Using Mobile to improve Agriculture Incomes

Presented by
Pushkin Phartiyal

Conventional Approach

Supply

Any day to any market

- No information regarding markets and commodities rates.
- Returns depends solely on market demand and supply pattern.
- Fear of surplus supply of commodities than the demand.

Returns

Mix returns

Farmer

ICT Approach

Supply

Best day of trade with market options

Rates of commodities

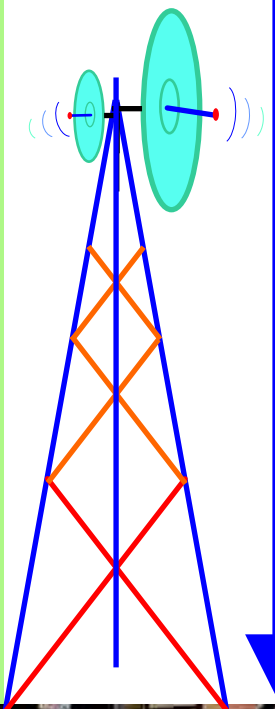
Information on schemes/programmes of

Department of Agriculture

Horticulture Department

Line Departments

Government Schemes



Farmer

Returns

Best Deal

Technology transfer, capacity building, market intelligence, etc.

- Prior information regarding market trends/price provide better returns.
- Weather forecasting and climatic information provides better scope for the advance crop planning.
- Experts advice on crop management reduce crop loss.
- Advice on cure and precaution from disease provides better yield.
- Transfer of Technology gives extra edge to farmers.

Agriculture University

Cumulative information

- Rates in bulk markets for different commodities.
- Weather forecasting (rain-fall, thunder storm, hail etc.)
- Information of temperature, humidity etc.
- Expert advice.
- News & schemes

Advices and information by experts

Queries, feedback, etc.

Rural Marketing Information System

Feedback

Cumulative information

Expert Advice, Public welfare Schemes and Projects

Forecasting of rain-fall, temperature, humidity, thunder storm, hail

Metrological Department

Institutes/Agencies

ICT & Community Carbon Forestry

The Indian Himalayan Story

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1. OBJECTIVE

- Explore the potential of existing Community Forests Management (CFM) in carbon saving.
- Justify CFM as a recognizable strategy under CDM/REDD.
- Capacity building of the locals in:
  - Measuring carbon stocks using modern gadgetry.
  - Submit projects for climate finance.
- Bring the topic of CFM as carbon reduction measure to the attention of national and international decision makers.
- Inclusion of C-services in the state level forestry initiatives.
- Using carbon project as a triggering factor for recognation of eco-system services, in general.

***Pinus roxburghii* (chir pine)**

***Quercus leucotrichophora* (banj oak)**

2. Uttarakhand's *VAN PANACHAYATS* (VPs) (Community Forestry Council)

- VPs came into existence in 1930's, following agitations against the forest reserves under the organized forestry.
- A VP consist 9 elected members (with at least 4 women) with a *Sarpanch* (Head of council).
- At present 12089 VP covering more than 0.5 million ha. Land (16%of the total forest of the state).

3. General CONSERVATION practices

- Forest guards on payment basis/voluntarily.
- Regulation on fodder collection.
- Firewood collection for cooking and other purposes limited to dead, standing and fallen branches.
- Fire control though weakening.

Particpatory resource mapping

PEOPLE

Consist of small holders, less than 1 ha land per household of 5-6 persons.

People live at a subsistence level with very low CO_2 emission (0.2 t/capita/yr).

Depend critically on community forests.

Have been conserving forests for decades almost without any outside financial support.

Methodology

Village level workshops/meeting to familiarize the community with the project and gather information about the forest.

- Meeting and workshops.
- Inputs from the community about forest condition, types, dominant-species.
- Identification and Training of Village investigators

C-sequestered by conservation effort of communities 3-4 t c/ha every year

Output of activities

- Assistance to state forest department in preparing C-related projects.
- 12 Himalayan states have decided to join hands to make a demand for payment of eco-system services and better reflect their values in national accounting system while transferring funds from federal to sate governments.

4. STRATIFYING the forest area

- Forest stratified through survey FRAs and mapping by communities
- Criteria for stratification
  - Difference in dominant trees species.
  - A sharp difference in the stocking density of trees/crown cover/age.
  - Difference related to aspect and position along a hill slope.

View of Community forest (Van Panchayat)

5. BOUNDARY marking of the identified strata

- Basic training in use of GPS and Arc Pad GIS software.
- Boundary marking by walking along the periphery of the strata with field investigators.

6. Pilot SURVEY for variance estimation

- Jointly by village investigators and project team members.
- Pilot inventory in each stratum for estimating variance in carbon stock.
- 15 circular plots placed within a stratum.
- Basal area estimated using girth of tree.
- Sampling intensity (number of permanent plots) determined.

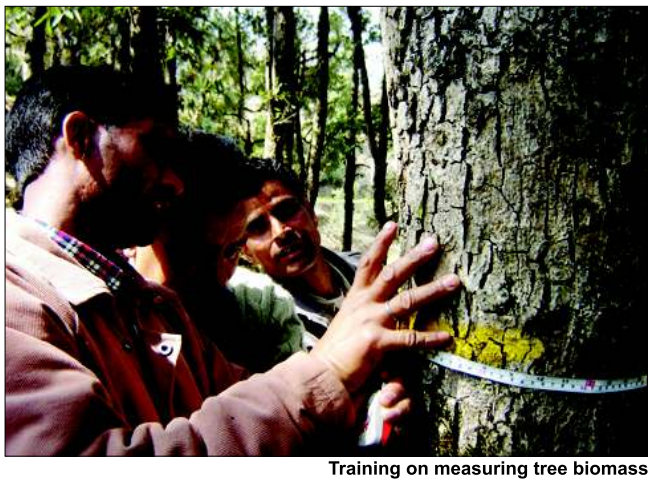
7. TRAINING of team member/village investigator in GPS and Palmtop computers

Field investigators marking point on GPS in-build Palmtop

National Mission for Green India (Ministry of Environment & Forest - Govt. Of India) recognized CHEA's effort as:

"Building a cadre of community youth for ecosystem restoration

Given the fast changing rural scenario with increase in the number of educated unemployed/underemployed youth, the Mission would support development of youth cadres to lead the charge at the local level. Support of research institutions, universities/colleges from local area, Forest Department and NGOs would help develop this cadre as Self Employed Change Agents (SECA). The example of the Carbon assessment project in Lamgarha block in Uttarakhand proves the point that rural educated youth are quick to pick up skills, and have huge potential to provide support to the community in planning, implementation and monitoring of the greening program at the local level. The cadre of community youths will help Mission activities at the local level with active support of FD and other agencies. This will also augment capacity of Forest Department to facilitate Mission activities with existing regular staff."



Training on measuring tree biomass

8. Permanent plot layout and measurements using village level investigators

- 15-18 100 m^2 circular plots in each stratum.
- Density and circumference of tree, seedling, etc, estimated.
- Tree biomass estimated by allometric equations.
- Biomass of herbs and shrubs by destructive sampling.
- Soil carbon upto 1.5 m depth with Walkey and Black (1948) rapid titration methods.

9. Carbon SEQUESTERED annually in the VPs

Carbon sequestered by 15 VPs worth US $ 43832 (@ US $ 13 per ton), from 1124 ha. (1291 household)@3 t C/ha/yr.