

ॐ यशदा

Prakash h.c.

Date: 6-8-09

## Pune Env. Report

License documents given to slum dwellers were taken back by PMC

Constitutional Amendment 1974 - Env. Status report to be presented by Municipal Comm. to General Body.

More Doctors in Nanded than in Pune: No sewage treatment plant

PMT + P.C.M.C. = 26,96,999 popn. 35% in slums

Dense Area = 10000 persons per ha.

14 Wards, 503 slums

Per capita water 190 li.

Waste generated 1250-1330 m tonnes solid

Vermicomposting asso. 6595

(Very good recycling in Chennai)

Capacity of treatment plants 215 MLD → 243 MLD

Hardly 50% sewage is treated at present.

No. of Vehicles 90,308, 2 Wheelers - 53%

4 wheelers 12%

Total budget 889.52 crs. 90% on salaries

No. of births 2002 - 44,000

" - deaths " - 20,000

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5656340

Date : \_\_\_\_\_

## Himalaya : Evolution, Geology, Geography

3 Stages : Post-Eocene, <sup>(60 m. y. a.)</sup> Miocene, <sup>(35 m. y. a.)</sup> Middle Pleistocene, Middle Pleistocene <sup>(5 m. y. ago)</sup> 3 Glacials

Foothills - Sediments, Tools.

Fauna - Akin to Africa

Ranges : NW to SE 2400 km. long

downward : Ganga-Yamuna Basin - Nanda Devi, Badrinath, Trisul, Kedarnath.

Kashmir : Dardar, Gwaldam - Lower heights

West Himalaya : 3, 29, 335 Km<sup>2</sup>

Optimum Belt - : 1000 - 2000 metres altitude

Direction of slope : N facing less sunlight & precipitation

S n more n & n

N = Sturdy, drought-tolerant crops

S = Forest, wet agri.

### Distribution of Permanent Snow & Ice

Himalayas <sup>5000</sup> ~~930~~ (Km<sup>3</sup>) Volume, 43000 (Km<sup>2</sup>) Surface Area

Tibet- 4820 (n) n 32,150 (n) n n

Karakoram 2180 (n) n 6,200 (n) n n

Water Yield from a high Himalayan Catchment is roughly double that from an equivalent one in peninsular India, due to snow melt.

Water Yield from Mountainous Watershed & Whole Basin

Indus 460 (mm) 163 (mm)

Ganga 975 473

Brahmaputra 1039 222

Sediment yield (Suspended) 16.4 ha.m/100 km<sup>2</sup>/yr

3 to 5 times larger than peninsular rivers. Beyond Sedi. in addition

Date : \_\_\_\_\_

Himalaya: People

Population Density: 2 in Ladakh,  
300 in Srinagar, Darjeeling.

Urban population high in J & K & Meghalaya - 5 Urban Dist.

Literacy: F literacy more than national average

Urban " " " " " "

High in Nagaland, Meghalaya, HP & Sikkim.

Work-Force: Mainly M in Urban areas

" F in Ladakh, Lahul & Spiti

" F in higher altitudes

Buddhists in household industries

Communal ownership of resources

Few agri. labourers; Tea plantations, Terraced  
cultivation, Pastoralism.

Commodities from Cotton, Woollen, Bamboo, Wood

Religions: Buddhists, Christians, Hindus & Muslims

Amalgams of religions.

Pastoralism: Gujjars, Gaddis - J & K, Himachal, <sup>Dhauladhar</sup> ~~Dard~~

Jadhis, Nepalis

Trade across borders: Bhotias, Monpas

Army: Tehri-Garhwal, Nepalis

Migration: Hills to Plains, Meghalaya - Tribals in urban areas

Traditional System: Solar power - Plants - Organic  
matter - recycling.

Solar power - Plants - Livestock - agriculture - Man - land

Micro-climate important.

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Irrigated crops : Rice, wheat, horticulture (Finger & berry  
- and millet)

Non-irrigated : Millet & pulses, maize, amaranth,  
buckwheat, Kidneybean.

Kitchen gardens : Finger millet, amaranth, bean, lentils

Total Food Plants : 127

24 wild fruit

14 " vegetables

9 wild spices

12 " cereals

10 " pulses

8 " oilseeds

15 " fodder sp.

Commercially 32 important medicinal plants

Pest control : Neem & Walnut leaves, Mustard oil on  
seeds

Soil Protection : Weeds

Fodder : Weeds, 66% from grasslands, 34% crop residues

Vijay Thardhari - Some indigenous crop varieties

Intach : Greening of Himalaya, Community Nurseries

During British times resentment against felling  
of trees. Burning of forests. Grievance committees formed.

Van Panchayats came in 1931.

Date : \_\_\_\_\_

## Himalaya : Resources.

Lakes : Deotaal, Dodital, Hot springs

Mines : Formerly Copper & Iron, Limestone.

Forest : F. D. 1868, Zamindari, Collection of excise

Economically valuable : Saal, Bamboo, Shisham, Haldu, Tur, Khair, Tendu, Ain, Chir pine, Jamun, Mango. Felling restricted.

Selection felling, Improvement, Reproduction.

Peoples' rights : Grazing, grass-cutting, firewood, timber, agri. implements, C class forest for villages

Threats : Fire, felling, extension of cultivation.

Land - People ratio : 17.6 persons per ha.

Garhwal n n : 98 persons per km<sup>2</sup>. 8000 villages

Forest cover : 35% overall, 9% in J & K.

15 ha. of forest needed for 1 ha. of land <sup>agri.</sup>

Grazing land : 10.97% in Central Himalayas of total land

Grazing pressure : 2.5 times the carrying capacity.

Oak forests : Regeneration of springs

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## Development Projects in Himalaya

Angora rabbit farming : For wool. 10-250 rabbits per unit - 55 units. Training needed. Credit facilities needed. Procuring rabbit feed, its storage & marketing of produce to be organised. Records maintained

Difficulties : Diseases, inbreeding, infertility

Afforestation : Chir, Poplar, Eucalyptus, Silver oak promoted. Also Olive & Soyabean. But local opposition. People prefer Bimal (Grewia optima), also Oak, rhododendron, Berberis etc.

Agro-forestry : Summer : Maize, Tomato, Beans, Chilli  
Winter : wheat, peas, potato, Cauliflower, mustard

Associated trees : Mulberry, figs, Grewia, Toon, Walnut, Celtis, Bauhinia, Oak, Albizia, Also Poplar & Eucalyptus

Inter-cropping : Peach-Almond, Saffron-Almond, Peach-Turmeric, brasses & Jowar.

Apple Cultivation : Orchards by removing forest, Subsidies  
Further forest removed for packaging. Inputs of fertilizers & insecticides. Inflows into streams

Medicinal Plants : Laboratory at Ranikhet. Vikas Mandak to purchase & market. Competition from Pvt. traders. Forest Dept. to undertake, supervise.

Date : \_\_\_\_\_

9.30 - 10 Registration

10 - 10.45 Ecological Approaches

10.45 - 11.30 Land use & Ecological Perspective

11.30 - 12.15 Land cover types

12.15 - 1 Lunch

1 - 1.30 The New Water Vision

1.30 - 2.15 River Ecology

2.15 - 3 Economics of Water

3 to 3.30 Open discussion

3.30 to 4 Tea

4 to 4.45 Biodiversity & development

4.45 to 5.15 Discussion & conclusion

Date : \_\_\_\_\_

## Nabard Workshop

Basic theory : 1) Conservation of Biodiversity

Micro-climate  
Eco-data base  
Inventory to begin  
2) Enhancement of local resources  
3) Awareness creation about local land-  
-scape, characteristics, potential, restoration, sustainability

4) Nisargashila to be an integral part of W D work

5) Emphasis on vegetation management, Restoration

6) Provision of basic necessities at village level to be the goal.

These include : Drinking water, fuelwood, fodder, basic timber,  
relevant education, sanitation & health, biodiversity conservation  
waste disposal

7) Necessary interventions :

Drinking water : Hill top forest : Dry dec. or Moist

Stream restoration, Bank vegetation

Hypothetic zone, Slopes for infiltration.

In-stream work, flood events, Recharge structures, ponds,  
wetlands, Aquatic plants

Biodiversity Conservation : Uncultivable waste areas, Difficult-  
areas, Narrow flood plains of streams to be used.

check dams can be used to grow certain plants, possibly fish.

Substrate of percolation tanks, Old growth forest community

Micro-environments, cooling structures, Village sanctuaries

Buffers,

Fuelwood : List of relevant trees, Collection of seeds, establi-  
Fodder, Timber  
-shment of a nursery, Slope treatment, Grass seed collection

Waste disposal : Recycling of nutrients; leaf litter collection, compo-  
-st of animal & human waste, agri. residue, Structures for  
these as an integral part of W D. Retention & retention basins

Date : \_\_\_\_\_

Waste Assimilation : Dilution, mulch & soil cover  
return of biomass - microbial activity, Retention &  
Detention basins, Vegetation to absorb waste, nutrients, effluents

Pollination : Hedges, habitat-diversity, corridors,  
& Pest control strips, Corners

Forest foods

Uncommon products

Speciality Production.

Common Grazing Areas : Their restoration

Field-trips : Panshet & Ambhi valley

Main Topics : Ecological Approaches

Watershed as a landscape

Importance of Ecoprocesses

Perspectives on Vegetation Management

Soil-Plant relationship

Genetic diversity

Plant-animal Relationship

Vegetation Types

Important plants & their ecological  
economic roles

Date : \_\_\_\_\_

# Vegetation Management

Indigenous - ecology

Economic uses

Relict sp.

Micro-environments

Identification of sp.

Team to identify & monitor

Habitat creation

Stream restoration

## Conventional to Ecological

Concrete interconnections

Workshop at Aurangabad

~~8~~ 8.30 - 9 a.m. Registration

9.00 - 9.30 Inauguration

9.30 - 10.15 Introduction P. Gole

10.15 - 11 Watershed as a landscape Mrs. Gole

11 - 11.30

Coffee break

~~Micro-env. Difficult Areas~~ (Geomorphic & Hydrological features)

11.30 - 12.15 Watershed as a landscape

12.15 - 1.00

Micro-env. Difficult Areas  
Stream restoration

P. Gole

Role of Vegetation

Ketaki Ghanta

1.00 - 2.00

→ Lunch  
Stream Restoration

2 - 3.00

→ Achieving Holism

3 - 3.30

Tea break

3.30 - 19.30

Field Visit

20.00 - 21.00

Camp Work

21.00

Dinner

Date : \_\_\_\_\_

9 a.m. - 10 a.m.	Measures for healthy eco processes	P. Gole Mrs Gole
10 a.m. - 11 a.m.	Useful plant types & communities	K. Ghate
11 - 11.30	→ coffee Group work	
11.30 - 12.30	Planning Interventions in Watersheds	
12.30 - 1.15	Presentations	
1.30 - 2.30	lunch.	
14.30 - 15.30	Integrating eco-processes with Nat. Dev. &	P. Gole S. Gole
	Conclusion.	K. Ghate
15.30 - 16.00	Tea	

### Ridge to Valley

Ridge Top = Forest, grassland, different cover types  
Eco Soil Hydrocycle, Processes Sanitation, Sponge to Absorb. Soil residue  
Fence, Gully plugs, Mulching  
Invertebrate cultures, microbial cultures

Slopes - Non-agri prod. sys. biodiversity  
TCM, Gully plugs, Suitable fodder Nests &  
series, Uncommon features, micro-err.

Stream - Restoration, Increased infiltration,  
slow run-off, habitats, buffers  
Bank Protection Aquatic plants,  
Divergent channels, In-stream flow  
treatment.

Date : \_\_\_\_\_

## Special Protection Measures for Riparian Vegetation Eco-nurseries

Capability based land use in Watershed  
Intensively managed prod. sys. in homestead  
Appropriate vegetable prod. on semi-arid, slopes land  
Non-wood & tree based prod. sys.

Develop high fertile patches for homesteads  
Composting / Vermicomposting for waste management  
Homestead gardens / Kitchen gardens  
Low cost, high efficiency water utilization

## ECOLOGICAL PERSPECTIVES IN WATERSHED DEVELOPMENT PROJECTS

### OBJECTIVES

1. Providing support & supplements to production systems instituted in a watershed development programme
2. Drawing attention to features hitherto little accounted for, for example: Micro-environments and Difficult Areas
3. Attempting interventions through eco-system development and biodiversity conservation
4. ~~Key~~ Interventions will include:
  - a) Restoration of degraded eco-systems
  - b) Habitat creation and development

## Different Meanings of Sustainability

1. Sustainability means an maximum yield from local resources in consonance with long-term environmental conditions
2. It may mean maintenance of agricultural production through periods of disturbance and stress
3. It may mean an integrated system where the overall productivity is dependent on maintaining soil, water, plant and animal resources on a farm or over a larger area
4. It is low input agriculture where, instead of increasing productivity, profitability or net gain is enhanced by decreasing expenditure on fertilizer, pesticides, machinery and other expensive inputs

## What is a Sustainable Environment? (all caps)

1. It is an area in which ecological integrity and basic human needs are concurrently maintained over generations
2. Ecological integrity means maintaining near natural conditions in 4 broad areas  
Soil, water, biodiversity & productivity
3. The condition of soil can be measured by the amount of soil erosion
4. Quantity of water depends on average local

rainfall and area and fish diversity is a good indicator for water quality

5. Natural biodiversity is the number of native species in each group; e. for example, trees, shrubs, birds, mammals etc.

6. Near natural productivity indicates a level that would prevail if the whole landscape had native eco-systems.

Different groups of people are living at each others' expense

Benefit cost analysis is not sufficient. Eco-processes are ignored. Ethical issues are important. Fundamental rights of others are to be considered

Eco-processes are positive externalities

Empirical approach involves WTP or WTA

Option Value is WTP for

Date: 30-03-04

# NABARD Seminar Aurangabad

## Ecological Survey

विद्यार्थी - 5 महीने पूर्व सातान परिसर.  
Training of local community  
in ecological perspective.

विद्यार्थी सातान

Watershed as a unit - no limits on acreage

Forest goods as ~~संसाधन~~

Leadership development

Eco-productivity index - soil, rain, temp. & humidity

Composting, vermiculture, organic farming

demonstration, Nursery components

offices ~~में~~

specialises

नियंत्रण कक्षा  
की विशेषज्ञता, उद्योग

## Action Plan

नियंत्रण कक्षा परियोजना? नवीन Projects, ~~परिणाम~~  
On-going Projects ~~परिणाम~~ क्या करना है?

Need-based, Villagers willing to undertake

FR ~~परिणाम~~ additional ~~परिणाम~~ क्या करना है?

Training ~~परिणाम~~ क्या करना है? ~~परिणाम~~ क्या करना है?

क्या करना है?

Policy changes ~~परिणाम~~ क्या करना है?

Nursery Development - Suggestions

What is required in a particular area

Seed Bank ~~परिणाम~~ क्या करना है?

### Selection Criteria

Preference to ecologically degraded areas

आपसमें रोकर रानी ecology की

### Data Collection

Base Line data : Ecological survey, PRA, Social mapping

### Training

NGO DM (decision maker) & staff + VWC

### Net Planning

Tech. & Social measures, Eco. aspects → feasibility report

→ G. S. → implementation (Nursery)

पानी जल कारगारी पिके देवार एरि.

Physonomist, Botanist, Ecologist staff पर परिजे.

इतकसा Training, User Group, JFM Committee

Vermi-compost, Organic farming

### Exposure visit

Nursery, plantation, Medicinal plants

### Aggradation - skill - training

Agro & forest biodiversity

यंदा सतवा नषति पदापण!

निरंजनी निसर्ग : संरक्षण, संवर्धन, अकथापन आदि विकास

नये विचार, नया कृती, नया जीवनपद्धती

एक वर्षान्ता परव्युत्तर संपूर्ण अभ्यासक्रम. सुरुवात है जुलै २००४

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संपूर्ण कारनात अशा प्रकारना एकमेव अभ्यासक्रम. पत्रबारेदी उपलब्ध

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