COMMUNITY WatershedS:

Platform for Outreach and Creation of Impact

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Outline

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Community Watershed (CW)

- Intends to support agricultural productivity
- Where new science tools, methods & innovation developed by ICRISAT and other programs converged, tested, and demonstrated on a field scale
- Hydrology of the watershed becomes the entry point for integrating interventions in crops, livestock, and collective actions
- Dovetailed with capacity building

Source: ICRISAT

Timeline of CW Projects at ICRISAT

India | South Asia | Southeast Asia

1976

ICRISAT's initial works on integrated watershed management

1999-2000

Ranga Reddy District, Andhra Pradesh, India
Adarsha Watershed

Vidisha District, Madhya Pradesh, India
Lalatora Watershed

Bundi District, Rajasthan, India
Goverdhanpura Watershed

Dewas District, Madhya Pradesh, India
Semli Watershed

Guna District, Madhya Pradesh, India
Kailaspura Watershed

Late 2000

Kim Boi District, Hoa Binh Province, Hanoi, Vietnam
Thanh Ha Watershed

Khon Kaen Province, Thailand
Tad Fa Watershed

Mahaboobngar, Nalgonda, Kurnool, Prakasam & Anantaphur Districts Andhra Pradesh, India
APRLP Watershed

2003

Guizhou Province and Yunnan Province, China
Lucheba Watershed
Xiaoxincun Watershed

Adilabad District, Andhra Pradesh, India
Powerguda Watershed

2004-2005

Bulacan, Tarlac, Ilocos Sur & Bohol, Philippines
Dona Remedios Trinidad Watershed
San Clemente Watershed
Sta Maria Watershed
Sto Nino Watershed

2005 -2006

Kola, Tumkur, Chitradurga, Charwad and Haveri Districts, Karnataka, India
Sujala Watershed

Tirunelveli District, Tamil Nadu, India - Tamil Nadu Watershed

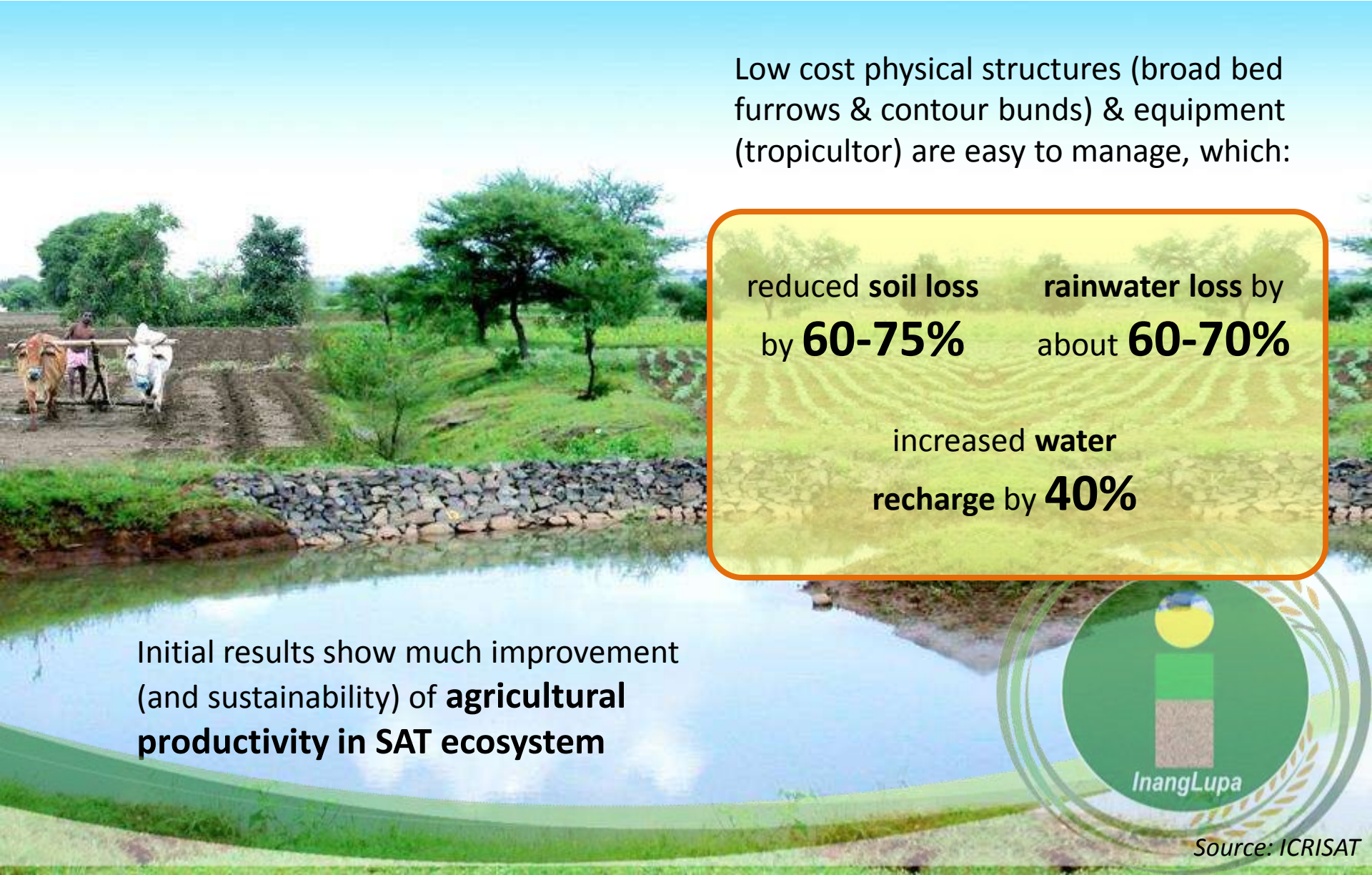
Source: ICRISAT

CW at ICRISAT

- Started in 1972 as **on-station research**
- Uses biophysical characterization of the **watershed as springboard** for other interventions
- Themes: **Soil and water conservation** taking into account soil health, cropping systems, livestock etc
- **Grain productivity** went up to **4 tons** from 1-2 tons/ha

Source: ICRISAT

CW at ICRISAT



Low cost physical structures (broad bed furrows & contour bunds) & equipment (tropicultor) are easy to manage, which:

reduced **soil loss** by **60-75%**

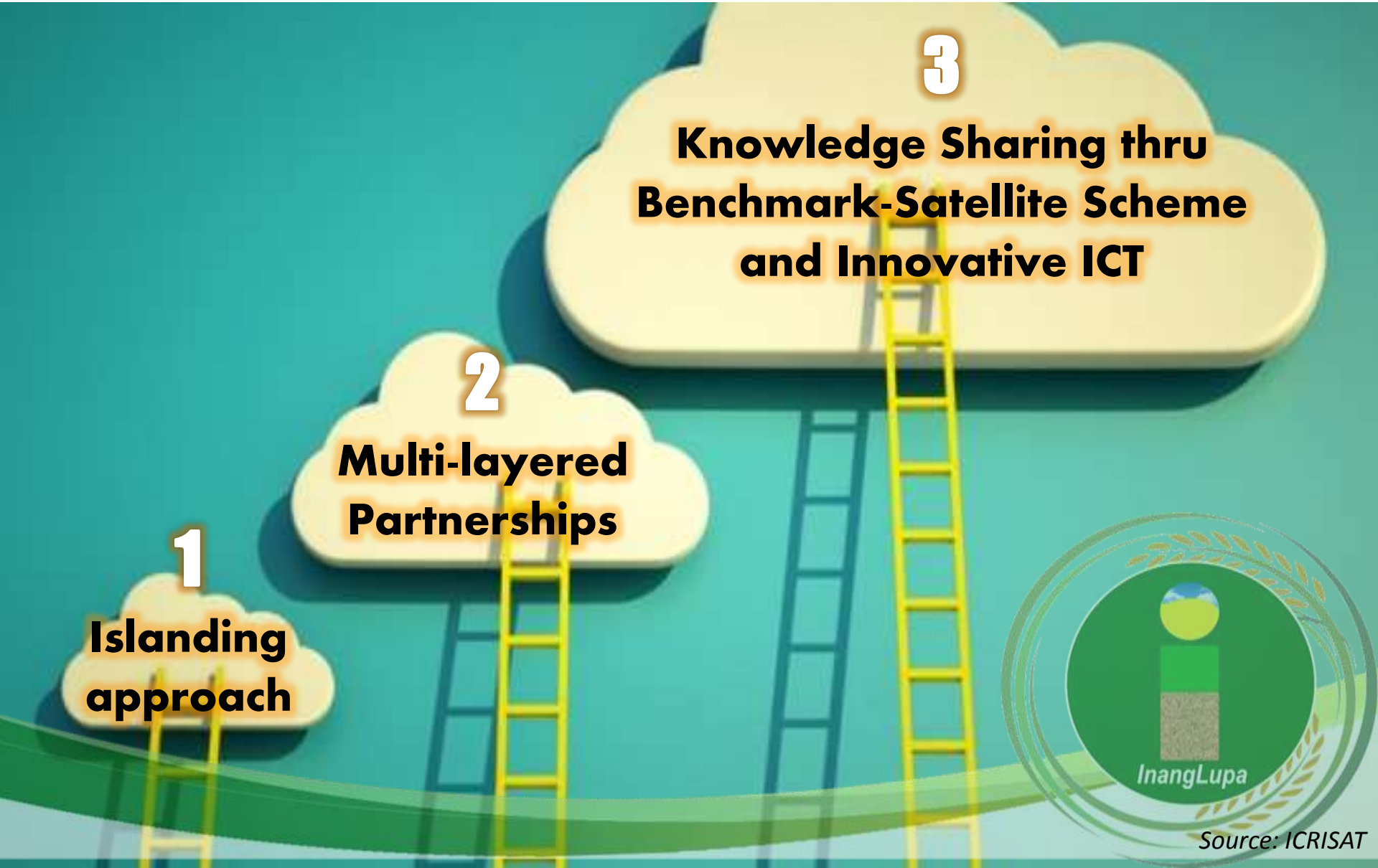
rainwater loss by about **60-70%**

increased **water recharge** by **40%**

Initial results show much improvement (and sustainability) of **agricultural productivity in SAT ecosystem**

Source: ICRISAT

Drivers for Upscaling



Source: ICRISAT

1. Islanding Approach

- Establishment of benchmark CW at regional levels
- Benchmark sites serve as islands or models for showcasing different biophysical and social interventions; and satellites are where simultaneous activities take place to influence others
- Excellent exchange of learning and honing the potentials of research development
- Have minimum requirements:
  - 800-900 mm annual rainfall
  - 150-200 mm soil water holding capacity
  - 120-240 days growing period
- Proves **beneficial in promoting advocacy** not only within the islands but also in satellites and even neighbouring villages; strong links developed between the island & satellites improved farmers' confidence and trust

A key feature:

- **sense of ownership** inculcated among the locals;
- sense of **inclusion**,
- taking **collective action**, and
- enjoining **certain degree of guidance from outsiders**

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Source: ICRISAT

Impacts

Increased water availability

Groundwater availability

i.e 7.3 m in Lalatora, Madhya Pradesh;

4.2 m in Kothapally

Reduced run-off and soil loss

in Tad Fa watershed, Thailand

Seasonal run-off reduced to less than half (194mm/ha) & soil loss less than 1/7th compared to the conventional system (473 mm run-off and soil loss 31.2 t/ha)

Increased productivity

In 66 watersheds in India, increased yield by 3-4 times

InangLupa

Source: ICRISAT

Impacts

Increased incomes

in Tad Fa and Wang Chai watersheds, Thailand; farm incomes increased by **45%** within 3 years

Increased carbon sequestration

of **3.7t/ha** in 24 years under improved management with pigeonpea-based system in vertisols

Decreased migration in India

Introduction of watershed activities reduced migration by **8.2%** in Rajsamdhiyala watershed, Gujarat

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Source: ICRISAT

Other Impacts

In India:

- **Literacy** and **SHG formation**
- **Women's group** put up their **income generating activities** like vermicomposting
- Instill **concept of environmental protection** and **conservation** among the **youth**
- **Capacity development** where a critical mass trained served undertook similar skill-building in satellite watersheds

In South Asia:

- Good case for **consciousness-raising** on the importance of an integrated approach to soil and water conservation

Source: ICRISAT

2. Multi-layered Partnerships

ICRISAT experience in building alliances puts across two very important lessons:

1. Trust will stand as a measure for creating relationships and how well these relationships are able to yield the support they need
2. Projects which do not aim to benefit the implementing body will not languish when direct financial support ceases

- Different type of partnerships depending on what works best
- Consortium mode of partnership is efficient & effective in managing and upscaling the islands/model watersheds
- Complex issues like declining productivity are effectively addressed by joint efforts of ICRISAT and NARES, donors, state institutions, & various interest groups etc

South-South Partnership

- Benchmark watershed was also launched in Thailand (Tad Fa), China (1), and Africa

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Source: ICRISAT

3. Knowledge Sharing & Innovation:

ICT Innovations for Agriculture

- KSI is an indispensable **component of cooperation** for development
- Exchanges can open opportunities for **partnerships** and **cooperation**
- Learning and insights drawn from the experiences of the CW projects are **packaged thru modern & conventional means**
- **Importance of social networks** in various forms and scale are the pipelines for creating impacts

Source: ICRISAT

Knowledge Sharing & Innovation:

ICT Innovations for Agriculture

- Main hub was **established in 2004** in Addakal, Andhra Pradesh in partnership with a women's group. To date, there are 5 access points

- Supported by **user sensitive communication materials** such as color coded maps, education through CDs with the help of Digital Green

- **Experimental Hubs** as the means to transfer ICRISAT's experimental results to farmers' communities thru demonstrations in farmers' field

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Source: ICRISAT

ICT-mediation as an emerging pedagogy

The revolution of world wide web **(www)**

Web 1.0 → Web 2.0 → Web 3.0

- Dramatic change in technology landscape for the last 15 years
- Innovative use of Information and Communication Technology (ICT) can potentially solve gaps in agriculture.

Informative tool

Provides vast amount of data in various formats such as audio, video, and documents

Voice | Video | Print

Source: ICRISAT

ICT4D Innovations
for Smallholder Agriculture

- Develops demand-driven and need-based content type of information, communication, and capacity building
- An innovative and cost-effective medium to educate and support a critical mass of rural women and men

Rural information hub

www.vasat.org

Village 1

Village 2

Village 3

Village n

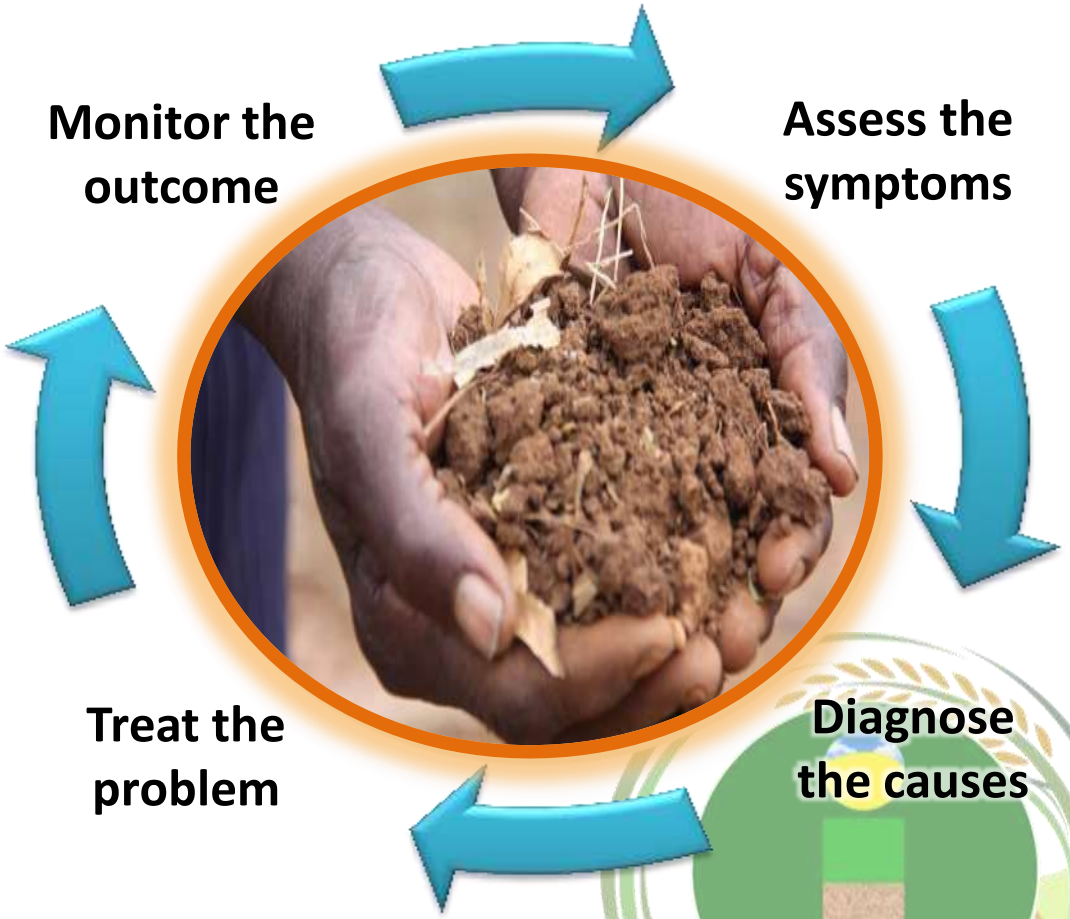
Source: ICRISAT

Soil Health Assessment as an Entry Point

Bhoochetana:

Transition to land health

Uses soil health assessment as an entry point to plan science-based interventions that can lead to tangible benefits for farmers through convergence of sustainable technologies for increasing productivity of farm households with an effective integrated watershed management approach.



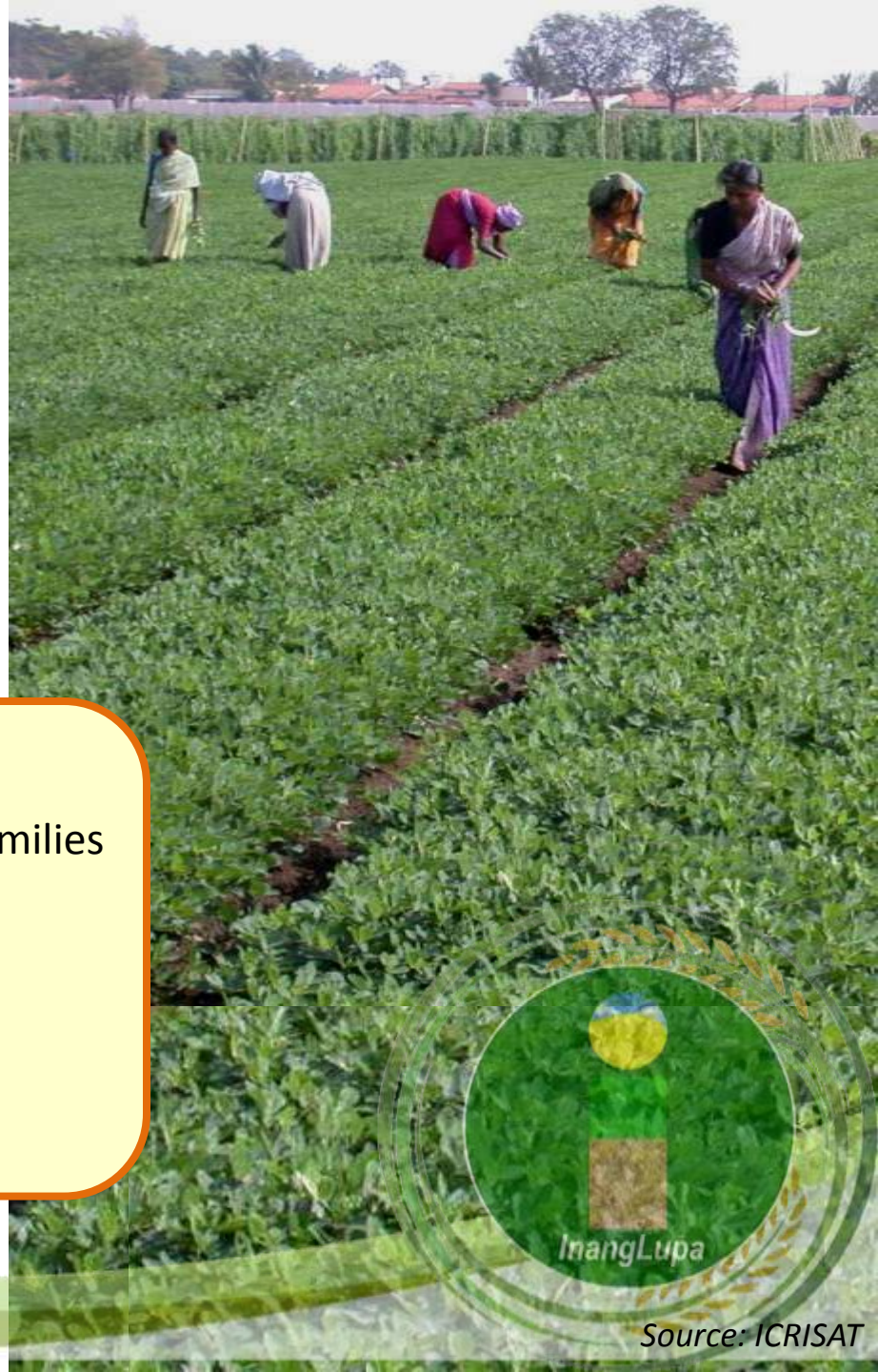
Source: ICRISAT

Case in India:
Bhoochetana
(Soil Rejuvenation)

is a mission mode project of ICRISAT that harness science for sustainable use of natural resources among farmers and increase rainfed crop yields by 20%.

- Increased crop yield by **20-66%**
- Covered **3.1M** ha and benefitted **4.4M** families
- Contributed to rise in agriculture growth:

  above **5%** annually since 2009
- Benefit-cost ratio: **3-14:1**
- Accrued net benefit in 4 years: **$ 240M**



Source: ICRISAT

Bhoochetana: A Scaling-up Model

Source: ICRISAT

Narrowing the yield gaps

Percentage of farmers' fields deficient in soil nutrients in different states of India

State	No. of farmers fields	Org.C %	Av.P ppm	K ppm	S ppm	B ppm	Zn ppm
Andhra Pradesh	1927	84	39	12	87	88	81
Karnataka	1260	58	49	18	85	76	72
Madhya Pradesh	73	9	86	1	96	65	93
Rajasthan	179	22	40	9	64	43	24
Gujarat	82	12	60	10	46	100	82
Tamilnadu	119	57	51	24	71	89	61
Kerala	28	11	21	7	96	100	18

SAT Soils are not only **thirsty** but also **hungry!**

Source: ICRISAT

Bhoochetana Achievements

Saved water. Farmers did conservation furrows and added to the soil organic materials, which led to better conservation of water.

Saved the environment. Farmers use biocontrol agents, not pesticides that pollute the environment.

Saved their soils. To avoid soil erosion, farmers did contour planting, green manuring, broad-bed and furrow planting.

Saved on fertilizers. Instead of following blanket recommendations, farmers tested their soils for lack of nutrients.

Saved good seeds. ICRISAT gave farmers high-yielding and drought-resistant new/improved varieties of chickpea, peanut, pearl millet, pigeon pea, and sweet sorghum.

Source: ICRISAT

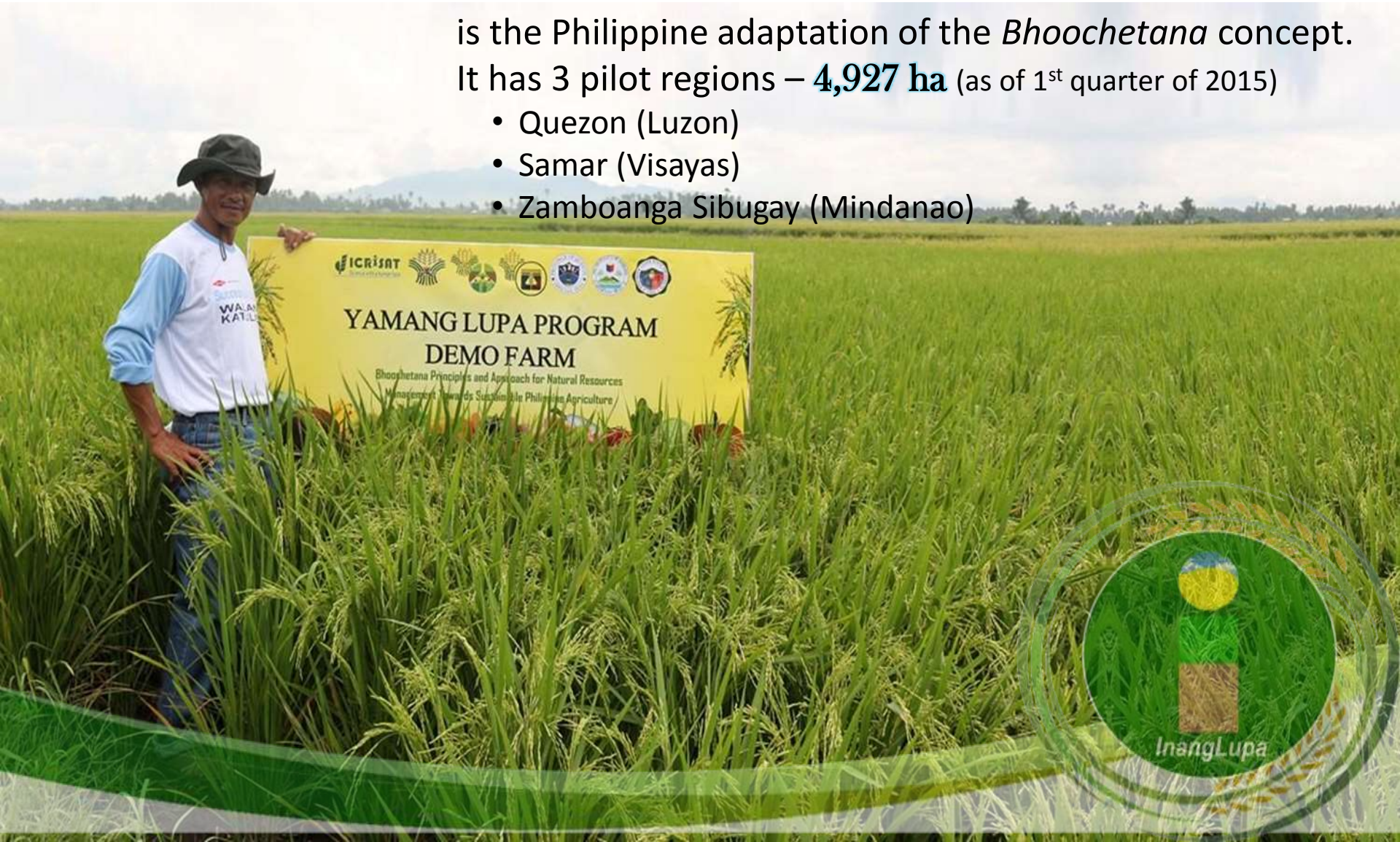
Case in the Philippines:

Yamang Lupa Program

is the Philippine adaptation of the *Bhoochetana* concept.

It has 3 pilot regions – **4,927 ha** (as of 1st quarter of 2015)

- Quezon (Luzon)
- Samar (Visayas)
- Zamboanga Sibugay (Mindanao)



YLP Impacts

- Increased yield of **50% - 232%** after 2 years
- Average increase on net income over farmer's practice is **153%**
- Developed **216 Soil Health Cards (SHCs)** covering **4,927 ha**
- Result of YLP rice demonstration was **higher by 11%** as compared to farmer's practice

Changing Lives thru CW Management

- New common watershed guidelines
- IGNRM, holistic livelihood approach - economic security
- Sustainability and empowerment thru innovative knowledge sharing

- Science-based consortium approach
- Social inclusion (equity and gender) thru convergence
- Learning and evolution thru collective action

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Source: ICRISAT

Thank you!

"Everything you do has some effect, some IMPACT."
-Dalai Lama

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