

M. S. Swaminathan

Ministry of
Agriculture

Expert Committee



**international
workshop
on
benefit
sharing
with
indigenous
people**

August 28-30, 1996
New Delhi



C S E

Organised by

CENTRE FOR SCIENCE AND ENVIRONMENT
41, TUGHLAKABAD INSTITUTIONAL AREA
NEW DELHI - 110 062

Ministry of Agriculture

Committee of Experts

First Meeting: 12 September, 96
New Delhi

Members

1. Four MPs (Lok Sabha)
2. Two MPs (Rajya Sabha)
3. Dr. Divakaran Jha - Agri-Economist
4. Shri Goripattu Narasimha Raju Yadav (NCO) - Gudur, Krishna District
5. Dr. Atul Anjan (Rural interests)
6. Dr. H. G. K. Menon
7. Sh. J. N. L. Srivastava, Addl. Secretary, Dept. Agriculture
8. D.D. C. (Crops)
9. Smt. Neela Gangadharan, J.S. Member-Secretary

Motivation: Uneven development of
Crops and regions.

Terms of Reference

1. Identify areas of low
productivity

2. Identify nature of risks
associated with agricultural
investment in these areas —
Management of risks

3. Enabling macro-environment
designed to enhance capital
formation in such areas

4. Measures for stimulating
agricultural development in these
areas.

5. Measures for checking the
outflow of surplus capital
generated in the farm sector

6. Research and development programmes for making the agricultural produce in these areas acceptable and competitive in terms of price and quality

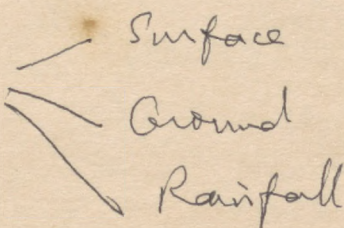
7. Market linkages and creation of infrastructure for processing and marketing of agricultural produce.

Duration: 6 Months : i.e., February, 97

Interim reports

Ecological Foundations

1. Soil - Soil Map

2. Water 

3. Credit facilities available.

4. R, T + Extension set up.

Strategy

① Areas of low productivity

- (a) Irrigated
 - (b) Rainfed
- lowland
upland

Classification

- (a) Low yield - high risk areas
eg. Aman season
- (b) Low yield - low risk areas -
eg. Non-flood prone season in Assam
- (c) Areas with ground water
- (d) Areas with scope for water harvesting and conservation.

② Risk Management

③ Capital formation and retention

(4) R & D efforts

(5) Market linkages -
Market infrastructure

Constraints Analysis

Mrs Neela Gargadharan

Regional imbalances

Minister for Agriculture

Sh. Chataranan Mishra.

Poverty

(1) Social disintegration & disruption -

will be the consequence of
agricultural stagnation in
many parts of the country
like Bihar.

Sustained food production to
capture the world market.

(2) Trade → Home

↘ External

70% of area not covered

by green revolution.

③ Consolidation of green revolution
in the form of an ever-green
revolution.

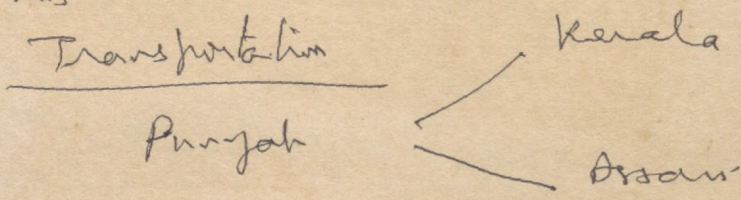
Bihar, Orissa, West Bengal -
Green but no green revolution
areas

Transport cost - eg.

Ludhiana to ~~Andhra~~ Andhra Pradesh
Rs 700/t of grain - transport
cost.

④ Regional development helps
to cut down transport cost.
West Bengal & Bihar are
making progress - can
export maize.

No procurement in these
States



(5) Agro-climatic Zone
Pulses to be produced
in these States - Produce
more pulses

North east: can do better
in horticulture -

Western India - arid zone

Good Monsoon code

Marketing Problems

Middle Man's profit -

Linking the producer
and consumer in a mutually
beneficial manner.

Cotton + Jute, A committee
can be set up.

Post harvest technology

Value-addition to
produce

Soil health & land use
planning

Area approach:

Select some districts
in the country — 6 6 7

eg. Kalahandi in Orissa,
Rayachaseema in A.P.

Sarguja — M.P.

Dhruva
Nadkumbh) Bihar.

Jhujuni —
Rajasthan

Tripura.

6) Services : Orhile Soil
Testing.
Single window service.

Sen Committee Report — 1984.

Membership

Add: Advisor (Agri) —
Planning
Councils

Dr Prakesh/
Nambé

Dr K. Kanungo

CFTRE NA BARD

Shri Raji

Land is rich

Farmer is poor

Don't use chemical manure
+ pesticides.

1 Mr Smivastava, Add. Secy.

Tasks

① Identify Poverty areas
coupled with low productivity

② District Plans.

③ Water Resources

Rural infrastructure
like housing.

Food processing industry

④ Home culture.

⑤ Cooperatives

⑥ Institutional Reform

Utilisation of central funds
Procedures for resource utilisation
Problems of extension

Macro recommendations to
micro implementation

Institutional decay in Bihar
Don't depend on Panchayati
raj institutions

II Do This : Concentrate on a
few specific areas

Make specific recommendations

Risk Management:

Disaster Management:

Be practical

III Fertilizer (J.S)

Water is a major constraint.
Concentrate on available resources

Integrated Nutrient Management

Ecolithology - Durum -

mode approach.

IV Dr Maheshwari

Area based & farming systems approach.

Common property resources.

V Dr Debrai

S F D C.

Coordinated Projects - get integrated data

VI ICAR

Gen Committee - identified a broad spectrum of problems
Seasonal water scarcity.

Committees have flagged

the issues -

What are the leads - how to pursue

Nadkubani - highly
fragmented holdings &
hence water management
is difficult.

VII Dr Tandon

Constraints relating to
implements & field preparation

Nadma is preferred in
the hills inspite of potential
for horticulture -
economic, social, land
ownership patterns.

VIII Mr Raju

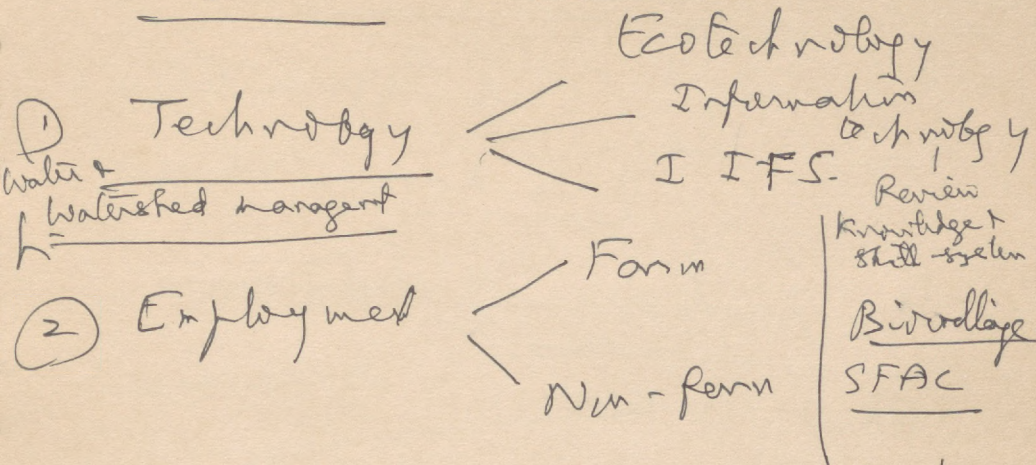
Diversification of good land
for non-farm uses

Plant trees

Use organic farming

(10) Institutional structure for
integration & implementation -
role of Panchayats

Approach : Pioneer Projects



③ Green-belt around markets - Urban agriculture

④ Minor-migration led green revolution.

⑤ Constraints analysis to understand gaps.

⑥ Component Technologies

Implements.

⑦ Land use policy - Selected districts

degradation & Diversification of prime farm land for non-farm uses.

fragmentation
Pulses

⑧ Crops & Commodities

Oilseeds
Pulses
Cotton.

⑨ Areas - districts / blocks.

IX : Veena Shadhyoga

Membership : (State representatives)
Well known NARS.

Low productivity : define in
terms of crops.

Deal on a crop-specific
basis

Mismatch between financial
resources + committed
human resource.

Technical

Non technical
aspects

a) Linkages
between R&D.
on a defructwise
basis - ICAR/SAV.

a) distribution
aspects of
approved programs
access to
funds by
the unready.

b) Rain fed areas
less attention to
breeding varieties
for moisture stress

b) Role of
Panchayats
must be
augmented

Natural Watershed Development
project - better recent back-up.

(NW PRA)

Universities are not teaching
watershed development

Water harvesting structures.

Harmonisation + Coordination

Block level approach

Short term + immediate
benefits

Monitoring aspects

Motivation - social scientists

Dr Yadav

Land is shrinking

degradation

diversification

population
increase.

~~diversification~~

Productivity improved.

Productivity must be the main
source

Areas / crops / commodities

Pulses

+ oilseeds - Millet

cotton.

Drought & pest resistant
varieties.

XI R. K. Srivastava | Dry land
Farming

Training of farm graduates

Integrated cropping system.

Technology dissemination

XII Dr. M. L. Madan, D. D. G.,
Animal Science

Poverty alleviation &

technology transfer

programmes — why

differences in State
absorption)

Constraints

(a) agro-climatic conditions

(b) Implementation structures -
hierarchical system - is not
functioning.

Reaching the unreached.

Human-Centred development

Crop - animal mixed farming
systems.

Lack of information dissemination.

capsule information.

Incremental model of progress

holistic model.

XIII Chambers, M. D., SFAC

SFAC - Board of Management -

Reports are ready for

14 districts.

Given to Boards.

Productivity must be the main
source

Areas / crops / commodities

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+ oilseeds - Millet

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Given to Boards.

Implementation by Stakeholders

SFA c being set up as an independent entity - not as a funding but catalytic' organisation

IV Neela Gargadhara

Poverty and low productivity
- linkages - wheat
are the factors.

Indicators of poverty
Enabling environment for
enabling people to be
self-reliant.

Learning for success

Panchayats: have important
role in implementation

Can SFA c die hits
be included.

O.issa - Kalahandi
Navpodei
D.P. - Anantapur
M.P. - Saragujia
Bihar - Dhanuwa
Dadhurani
Rajasthan - Jaipur
N.E. states - Tripura

Institution

GIS - Maps - Soil
Water

Poverty satue -

Crops & livestock - aquatic

IIPS

On-going projects

Mr. Rajee

Dr. Jha

Mr. Chandra.

attending

Attending the Madras
Meeting

(1) Dr. Diwan Jha

(2) Dr. R. C. Babaskhwar, ADA,
ICAP

(3) Sri Gopinath Narasimha Raju
Yadav.

(4) Sri Chandra, MD, SPAC

September 18, 96

Hunger-free Area Programme

Tamil Nadu

I Gap & Constraints analysis

- (a) Anti-poverty programmes
- (b) Specific target group oriented programmes - DWACRA, ST, SC etc
- (c) Quality of life improvement. Water, Sanitation, toilet housing, Smokeless chula etc
- (d) Agricultural Production programmes
- (e) Rural infrastructure development programmes

II Covergence and Synergy

Self-mobilisation of the people.

Seven Selected Districts

- 1) North eastern zone : South Arcot
- 2) North western zone : Dharmapuri
- 3) Western Zone : Dindigul -
Anna
- 4) Cauvery Delta : Thanjavur
- 5) South Zone : Ramnathapuram.
- 6) High rainfall zone : Kanyakumari
- 7) Tilly Zone : Nilgiris

National Level.

- ① Orissa : Nayapada
- ② Andhra Pradesh : Anantapur
- ③ Madhya Pradesh : Sarguja
- ④ Bihar : Dhanbada
- ⑤ Rajasthan : Nadiadbaru
- ⑥ N. E States : Jangam
- ⑦ Tripura

Mrs Lakshmi Praveesh.

Secretary, Department of Social
Welfare.

Hidden Hunger: Micronutrients -

like iron, iodine,
Vitamin A, zinc, etc.

only 10% of the rural children
are normal with weights about
90% of the standard.

Biological absorption and
utilization.

AIS Mapping

Coping mechanisms

Consultants: Gram Sabha

①

Kanyakumari District.

Coastal Block

Narayanam Sundaravar
District

Fishermen Community-

Coastal Community.

Tamil Nadu has 1000 km of
shore line

Kolachel area.

② Nidgiris District : Kottagiri

Arinasahyan Home
Science University.

Block with more tribals

Role of women..

plantation crops.

③ South Arcot

MIDS

MIDS has difficulty in
organising a short term program.

Module for information dissemination.

(4) Dharmapuri District

Pappireddipatty Block.

(5) Coarthigram Rural Institute

Mannan Thinnalai District.

(6) TNAU

Ramanathapuram District

Thiuppalani Block

(7) Thanjavur

Bharati Dasare University.

Thiruvayur

Govt's role

a) Letter to District Collector for
Smt. Praverk

b). Financial support -

30 to 40 Panchayats per
Block.

1 lakh per block /

University

Membership of Expert
Committee

Add.

Dr K. Karungo

October 24, 96 . New Delhi.

2nd Meeting of Expert Committee

Hon. Members of Parliament

Lok
Salha.

Dr. Murlidhar Manojan Joshi

Shri Satrughan Prasad Singh

Shri Chitta Basu

Shri Mehboob Zahedi

Shri Tariq Anwar.

Shri S. Ramachandra Reddy

Rajya Salha. Shri Som Pal

Shri Bhupinder Singh Mann

Shri Narendra Kumar Pradhan.

Dr. Diwakar Jha.

Shri Gopinath Narasimha Raju
Yadav.

Dr. Atul Agrawal.

Shri J. N. L. Sinhasastri, Addl. Secy.

Smt. Neela Gangadharan -
Member-Secy

Minister (A & C)

Extending the green revolution -
including the excluded.

I
Shri Son Dal, M.P. (Rayya Sabha),
~~Rayya~~ Deewat

Food self-sufficiency
is vital.

Rural Poverty - Unemployment

Food Security
Right to lead a productive
& healthy life.

Asset Building for the
poor.

Jobless growth -

High rate of unemployment
in Germany & industrialised
countries.

Agriculture in the short term
cannot make people rich
but could provide sustainable
livelihoods

Agriculture $\left\{ \begin{array}{l} \text{Land} \\ \text{Water} \\ \text{Genetic Resource} \\ \text{Human effort} \end{array} \right.$

a) Land

Extensive agriculture —

| | |
|------------|-------------------------------|
| waste land | 52 million ha - afforestation |
| land | 39 .. agriculture |

only 11% of area under forests of adequate density

Poor $\left\{ \begin{array}{l} \text{Agricultural (landless labour)} \\ \text{Tribals - have} \end{array} \right.$

lost their traditional rights.

Timber felling is going on.

Joint Forest Management

Common Property Resources

Involve tribals in raising forests.

Land reform $\left\{ \begin{array}{l} \text{Agricultural Labour} \\ \text{Rajiv Gandhi} \end{array} \right.$
Distribute land

organize them into regional
economic units.

Soil erosion: serious problem

Soil Health card

(b) Water → Wastage through
canal system -

38% is lost.

old technique of flood
irrigation is

wasteful.

Construction period in large
& medium irrigation projects is
too long.

Modern irrigation: Sustainable
management of the aquifer.

Watershed management: Very
important. 25 year perspective
plan.

(c) Genetic Resources: Aquaculture
depletes micronutrients.

Alternative strategies — research
~~is~~ is not adequate

Aromatic & medicinal plants

Conserve them

Medicinal plant enclave.

Animal Genetic Resources

Kashmir breed of
cattle in high altitudes,
(near Almora),

Safeguard the herd.

d) Economic Environment

Markets — keep prices
of food commodities low
— this is a colonial policy

Services rather than
subsidies

PVC & steel pipes —
do not impose custom
duties

Agro-industries :

Sugar industry is still under licensing - Govt. Control is all pervasive -

Sugar industry is not getting modernised,

Milk industry :

Do not import milk powder & butter oil.

Solid wastes : Have a

policy

standing Committee on
agriculture - Storage in rural areas - in surplus areas - Farmers can share the cost.

e) Agro-climatic zones : General awareness: cropping patterns -

Time frame & accountability

for the implementation of projects.

f) Export: Productivity leading to surplus.
Long term vision.

Sun rise industries

Grains

Vegetables, fruits & flowers.

Medicinal plants

Dairy products

Aquaculture

g) Appropriate technologies

Biotech institute's work is not going to the field.

organic foods are assuming importance in the

II Shri. Satrughan Prasad Singh

Crop - livestock integration

→ Cow dung.

Chemical fertilizers is spoiling land.

DAP is sold in black market.

Seeds, diesel + fertilizer are not available.

Floods in North Bihar

Drought in South Bihar

Extension is poor

Agriculture based industry is important.

Agriculture labour: Minimum

wage is not being given

Remunerative price is not being given.

Rural roads are poor

Cold storages are important
Electricity - diesel -
roads - market -

Modernization of sugar
mills

Fish - is coming from Andhra
KVR should give training ^{Pradesh}
in fisheries.

Reduce the gap between
producer's receipt & consumer's
payment. National Research Institute
for Dairy ^{for} Devising Syllabi
Potential into
products

III Dr. Diwakar Jha

Techno - infrastructure
Marketing is poor - eg
Vegetables -

Short term Measures

Long term Measures.

National Demonstration
for non-green revolution areas

Short term

Recommendations

(a) National Demonstration
for Non-green revolution
areas.

(b) National Institute
for ~~Delivering~~ ^{Integrated Agricultural} Systems: systems

W Sri Ramachandra Reddy

Royalaseema

Medicinal plants - prices poor
Contract cultivation to be fostered

Jasmine - Marketing

V Dr. Siddiq

Tobacco : alternative
Crops → aromatic plants

Immediate impact : Eastern

India - in high rainfall
areas - Minor irrigation is
important

Take Ramanaathapuram in
Tamil Nadu.

Identification of areas
of immediate potential -

Diagnostic survey.

Land use pattern.

Off-farm opportunities.

By Dr Dayanand Iyer

Dr. Rakeshwar.

Most of the things needed
are outside the Agriculture

Ministry

Short term impact)
Long term impact)

No. 546 - Mrs. Gangadharan
Dr. Dayanand Iyer
Dr. Rakeshwar

① Identify Thrust areas -

Infrastructure

Availability of technology

Information
empowerment

Input supply -

Markets & Trade.

Investment

② Gaps & Constraints analysis

③ Recommendations

Package of Technology

Package of services

Package of infrastructure

Package of Gov. Policies

④ Resource use efficiency

⑤ Accountability

Smt. Neela Gangadharan

Phone Number

Fax.

(011) 338 5784

Dr Dayantra Jha

Fax (011) 573-1978

Dr Maheshwari

Fax (011) 338 72 93

Dr D.S. Basu - Groundnut
Coordinator -

Rice - legume consortium
like Rice - wheat consortium

Rice - groundnut

— Soybean

— Mung bean / Arhar.

North East provides opportunity
for rice - groundnut rotation

III Needy

Dr. Manli Manohar Joshi

(1) Identify priorities.

(a) Increase productivity

(b) Conserve natural resources

(c) Increase income and farm
+ non farm employment.

(d) Increase investment in
rural infrastructure

Shi Chitta Basu

Poverty eradication by 2005

Increase the income
of agricultural labourers,
landless labour,
fishermen

(8) Shi Chaita

Total rural development

Assam: floods, Brahmaputra
control authority

(4) Shri Zahedi

Emphasis on labour.

(5) Shri Som Pal

Prepare a paper
for helping to formulate
the recommendations

Prisa: take watershed
management.
Flood & drought prone
areas.

D. D. Jha Indicators for

Problem areas.

Data collected for 355 districts
and 39 districts were identified
for action.

Farm size was the
same in high & low growth
areas

Investment in ~~hardware~~
(eg. roads, electricity)
and soft infrastructure

Dr Velayuthan

Soil resource: assets &
liabilities.
Land capability -

Ground water (Mr. Kettu)

Major role both for
irrigation & drinking water

Issues: our exploited areas
are large.

Groundwater development
is possible in eastern
& north eastern states

Thrust areas: East & N.E
region

Command area of major & medium
irrigation projects

c) Regions / pockets with sub-optimal development.

d) Regional system under auto flow conditions.

Cooperative use is possible.

Fragmented holdings make investment in water minor irrigation difficult.

Mr. Som ~~Das~~ Pal

Most critical areas I identify means by which productivity can be improved.

Ownership

Waterbed

Infrastructure

Strategy for increased productivity.

Pri-chalika : a meeting
in N.E. should be
arranged.

Man-level planning.

Wasteland development.

Mr Sen Pal

Convene a meeting of
all Agriculture, rural
development and irrigation
ministers for launching a
watershed development.

Suggest to Minister for
Agriculture to convene a
meeting

January 7, 1997

Committee of Experts

Dr. Murli Manohar Joshi, M.P.

Shri Satrughan Prasad Singh

Shri Chitta Bapu

Shri Mehtood Zafadi

Shri Tariq Arwar

Shri Ramachandra Reddy

Shri Som Pal

Shri Chalika

Shri Narendra Kumar Pradhan

Dr. Diwakar Jha

Shri Gopinath Narasimha Raju
Yadav

Dr. Atul Anjan

Shri J. V. L. Srivastava - Addl. Secy.

Dr. E. A. Siddiq

Shri Neela Gangadharan -
Deputy Secy.

M.P.

Basic Strategy - Eco-regional

Technology Mixes

- ① Horizontal integration of numerous programmes
- ② Involvement of Panchayats + local farm families in planning
- ③ Integrated Intensive Farming based on ecological ground rules

Personnel Policies for

effective implementation.

I Shri Chalika; something definite should emerge.

Perennial problem of low productivity in NE Region N.E. States should get the highest priority

Even existing schemes have
not been utilised . . .

Dr Shichita Babu

Approach is very
appropriate & right .

Integrated Intensive
Farming System is the
right approach -

Multiple livelihood
opportunities are important.
After implementation of land
reform, the farmers are
mostly small farmers in
West Bengal.

Eco. regional Technology Mission
approach is the right one
Vertical approach has to
be horizontalised. State
Governments will have

To be involved

More outlay for agriculture is essential — there is reduction in investment in rural areas is going down.

Budgetary allocation is not encouraging —

Infrastructural development

in the agricultural sector
is very important —

Specific recommendations
Agriculture should have a higher allocation as in the case of irrigation

Monetary allotment —
make recommendation to the Planning Commission to quantify the money required.

Separate groups should
be set up

Groups for West Bengal,
Assam, Bihar

Developmental Strategy

Infrastructural Strategy

Profiles of hills and plains

N.E. Region - North East

Council is not functioning

N.E. Region

Sub groups

Assam :- Jammu prone
areas need attention

IV Dr. Mwalali Manohar Joshi

(a) Resource Crunch -

how to optimise the return
from available resources

b) Traditional Methods of
agriculture - revitalisation

Water harvesting & management.

Revitalisation of traditional
methods in land and water

management - modernisation

of traditional skills -

give the ideas in local
language & dialect.

Audio-visual techniques -
electronic media

Krishi aur Udyog Vigyan

Kendra : Use successful

farmers. Convert

Unique into universal

eg Anna Hazare
Sukhmanoj

c) Fix specific targets &
accountability

d) Great emphasis of
minor irrigation &
effective use of water
Mini-hydel, solar.

Minor-irrigation triggered
green revolution

Water management is the
most important factor in
agriculture

↳ Set up a small group
to look into projects
for minor irrigation

Where are ^{the} immediate
opportunities?

e) Research should be
directly related to
the area:

Advocate the Universities
to prepare plans for
soil improvement in the area.

IV. Do Ita

Reports: Action oriented, practical
recommendations.

Marketing opportunities
— income — assured and
remunerative income is
stable eg. horticultural
produce.

Learn from the examples
of Himachal Pradesh &
Naharveltra.

How & Why should small
producers produce more

Group Empowerment —
value of scale to
small producers

Infrastructure developed

Group farming
cooperatives .

V Mr Raju

Land ceiling - why
only to rural areas -
Why " discrimination between
urban + rural areas.
Remunerative price is
essential

Village industries -
Ground water exploitation

Fighting the fatigue of the
green revolution

Services + not subsidies

restrictions on movements

Latest technologies
organic farming

VI
Mr K. Rajan, Secretary, Agriculture

Institutional arrangements
for operationalizing the plan
Holistic approach to farming
Micro-level planning

State plan should be
aggregation of district &
block plans

Productivity improvement

Ground water use varies.

power & electricity consumption
varies

Horizontal dimension: Eco-regional Technology Bureau

- ① IIFS - Precision farming -
- more livelihoods, income & multiple yield livelihoods
- ② Group Cooperation - power of scale
- ③ Systems approach -
production, processing & marketing.
- ④ Divisionalization
Triggered green revolution - water management
- ⑤ Infrastructure development
- ⑥ Involvement of Universities, KVAFS, etc for minor-level planning

Goal

Fighting the fatigue of the green revolution & expanding it to non-green revolution areas

Eco-regional Technology Bureau
Vertical

Horizontal dimension
Maximize benefits from infrastructure investment
Pan-Indic Reg. Provides the missing links
eg. Barabati

Working Paper -

Agriculture
Empowerment
Energy — Renewable
Rural Development

Special features of N.E. Region

Strengths — Mega biodiversity areas

Deficiencies

Conservation and
Commercialisation

Economic state in
conservation

N.E. Region

horizontal integration

Vertical
integration

Cooperative + SME Group format
power of scale to small
producers

Eco-regional Technology Mission

for N.E. India : To provide
~~effective institutional mechanisms~~
for achieving the following goals

Goals: ① To achieve horizontal and vertical integration of numerous ongoing programmes ^{relating to} ~~designed to~~ achieve poverty alleviation and natural resources conservation

② To maximise economic, ecological and social benefits from existing investment and infrastructure

③ To involve Panchayati Raj and people's institutions in both planning and implementing development programmes as well as to

④ generate group cooperatives leading to small scale producers

deriving the advantages
of scale in marketing

(4) To promote ecologically
sustainable intensification,
economically desirable
diversification and skilled
employment generating value-
addition to farming systems

and (5) To provide the missing
links in ongoing development
programmes

IIFS - precision farming
leading to more jobs,
income and food.

on-farm & off-farm employment

N.E. Region - Deza biodiversity
Region; also a hot spot
Conservation & Commercialisation

"Hidden hunger" of micronutrient malnutrition

① Iodine deficiency. Can permanently impair mental functioning and physical growth processes, with cretinism the most severe manifestation of the problem. Has been virtually eradicated through salt fortification in many countries

② Vitamin A deficiency can cause blindness and can impair growth and the immune system's ability to fight infectious diseases. Every year, a quarter to a half a million children become totally or partially blind from the deficiency.

③ Iron deficiency is the most prevalent nutrition problem in the

World, with 2 billion people at risk globally. Iron deficiency anemia, whose symptoms range from mild lethargy to death, affects more than half of reproductive-age women and children under the age of 4 in developing nations.

Iron deficiency anemia affects more than 420 million people in Asia.

Vitamin A deficiency places more than 42 million children in the region at risk.

The World Bank has estimated that the socio-economic benefits of the sustained elimination of deficiencies of Vitamin A, iron and iodine could contribute as much as 5% of gross domestic product annually to an affected country for an investment of less than 0.3% of GDP.

Fortification

Collaboration between the public and private sectors.

Fortification of sugar with vitamin A in Guatemala

Sugar with vitamin A, iron and zinc, alone or in combination in Brazil

Salt with iodine in China

Sweetened condensed milk with vitamin A, salt with iodine and instant noodle seasoning powder with iodine, iron and vitamin A in Thailand.

Righting micronutrient malnutrition:

Tamil Nadu Nutrition Code.

Shilling . 5th Decry;
13-14 Febry, 97

February 13, 97

High level committee

Ph. L. A. Sanyal, Minister, Agriculture

Dr. Murali Manohar Joshi

Reserve Bank of India
Committee chaired by Dr. S. R. Sen

Gradual decline in
agricultural production and
productivity in the eastern
region.

Why this decline?

How to convert natural resources
into wealth meaningful to
people?

What is the correct land use
pattern?

Mega biodiversity area. — also
a "hot spot" area.

Thum cultivation — should
it be modified?

Traditional and frontier
areas of technologies —
Ecotechnologies

What is the most appropriate
land use?

Increase per capita income.

Bamboo + Rattan.

Water Management is crucial

II Mr. Chalika

a) Total change in the
backwardness scenario

b) Eco-regional Technology
Mission

Attend to all the links
in the chain

c) People's Participation

d) Agro-chivake zones

e) Consolidation of
land holdings

h) Horticulture

III Pm Satughan Prasad Singh

Improve productivity

IV Pm - Chitta Bisen

Eco-regional Technology
Mission is important
based on IIFS.

More investment is needed.

Major Programmes

Eco-regional Technology

Munim

Ecological security
1) Biodiversity and Bioresources
conservation + commercialization (IIFS)
Tunne

2) Flood Prone Area

Development Programme

3) Minor-irrigation
triggered green
revolution

Water harvesting and
ground water - Rain
water conservation and
management.
watershed management.

4) Rural enterprises -
bamboo and rattan

5) Land development and
consolidation (group farming)

6) external
low input sustainable

agriculture (LEISA)

7) Infrastructure → Vermiculture
Datura - green
nanures
Sad Villages
Biopesticides

Cold storages
Marketing, Communication,
Packaging + transportation

8) Socially relevant

mechanisation -
Promote Group Farming

Groups can manage
Pumps etc

Prime Minister's Yojana
for educated youth

NE Eco-regional Technology

Mission

Think, plan, act locally + support nationally

Sub-Mission

States

Sub-missions

Regional Themes

Requirements

People's involvement
People's institutions
" initiatives

Infrastructure — Roads,
Marketing.

1. Assam
2. Meghalaya
3. Manipur

4. Mizoram

5. Tripura

6. Arunachal Pradesh

7. Nagaland

8. Sikkim

Micro-level planning

Micro-enterprises

Micro-credit

Dr L. D. Sangma

Minister for Agriculture,
Meghalaya

- ① Priority in the supply of inputs - seeds
- ② Lab to land
- ③ Value addition
- ④ Self help
- ⑤ Home Science College

Under Central Agricultural
University

Meghalaya is willing
to give land

- ⑥ Research centre for
Horticulture

Horticulture University

- ⑦ Marketing infrastructure
- ⑧ Climate conditions similar
to Kerala.

Social disintegration
will result, if the
W E states are
neglected.

Raitong Bunting, Shillong
Feb. 13 - 14, 97

Committee of 5

- 1st Meeting. 12 September 96, New Delhi
2nd Meeting. 24 October, 96 " "
3rd Meeting
4th Meeting 7 January, 97 New Delhi
5th Meeting 13 - 14 February, 97, Shillong

Shillong Meeting MPs

Dr. Murlidhar Manohar Joshi.
Mr. Satnughan Prasad Singh
Shri Chitta Basu
Shri Chakrabarti.

March 20, 97

Engelberg

Ministerial Day

Prof. Jian Song, State Counsellor
+ chairman, State Science and
Technology Commission

China's population:

1953
583 Billion

1995
1237 Billion

Population growth holds the
key to sustainable food security

New Family Planning Policy

Population growth is
controllable

Late marriage

1 child in urban areas

at most 2 children in rural areas

No limits to Minowtu

Disincentives = 8% of population

Goal : TFR : 1.6

TFR in 1996 : 1.8

Food needs for 1.6 billion

• 640 million t of annual grain harvest by mid 21st century

• 400kg for each citizen

Harvest of 1996 : 480 million t

Can we raise from 480 million t to 640 million

Strategy

• 3.1% growth during 1950-96

1.0% in 1996-2030

• Improvement of $\frac{2}{3}$ low-yielding

Cultivated land

(30% more yield)

a. Reclamation of 20 m ha
of wasteland

• Allowing to 250 m ha grassland

• Aquaculture: to quadruple
the yield in 20 years

Attainable Maximum

1026 Million t/year

Extremely adverse weather -

534 Million t/year

Irrigation improvement.

818 million t/year

510 Kg / caput for 1-b
billion

Water

Uneven distribution

North - 64%. cultivated area

" - 17%. water supply

South China

36% area.

83% water

Very uneven distribution of
water between north and
south

Inter-basin transfer of
water is being planned

Agricultural water use efficiency

China — 10%

Japan — 30%

Israel — 80% (Save 126
billion Cu Meters
to

1. Jean-Pascal Delamuraz

Federal Councillor, Swiss
Federal Dep. of Economy

2. Jose Israel Vargas

3. Dr Venice K. Gouda,
Egypt.

4. Mariano Gago, Portugal

(World Water Council
Global Water Partnership)

Dr Delamuraz
Engelberg Fernan
should be fully
involved in Food Security

Dr Jose Vargas

& Major River Basins

Mr Mariano Gago

1997 Parum Engelberg's

Plan of Action for
launching a Hunger -
free Area Programme

Think, Plan, Act locally - ^{supporting &} ^{materially &} ^{internationally}

- ① Identification of the ^{ultra - poor}
- ② Information empowerment
- Household Entitlement
card
- ③ Protein - energy malnutrition
- interventions
- ④ Eliminating ~~big~~ hidden
hunger
- ⑤ Improving biological
absorption & retention
- ⑥ Strengthening livelihoods
through micro planning
micro - enterprises
- ⑦ Women ^{micro - credit}
and children

Mr Cass (Portugal)

local solution by local people.

Committee on Public Understanding
of Science - Royal
Society

Celebrating the Millennium -
Role of basic research
in triggering technological
advance.

Watson & Crick - Double
helix model of DNA
- public funded
research

21 March

Dr Herwig Schopper, Farmer, DA of

CERA, chairman, Forum
Engelberg

Prof. Jakob Nuesch, President

of the Swiss Federal Institute
of Technology, Co-President of
Forum Engelberg, 1997

Forum Engelberg Award

Hans R. Herren; DA, ICIPE

look at all the links from
producer to consumer

Nutritional Labelling -

iron, iodine, Vitamin A,
B vitamins, Zinc, Copper.

Should be developed
using basic staples

Protectionist policies of a7
Countries reduce export
opportunities for developing
countries

Better market access to
products of developing countries
is essential for poverty alleviation

Needed: Fair Trade & not
Free Trade

Incentives to farmers are
important. They need prices
and macro-economic stability

Promote a job-led economic
growth strategy

Market malfunction
can cause famines in
the midst of adequate
food availability

Gene Technology

Response: Acceptance to overviews
varies from country to
country.

Concerns

Ethics & Equity

Private & Public sectors

Participatory bottom-up approach

Public Understanding of
Science is essential
Strengthen links between
Science + Society

Dr Lawrence Lau

Dept. of Economics,
Stanford University.

Long term Food Supply
and Demand Balance:

China & USA.

US Agriculture: Land, Capital,
subsidy + technology
intensive.

USA - 176.2 billion ha.

China - 95.10 billion ha

Average Size of Farm.

USA.. 199.00 ha

China 0.41 ha.

Future growth has to come
exclusively from growth of yield

China

Capital

Nutrients - Balanced fertilization

R & D capital

Economies of Scale

Increased efficiency.

Technical efficiency
Allocation efficiency.

Residential composition

Urban / rural
abs influence consumption

China may have
to import less than

20 million t by the year 2020.

Food security should apply
to staple food

Managing Food Available to
the indigent

USA: Food Stamp Program
Welfare "
School lunch "

World grain trade: About 200

million t. in 1996

USA can export about
170 million t.

China

controlling population
growth

Increasing supply
Managing indirect
demand.

USA Managing supply
China will have excess demand

for food grain in 2020

taking into account direct
and indirect consumption

China's Land Survey
has shown that the
cultivated land is more
Household responsibility.

$\frac{9}{10}$ income goes to
State

$\frac{1}{10}$ kept by farmers.

China's population
in agriculture is 50%.

Agricultural Tax was
fixed at in 1979 & has
remained the same.

Out of total govt-revenue —
only about 10% comes
from ag

1997. Penn Engelberg Award

Purpose is to be used
for supporting a young
research scholar &
a laureate

Dr Bernard Coffey.

Founder Director of
Penn Engelberg

Dr Hans R. Herren, ICIP

8 to 4+1/2 unemployed
with university education
~~by budget~~ before to come

SENIORS EXPERTS FOR THE THIRD WORLD

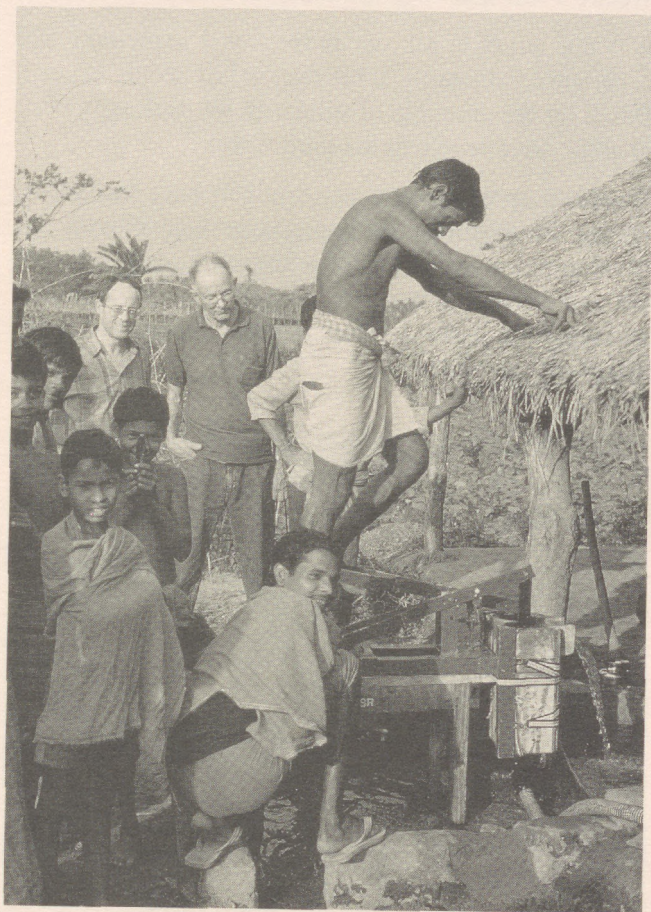


Photo: Marianne Kohler

North-South know-how exchange

SE3WE
Bahnhofstrasse 8
CH-6020 Emmenbrücke/Luzern
Switzerland

SE3WE – OUR GOALS

We are a self-help organisation of retired professionals.

It is our target to put our professional know-how and experience voluntarily at the disposal of people in need. Based on the principle of solidarity we especially want to assist poor people in the third world.

For this purpose some of our members have specialised in the development of appropriate technologies for developing countries. Over the last years we have invented and tested a foot-driven irrigation pump for small and marginal farmers. Other members have specialised in dry-land agriculture.



72 year old H. Bacher is an expert in dry-land agriculture, watershed development and community-building. In 1994 he received rewards from Indian and German Governments.

IRRIGATION PUMP

The foot-driven irrigation pump is based on principles of appropriate technologies. Manufactured in villages, it is inexpensive and can be installed and maintained by the farmers themselves. The rustfree body is made of concrete with inlaid PVC. It allows the drawing of water from a depth of max. 8 meters. The recommended groundwater depth for irrigation purposes of approx. two acres of wheat or one acre of paddy should not exceed 5-6 meters.



Special instruction materials for the manufacturing of the pump are available from SE3WE:

- Technical plans
- Technical video
- Demonstration video for farmers

If required, SE3WE members make available their expertise on request (cost-free consultancy except cost for travel, board and lodging).

SE3WE

SENIOR EXPERTS FOR THE THIRD WORLD

Members:

| | |
|----------------|---|
| Bacher H. | Development Expert Dryland Agriculture Ahmednager, M. S., India |
| Dobmann J. | Tool Maker 6020 Emmenbrücke |
| Kohler A. | Head Swiss FAO-Secretariat, Dr. oec., 3414 Oberburg |
| Leu J. | Ex-Member of Parliament, Farmer 6276 Hohenrain |
| Meier M., Mrs. | Community Assistant 6020 Emmenbrücke |
| Schmid T. | Social Worker Columbia |
| Verma B.L. | Development Expert N. Dehli 11048, India |
| Weber W. | Engineer, dipl. Ing. 6020 Emmenbrücke |
| Zumstein A. | Engineer, dipl. Ing. 6020 Emmenbrücke |
| Zwyer J. | Executive Member of Community 6020 Emmenbrücke |

We are very grateful for your financial contribution in support of our research and development efforts also for making available our expertise to partners in the third world. (Bank account: Union Bank of Switzerland, 6020 Emmenbrücke, Switzerland, 470590.40 T 288 288/SE3WE Pump Project.)

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