Using Mobile to improve Agriculture Incomes

**Conventional Approach**

- 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.

**ICT Approach**

- 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**

- Farmer
- Technology transfer, capacity building, market intelligence, etc.
- Returns
- Best Deal
  - 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.

**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

**Rural Marketing Information System**

- Expert Advice, Public welfare Schemes and Projects
- Forecasting of rain-fall, temperature, humidity, thunder storm, hail

**Queries, feedback, etc.**

- Institutes/Agencies

**Advises and information by experts**

- Agriculture University

**Feedback**

- Metrological Department
ICT & Community Carbon Forestry

The Indian Himalayan Story

Presented by Pushkin Phartiyal

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:
     e. Measuring carbon stocks using modern gadgetry.
     f. 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 recognition of eco-system services, in general.

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.

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 coverage.
     - Difference related to aspect and position along a hill slope.

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

8. Permanent plot layout and measurements using village level investigators
   > 15-18 100 m² 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 SEQUESTRATED annually in the VPs
   Carbon sequestered by 15 VPs worth US $ 43832 (@ US $ 13 per ton), from 1124 ha. (1291 household) @ 3 tC/ha/yr.