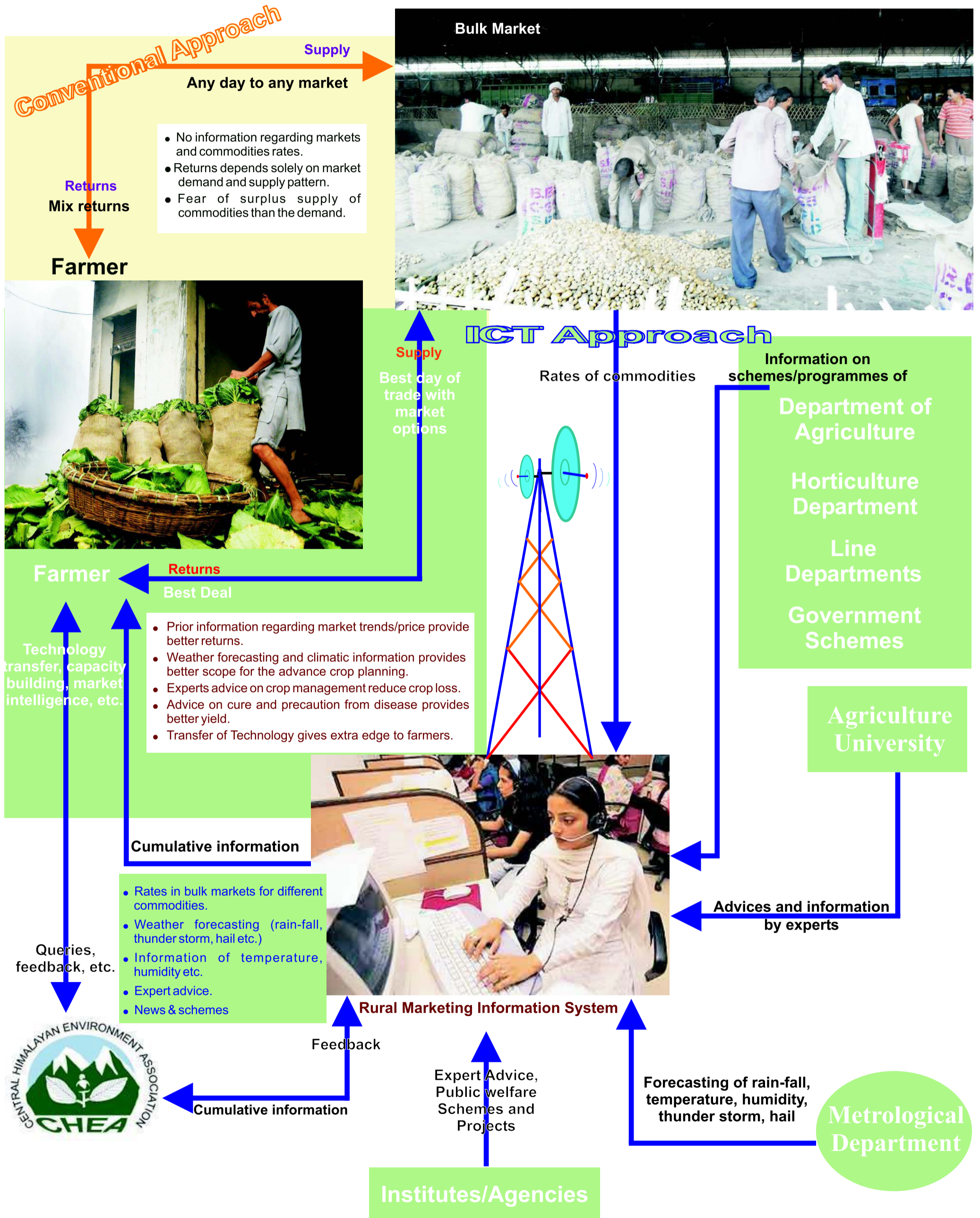




# Using Mobile to improve Agriculture Incomes



Presented by Pushkin Phartiyal





# 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:
  - 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 recognition 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.



Participatory 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<sub>2</sub> 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

### 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.

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



Field investigators marking point on GPS in-build Palmtop

### 8. Permanent plot layout and measurements using village level investigators

- ▶ 15-18 100 m<sup>2</sup> 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.

#### 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 state governments.

#### 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."

### 4. STRATIFYING the forest area

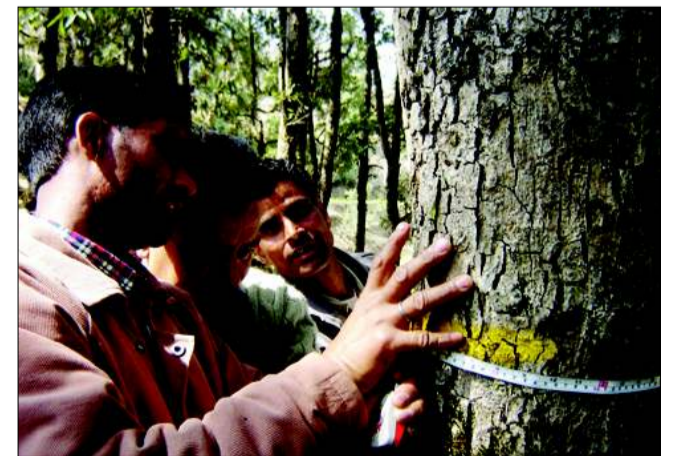
- ▶ Forest stratified through survey FRAs and mapping by communities
- ▶ Criteria for stratification
  - Difference in dominant trees species.
  - A sharp difference in the stocking density of trees/crown cover/age.
  - Difference related to aspect and position along a hill slope.



View of Community forest (Van Panchayat)

### 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.



Training on measuring tree biomass

### 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 tC/ha/yr.