





COMPARATIVE ASSESMENT OF VARIOUS WATER APPLICATION METHODS FOR IMPROVING WATER PRODUCTIVITY DURING DRY SEASON AGRICULTURE

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Study Area

ASIAN REGIONAL CONFERENCE



Context

large gap in access to land

Large proportion-Landless, tenant, smallholder and Marginalized

ASIAN REGIONAL





Large gap in access to land



Farmer Typology

Large proportion- Landless, tenant, smallholder and Marginalized





Context

Cropping Pattern



8thasian regional

Motivation

- Low cropping intensity
- Large gap in access to land and water
 Poor, landless, marginalized and tenant farmers
- Knowledge gap in Ag. water management
- Access to Gov. and Non-Gov. Institution

Can farmer's behavior change through techno-social intervention?

Which type of water application methods is more suitable for efficient management of both water and energy?



Technical Intervention (What we did)

Approach



- Installation of Solar pump, Sun flower pump, Diesel pump, Electric Pump
- Promotion of Micro irrigation techniques and methods (Sprinkler, Drip, Furrow)
- Rehabilitation of available earthen ponds (for conjunctive use and re use)



Social/Institutional Intervention (What we did) Approach

- Collective farming models
 - Pure collective Partial collective
- Group formation and strengthening through
 - Regular meeting Intervention planning Regular savings
- Capacity building trainings and exchange visits
- Stakeholder consultation and engagement (including landlord)





Why understanding of irrigation demand is important?



Approach

Knowledge gap in Ag. Water management

- How much water the plant needs for optimum growth (Critical)
- Matching Supply to demand = efficient use of the resource (both water and energy)



What data we are collecting?













< Back	Pump Asses	sment Tool	(
Date		10/12/2017			
Village					
Tube We	ell				
Pump Detail					
Pump Ty	pe				
RPM					
Discharging W	'orks 🕕				
Start Tim	ie				
Finish Tir	ne				
Elapsed	i				
Flow Reading					
Wa	ter Reading	Bucket Reading			

- Weather data (ET, R, T)
- Pond water level data
- Weekly water level data
- Data is entered into the DSI Applet "Water Level Tool"



What data we are collecting?







- Channel Loss assessment
- Pipe loss assessment
- Drip and sprinkler uniformity test
- Furrow assessment test
- Diesel pump assessment
- Solar pump test
- Economic data collection



Cropping system/pattern/intensity

What we have found??

• Year 2015 (Beginning of the project)- No crops (Fallow Land)





- Similar situation in rest of the intervention sites
- Significant improvement in cropping system/pattern/intensity



Change in Farmer's behaviour

- Improved vegetable production
- Shifted irrigation methods
- Perception/Choice for
 - Crop selection
 - Irrigation method selection
 - Farming approach (shifted towards collective/semi collective)
- Regular communication with all the stakeholders

What we have found??









Conveyance Loss Assessments

What we have found??

Location	Discharge at the pump (L/s)	Discharge after 100m of channel (L/s)	Discharge after 100m of 3" pipe (L/s)	Conveyance loss (L/s) Or reduced flow	Conveyance Efficiency (%)
B1	5.7	3.0		2.7	53%
B1	5.7		5.1	0.6	89%



Channel losses are significant volume of water pumped



Irrigation Efficiency

What we have found??

Field Application Efficiency			Drip and furrow assessment				
	Drip	Furro	N	Sprinkler		for same plot(KH1F7): egg plant crop	
	впр				lengh	20	
	040/			07 40/		breath	13
	91%	51%		87.4%		No. of lateral	26 R/R= 0.8
					• About 63%	Total lengh of lateral	338
Irrigation Efficiency		water can be	No of emitter 40cm/cc	482.8571429 P/P=0.7			
		water carrie		483 say			
		saved for same	Depth of irrigation if applied same				
				rrigation	augntity of water	Volume	5656
	Combination			efficiency	quantity of water		canopy * no of
			G		using drin in	Area of irrigation	94.78875 plants/emmitter
			cinciency		using unp in	Depth of water	59.66952829 mm
Earthen Cana		anal +		comparison with			
				32 49 %		Depth of water by	
	Furro	N		02110 /0	FULLOW	furrow	21.75384615 mm
	Pina + Fu	Irrow/		19 59%		Water saved	37.91568214 mm
	Fipe - I unow		49.0970		Volume required to		
		Pipe + Drip kit 79.17%	70 470/		reached	59.66952829 mm	
	Pipe + Dr		/9.1/%		Saved water	9858 077356 ltr	
							63.54278846 %
	Sprinkl	er		87.4%			



Crop Productivity

What we have found??



• It gives suitable crop list for farming with effective use of water



	16,000
It gives suitable seasonal crop,	12,000
which may	8,000
provide higher gross margin	4,000
	0



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- Recommendation of suitable farming approach based on the lesson learnt from different geographical and cultural settings
- Identification of best suited crops for efficient use of water to improve the water productivity for dry season agriculture
- Estimation of water productivity/unit of water in different water application method
- Disseminate the findings to farmers in understandable format, which will help them to change their behavior



THANK YOU FOR YOUR KIND ATTENTION

COMMENTS AND SUGGESTION PLEASE.....

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