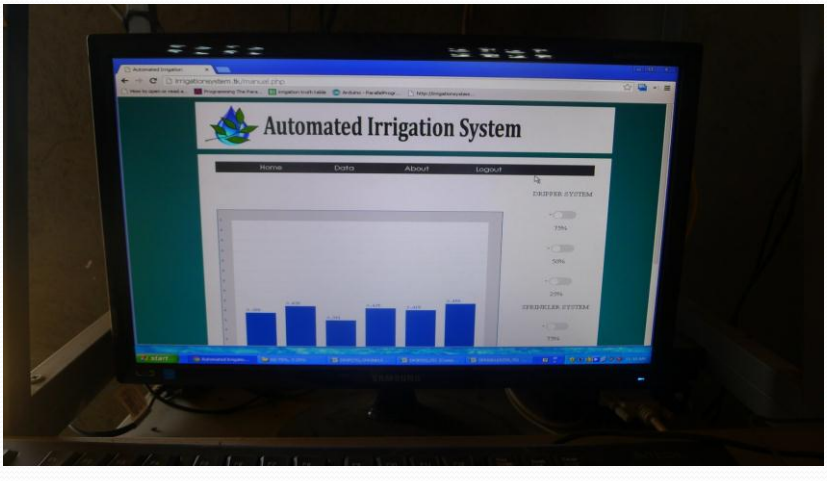

m50
Em50 Port Configuration
Port
Sensor
Depth
P1
P2
P3
P4
P5
COMM PORT



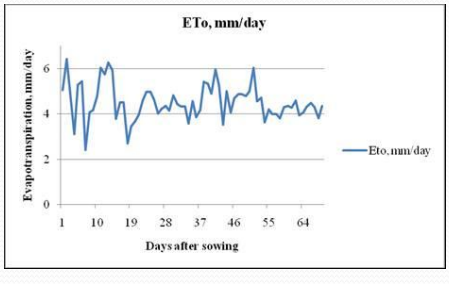
Monitoring soil moisture content in real time

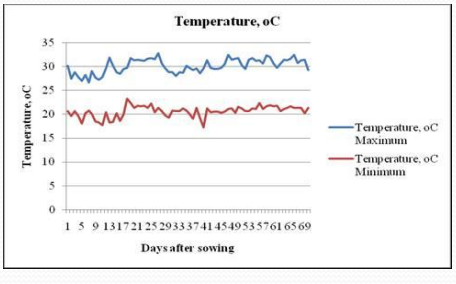


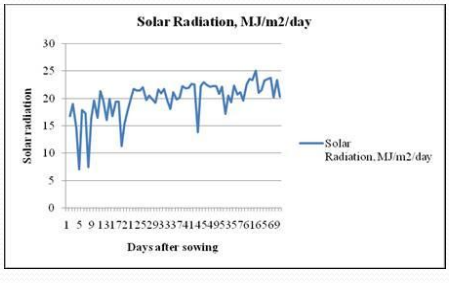
Soil moisture behaviour in drip irrigation at 50% MAD

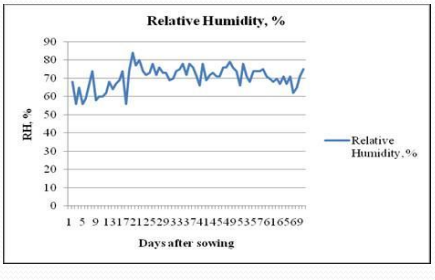


Web-based irrigation system control system


ETo, mm/day
Evapotranspiration, mm/day
Eto, mm/day
Days after sowing


Temperature, oC
Temperature, oC
Temperature, oC Maximum
Temperature, oC Minimum
Days after sowing


Solar Radiation, MJ/m2/day
Solar radiation
Solar Radiation, MJ/m2/day
Days after sowing


Relative Humidity, %
RH, %
Relative Humidity, %
Days after sowing

Corn at vegetative stage

Corn at flowering stage

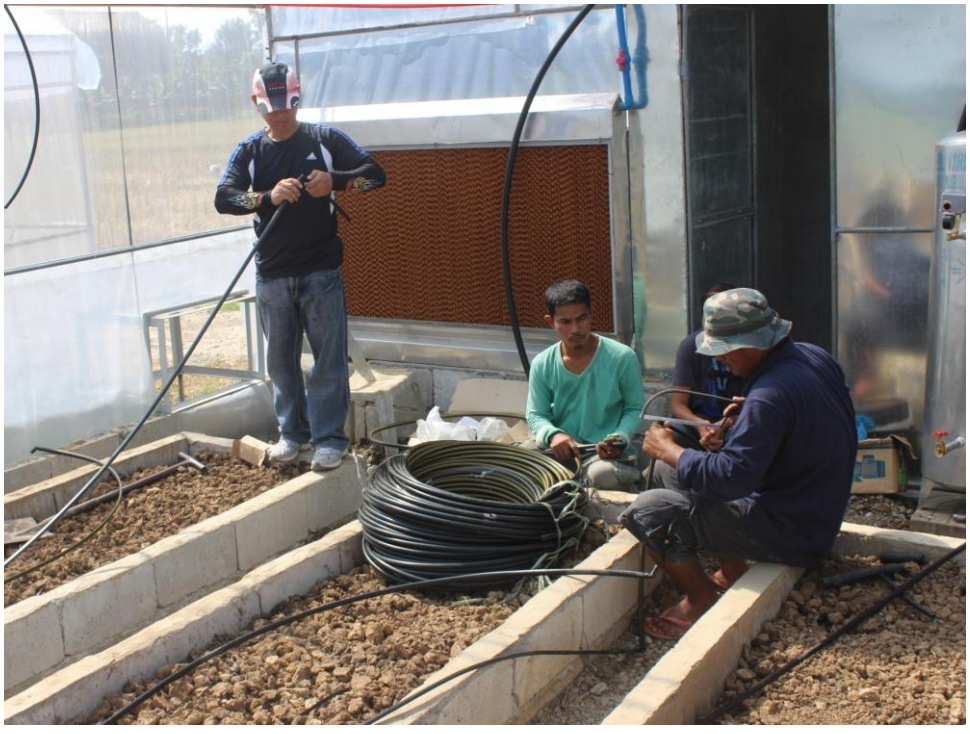

Monitoring growth parameters


Corn at Harvest

Controlled Environment Production Systems

Partner Agency: CHED


Greenhouse
All in-one greenhouse
monitoring and control unit.
SAMSUNG



Farmers' Initiatives and Indigenous Knowledge


7 4:46PM


Hive Star


Together We Can Achieve More
Thank you!!!