

Evolving Support Systems for Rainfed Areas:

Ravindra A., WASSAN

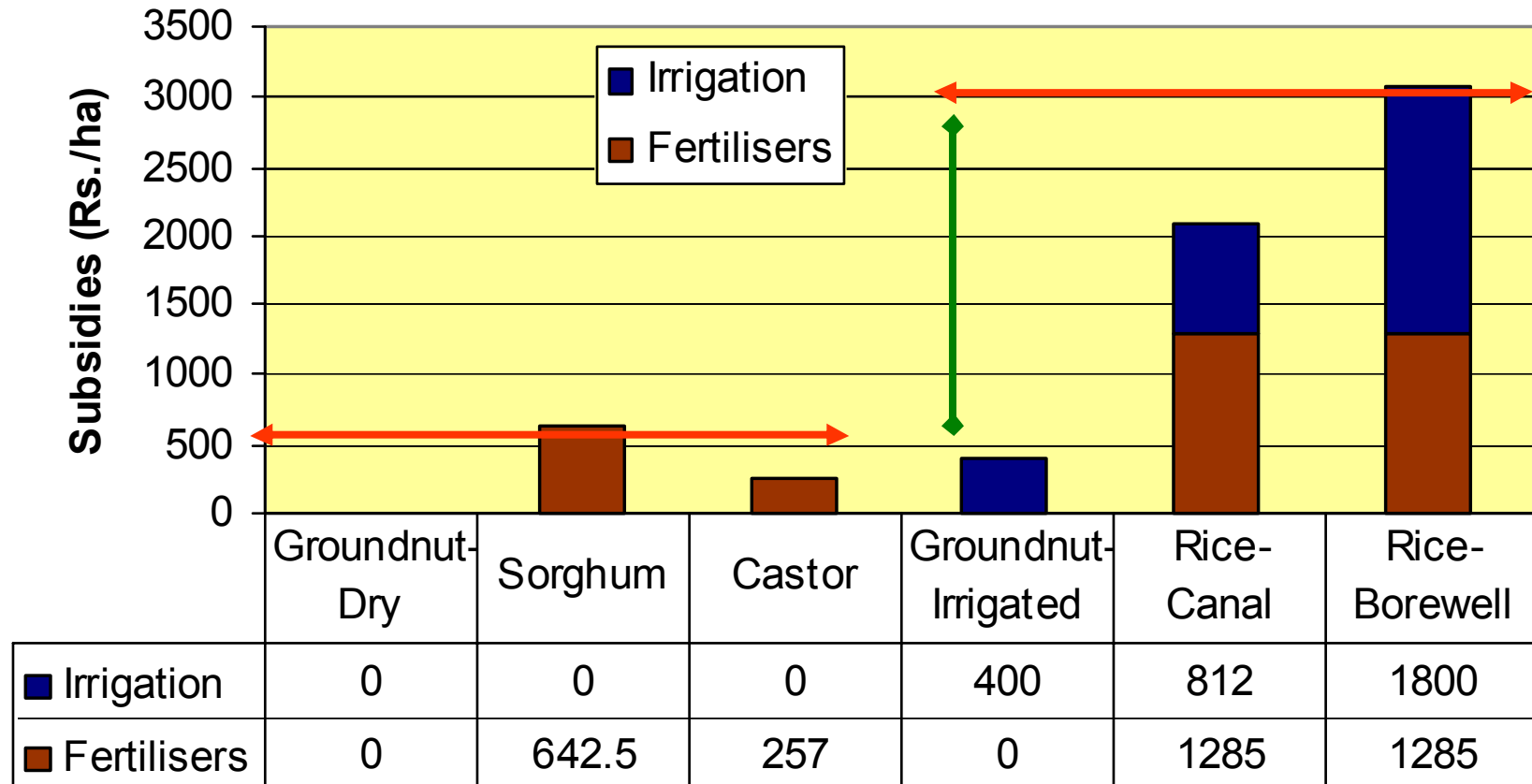
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Watershed Support Services and Activities Network
12-13-452, Street No.1, Tarnaka, Secunderabad – 500 017
Ph: 040- 27015295 / 96, 27018581 email : wassan@eth.net

Overview

- A closer look at parity of investments between rainfed and irrigated agriculture
- Support system needs of rainfed areas
- Rationale for support systems
- Ways of going about – need for a new architecture

Differential Positioning of subsidies:



Source: Primary survey of farmers in Mahabubnagar district

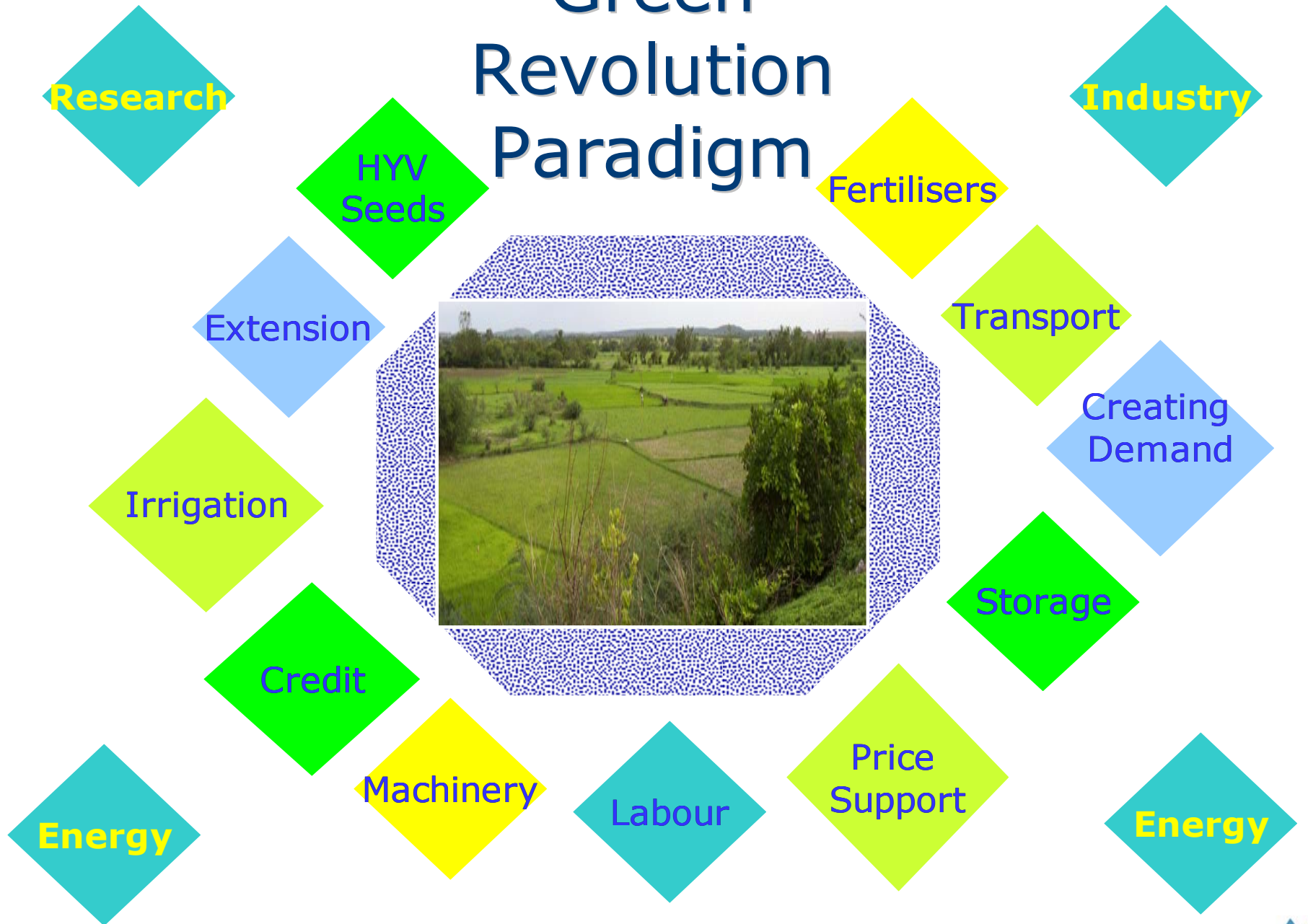
Rice – Canal: only annual operation costs without considering the capital subsidy on irrigation system

Differential Access to subsidies:

Parity of Investments:

S.No	Schemes	Rs. / ha
1	Major & medium irrigation	109,000 to 131,000
2	Organic farming under NHM	10,000
3	Vermi composting – under NHM	30,000/ unit
4	Promotion of IPM – under NHM	1,000
5	Organic Certification	10,000/-
6	Cut flowers	23,100
7	Bulbulous flowers	45,000
8	Drip irrigation	2,000 /ha annually
9	Watershed development	6,000

Green Revolution Paradigm



Green Revolution Paradigm

Research

Industry

Seeds

Fertilisers

Extension

Transport

For a Rainfed
Farmer ??

Creating
Demand

Irrigation

Storage

Machinery

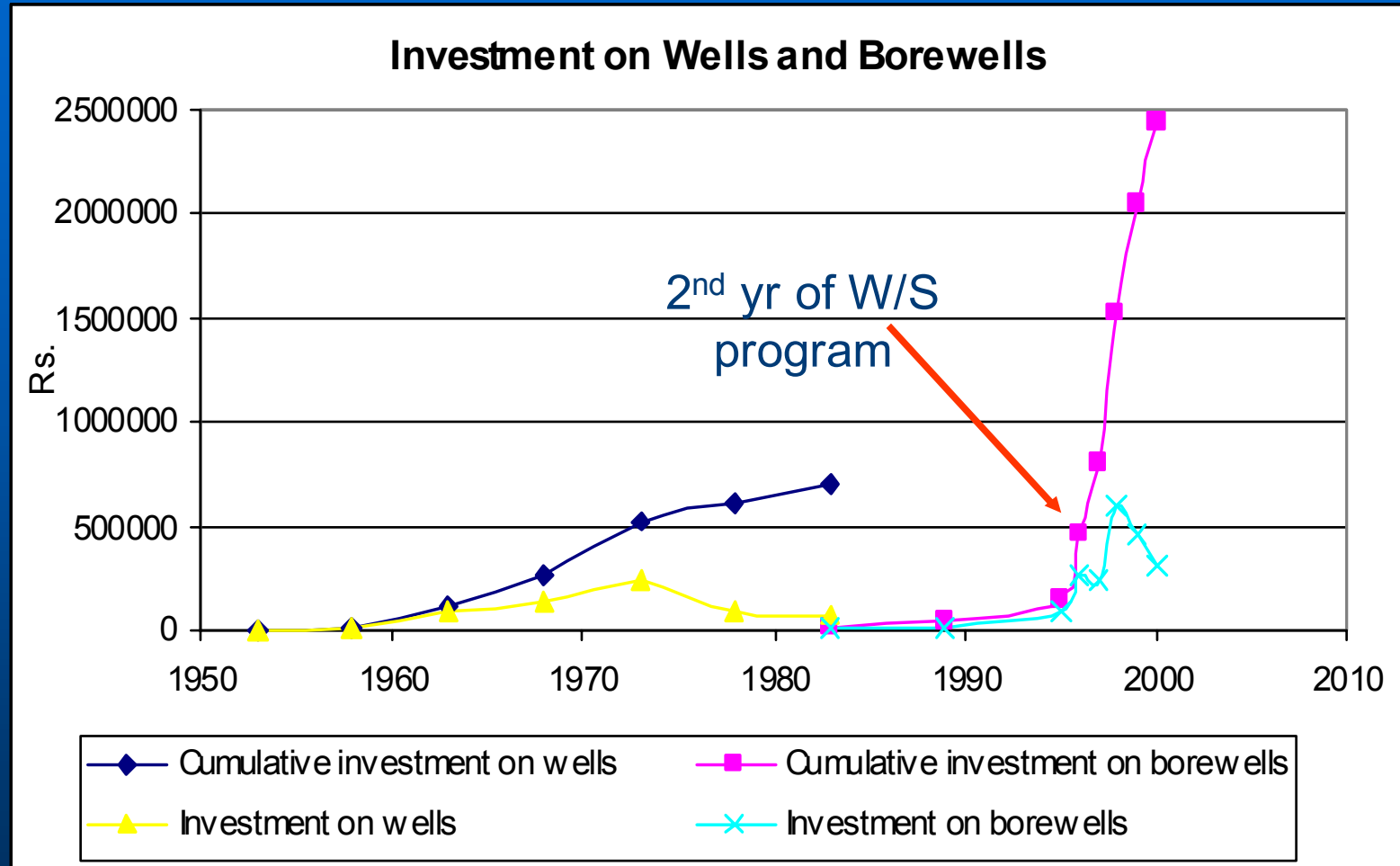
Price Support

Labour



What Public Investment Support is Available?

Inducing Unsustainable Trends:



Farmers' response to incentives packaged around trends that are unsustainable in rainfed areas...

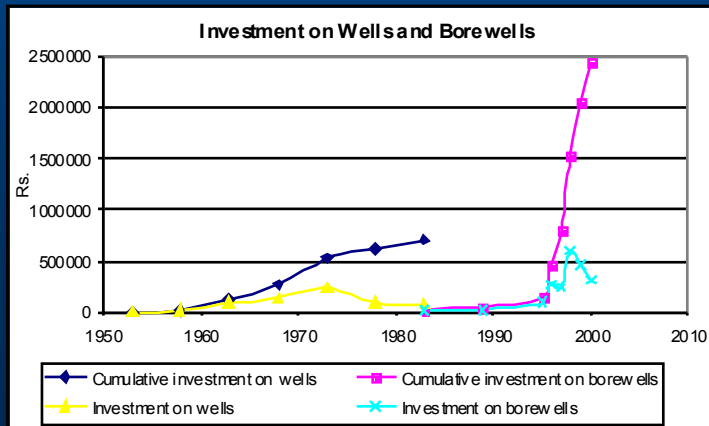
Why so much rush for borewells

Moisture based farming...

- practically nothing..

Irrigation based farming..

- electricity
- subsidies in sprinkler/ drip..
- Price support
- Procurement
- Fertiliser subsidies
- ... so on..



Public support systems are packaged in an exploitative paradigm...

& so are our perspectives on water ...

Another example...

**Reality is that
it never replaced
rice..**



**An imminent
Crisis may be
in the offing; this time with
horticulture farmers..**

**Irrigated
Mango**

**Irrigated
oranges**

**Promoted
Block-
horticulture**

Diversification

**What farming systems
approach is appropriate for
rainfed areas...?**

&

**How can the policy support
steer it..?**

Subsidies in micro-
irrigation, horticulture...

Inherent biases..:

- Public support is in-built into fixed form of input use;
 - subsidy on 'urea' but not different form of 'nutrient';
 - Subsidy on drip but not moisture conservation
- Present policy recognises only those who have access to water & better soils → the Green revolution bias in favor of resource endowed farmers/ regions continues..
- Explicit bias towards 'material' incentives as against 'labour'/ processes; technology is implicitly defined in terms of 'materials' / commodities but not processes.. (operational convenience is quite often the stated reason) ~ pest surveillance for example, would not attract any support!

- What would a rainfed farmer do if s/he has access to the same level of support per ha



What the rainfed farmer can do?

What is rainfed agriculture without soil organic matter?

Establish non-interfering biomass plantation around the field bunds: would provide sufficient biomass for the soil both macro and micro nutrients! – if

Could establish a proper composting system in the farm using agriculture-wastes & biomass raised ~ – if trench filling, turning and watering is partly supported

Could transport the FYM to distant rainfed land than applying it into nearby paddy fields

Could have taken up a green manure/ mulch inter-crop if its incorporation into soil is supported.

Could apply tank silt.. .. So on.

With all these can achieve 2 tons per ac organic manure application per year ~ if labor is partly subsidised

2 tons of organic matter / ac results in healthy soil – can solve many nutrient problems, builds soil health, improves productivity, retains moisture, increases resistance to pests and diseases ..

So on...

Where
Are the
common
lands?

Where
is so much
livestock?

Where
is the
Biomass?

Where
is so much
dung?

Soil
organic
Matter

All that requires is few person days of labour provided!!



- The focus at present is only on vermi compost – applied only to irrigated lands & poor biomass to dung ratio
- Support high biomass-dung ratio composts for rainfed lands
 - Target at least 2 tons per acre per year (target 25% of area coverage per year)
 - biomass from bund plantation, plantation around pits, commons, agri residues & use only dung-slurry

Support required:

- Pit-digging
- Plant material
- Watering
- Planting & protection
- Labor support for filling & turning
- Transport compost if required
- Facilitation

What the rainfed farmer can do?

Livestock integration – a myth?

So on...

Where
Are the
common
lands?

Establish a common facility (supported) to take care of livestock of the poor for the difficult 3 summer months ~

Where
is so much
livestock?

Establish a collective regulated grazing (partly subsidizing the cost of tending livestock)~ encourages wage labour, single women etc., to have livestock, address issues of over grazing.. .

Where
is the
Biomass?

Establish a common fodder processing facility – chaffing & value addition → increases fodder availability by about 30 to 40%

Where
is so much
dung?

Bullocks back in agriculture → timely sowing (20% yield increase for the deprived), Increased dung availability, internalisation of transport costs of inputs & outputs → higher net-incomes

Soil
organic
Matter

Can create common fodder storage with bulk value addition facilities..

Goat & Sheep → fast growing & secure economy of poor– support them

The total diesel subsidy in a village might be sufficient!!

What the rainfed farmer can do? Creating Irrigation Potential!?

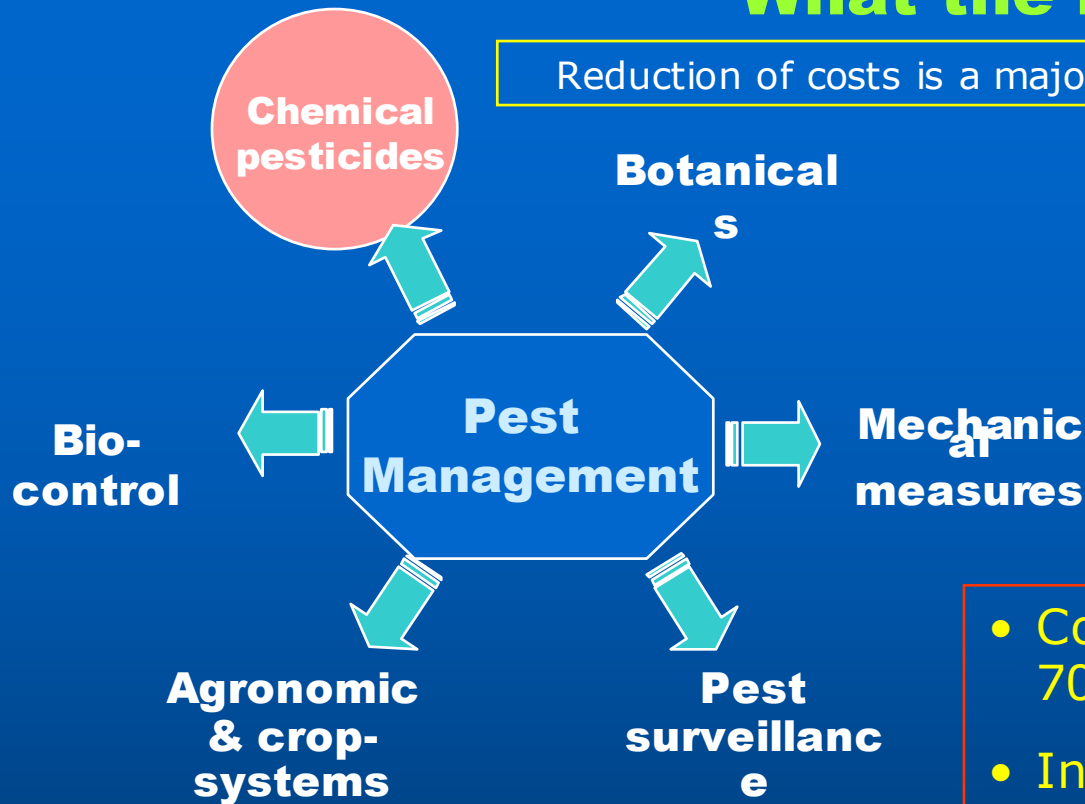
Can we see WATER in dry lands differently...

- as cu.mt of humus built into soil that holds moisture many times its volume?
- As ha of soil covered by green manure / mulch crops?
- as cu.mt of evaporation reduced through wind breaks?

- as tonnes of food consumption shifted to millets
- Can we estimate the savings (to national economy) of a 25% shift in our food stocks to millets – including price support, procurement and PDS?
 - local food & nutrition security
 - Water saving to a large extent
 - Consequent savings in power
 - Less vulnerability to droughts
- Two irrigation to millets on a larger area – substantial jump in total food production

What the rainfed farmer can do?

Reduction of costs is a major risk minimizing strategy in rainfed areas



- Can we see pest management as increase in predator population than tones of pesticides consumed?

- Cost reduction of about 40 to 70%
- Increased competitiveness & net incomes.

- Engage knowledge labour for pest-surveillance as a public good
- Subsidised summer ploughing
- Collectivise operations of pest management at community level
- Labor support for the preparation of botanical formulations
- Simple machinery for local preparations...

What the rainfed farmer can do?

More with less..

- Assuming 3 hrs of 5 hp pump to irrigate one acre paddy
- For 120 days duration = 360 pumping hrs.
- Assuming 1/4th saving = 90 hrs.
- Equivalent to 351 kw hrs (units) of power saving
- Cost of (subsidised) power at Rs.3.95 per unit
- A saving of Rs.1386 per acre (100% power subsidy situation)

**Reduce water use
by about 20 to 30%**

**System of Rice
Intensification**

With half this subsidy entire costs of labour for weeding (which seems to be constraint) can be subsidised in SRI!

What could be done in rainfed areas?

Secure water for all..

A Shift to Critical Irrigation:

- Known to increase yields by 30 to 50%
- Secure crops and the farmers- spreading larger safety nets
- Potential for breaking stagnation in production at national level
- May be an instrument of water-equity

- Invest on (piped) distribution infrastructure and supplementary storage in rainfed areas- borewells, tanks etc.,
- Conjunctive use of soil moisture conservation, rainwater and ground water

The need..

- Differentiate between Agriculture Policy for Irrigated Areas & Agriculture Policy for Rainfed Areas?
- Ensure parity of investments (per ha or per household) in rainfed and irrigated areas. SEE BEYOND WATERSHED PROJECTS!!
- Do not extend the support system designs of irrigated areas – rainfed areas needs a special dispensation
- Do not restrict the 'form' of subsidies
 - Shift From 'Inputs' to 'processes' / labour
 - From 'Input' based to 'output' based
- Investments are needed in rainfed areas – move from rhetoric to affirmative action.
- Increase research capacities on the core needs of rainfed areas than making desperate statements
- Recognise soil fertility improvement, NPM as eco-system activities but not farm-subsidies – enormous gain in the context of liberalisation
- Cost reduction as a core principle for research & action

Rs.200 support per acre every year on soil org matter is not high!!

Loss of nutrients applied through chemical inputs

	Units	Quantity	Usage*	Wastage
			49%*	51%
Total N consumption	Thousand tons	15603	7645	7957
Total N Subsidy	Rs. In crore	11054	5416	5637
Subsidy on per kg N (approx)	Rs. / kg N	8.5 to 9.5		
Subsidy on per kg N+P+K	Rs. Per kg	8.42		

Data source: Economic Survey, 2005-06,

values for the year 2005-06 (budget estimate up to Nov 2005)

*Reference: Ghosh S.K.(1994)[1],

24% of the total N is used by the plant and the rest contributes to nitrate pollution

[1] Ghosh S.K (1994), 'Impact of land and water resource degradation on agriculture production' in Deb DL (Ed), Natural resources management for sustainable agriculture and environment, Angor Publishers, New Delhi

Principles of a New Paradigm for rainfed areas

1. Increasing soil fertility / soil organic matter
2. Crop diversification
 - Spreading risks
 - Enhancing fodder base
 - Integrating trees into farming systems
3. Low costs ← High internal inputs
 - Community seed systems
 - Improving Knowledge base
 - Soil supporting systems
4. Protective irrigation
5. Local value addition & marketing initiatives
6. Support for livestock (small & large)

H
O
W ?

- Re-defining the 'policy spheres'
- Identifying 'core priorities' in rainfed areas policy
- Recasting existing subsidies – form, content and purpose
- Re-working on the extension institutional systems – in line with the requirements of 'knowledge based extension'
- Appropriate community based institutional systems as a back-bone of the rainfed areas policies.
- A research back-bone for a new paradigm

Incremental changes do not help..

Requires a Paradigm Shift

And a Bold Leadership

**Let us look forward to
creative and constructive
ways of public
engagement with Rainfed
Areas!**

Thank You.