Local innovation and experimentation: an entry point to climate-change adaptation for sustainable livelihoods in Asia

Progress Report from INHERE, India for July- December 2012

The joint regional project on Local Innovation and Experimentation: an entry point to climate change adaptation for sustainable livelihoods in Asia (LINEX-CCA) commenced implementation in India in January 2012. The goal of the three year project 2012-2014 is to improve the livelihoods of climate-change vulnerable rural communities, especially women, dependent on agriculture and natural resources, through participatory innovation development (PID) to respond to climate change.

The project has three specific objectives:

1. To improve the capacity of rural communities, especially women, dependent on agriculture and natural resources to innovate in order to adapt to climate change and become more food-secure, i.e. to become "innovative adaptive communities".
2. To build the capacity of local organisations (CSOs, local government) to allow them to effectively support "innovative adaptive communities".
3. To influence national and international policies towards the recognition of local capacities and initiatives in addressing the consequences of climate change.

The Progress Report for the period July-December 2012

Activities undertaken for Objective 1:

a. Field assessment of communities' perspectives on climate change

Information gathering for baseline data as well as assessment of community perspectives on climate change and efforts at adaptation, if any, continued into September because of inclement weather and rains in the monsoons.

For baseline data both primary and secondary sources were utilised. The agreed on formats were filled with data obtained through direct interaction with communities using PRA methods comprising community meetings and discussions, focus group discussions with women and men, individual interactions and transect walks. Data on population and land use was obtained from the relevant government offices in Tehsil and Block headquarters.

Baseline survey was completed in August. Data was compiled and analysed in September – October with gaps detected being filled. The baseline report in Hindi was completed in October. The English version of the report was shared with LINEX-CCA partners in mid December.

The baseline format was shared by INHERE in October with the CLIC-SR projected being initiated in Africa. In November, the data compilation format was also shared.

Field assessment of communities' perspectives on climate change has been completed and compiled in Hindi with power point presentation slides in English and Hindi.

b. Implementation and documentation of local innovation and ongoing joint experimentation

The activities under this head pertain to participatory Innovation Development and Joint Experimentation. Field activities related to both are given separately.

Local Innovation and Participatory Innovation Development:

INHERE identified and documented four local innovations which were found to be novel and interesting. These pertained to growing of Tarud, a lesser known root vegetable found in the wild, use of waste cloth from a tailoring shop to shape a trellis for growing creeper vegetables, innovation for better adaptation of SRI method to the farming practices of mountain farmers, growing of marigold for keeping away pests and cultivation of large cardamom as a new crop. Use of akarkara, a medicinal plant, for keeping away white grub (a menace for the mountain farmer) was also found and the farmer with experience on this interviewed. The draft documentation covered innovation by two women, three men and one women group.

On deeper probing in village meetings and interactions with other villagers and stakeholders, other new ideas and experiments carried out by individual farmers came to the fore. These were discussed with Ms Chesha, who backstops the project and five were identified for carrying out participatory innovation development with process oriented documentation.

The five innovations identified for PID are

1. Akarkara for white grub control
2. Small implements development for agriculture and post harvest work.
3. In situ water conservation in terraced fields.
4. Liquid manure
5. Chickpea and groundnut as drought resistant crops

Two of the PID arise out of innovations by women and will be taken forward by them while two will be of men and one in a mixed group.

The setting up of PID groups and trials is in progress.

Joint Experimentation:

The results of joint experimentation set up for the summer crop of kharif involving the farming community, Research Institute for Hill Agriculture (VPKAS) and INHERE were received. The farm trials involved four crops Madua or Fox millet (Madua VL-149), Arhar or Pigeon pea (VL-Arhar-1), Dhan or Paddy (VL-85 & VL-87) and Makka or Maize Vivek (QPM-9). The experiments was taken up in 6.3 hac. (630 Nali) area of 12 project villages. The seeds for rainfed agriculture were selected by the agriculture research institute, VPKAS. (Details in Annexure I)

The crop of Arhar or pigeon pea proved to be more promising as it could withstand a long period of summer drought. This is a new crop for the mountain farmers and shows promise for coping with delayed rain and longer drought period. Farmers are otherwise familiar with the pigeon pea and would have no problem in making it a part of their diet.

In the case of paddy, a comparative study of two varieties developed by VPKAS, VL87 showed better result than VL 85,but it was equivalent to the local rice varieties grown by the farmers. The farmers found no benefit in replacing their traditional variety with either of these.

In the case of madua or fox millet, the variety given by VPKAS, the VL 149 showed an increase in yield of 1.5 times. It has the potential to increase the productivity of farmers substantially. In

some villages due to delayed rainfall, the germination of the fox millet was affected. Some farmers suggested that this could be overcome by growing the fox millet in nursery and transferring when conditions were appropriate. However, this would have to be tested.

The maize variety of QPM 9 was also tried out by farmers. Though farmers acknowledged that it was tastier than the variety grown by them and had more seed, they were not happy with the fact that this variety yielded only one cob per plant. The scientists explained that the one cob produced gave more seed than the more cobs produced by the local variety.

For the Rabi season or the winter crop season of India, farmers are trying out wheat (VL907 and VL892), barley (VL-56), masoor VL-126, chana PG-186, mustard PPS-1. All these crops had to be sown between Oct 20-Nov 10. The farmers have been broadcasting seed @ 3-4 kg per nail. This time they will sow only 2kg/nail as recommended by research scientists and report on the results obtained. For line sowing this quantity will be further reduced.

The above varieties are being experimented by 100 farmers of 20 project villages. Sixty percent of the farmers involved are women farmers. The total area being covered under these joint experiments is 9.6 Hectare (480 Nali). Broadcasting, line sowing, mix cropping are being tried out by the farmers. This is also being tried out at demonstration fields by INHERE in Ratkhet and Bhatoli.(Details in Annexure II).

c. Training community groups in joint experimentation for climate-change adaptation

Three trainings were organised for community groups in joint experimentation for climate change adaptation.
On August 27, 2012 participating group of farmers met for review of results obtained from joint experimentation in the summer crop and planning for the winter planting season in a participatory training process.Mr Girish Pant facilitated as a resource person.

In September 2012 training of farmers for joint experimentation was held. Twenty six farmers participate of which 8 were women and 18 were men.

On 15 October, 2012 a training programme for farmers participating in the field trials of potentially climate resistant crops was held. Besides 42 farmers and INHERE as facilitating agency, two scientists from VPKAS Dr Lakshmi Kant, Principal Scientist and Dr B D Pande, Technical Expert were present.

Activities undertaken for Objective 2:

a. Training of CSOs and local governments in CCA, the international arena and links to local initiatives and innovation.

Visit to LI-BIRD in February 2013 for exposure to work on PID and Joint experimentation as well as a Training of Trainers on PID is planned in consultation with Ms Chesha.LI-BIRD has been informed of the intent by ETC Netherlands. The details will be worked out and communicated by LI-BIRD, Nepal to INHERE, India for further action. A group comprising project staff, farmer representatives, innovator representatives and CSO representatives who can later also be trainers are proposed to go for exposure and training.

b. Exchange of experiences between partners within and outside their Country Platforms

The exchange of experiences between partners took place through sharing of its 6 month progress report by INHERE (Jan-July 2012), sharing of baseline format and data format developed by INHERE with LINEX-CCA partners and with country platforms initiating CLIC-SR project in Africa. The celebration of International Farmer Innovation Day , Nov 29, by farmers of

the project villages and other stakeholders was shared with the Prolinnova country platforms and IST members directly and post in the Prolinnova website.

The backstopping visit by Ms Chesha Wettasinha, ETC Group, Nov 14-27 provided an opportunity for exchange of experiences and also sharing of experiences with one national (VPKAS) and three international organisations.(Ford Foundation, ICCO and APAARI). APAARI (the Asia Pacific Association of Agriculture Research Institute) has been positive towards the project and its extension. It has offered possibility of support to participation in international meets for exchange of experience and learning.

The project also made efforts itself and through ETC to link up with the CGIAR Research project on Climate Change and Food Security (CCAFS). Link has been made and it is expected that this would in the future lead to collaboration with the LINEX-CCA project.

Activities undertaken for Objective 3:

The effort to influence national and international policies towards the recognition of local capacities and initiatives in addressing the consequences of climate change was done through link with CCAFS at the second Global Conference on Agriculture Research and Development (GCARD 2) and follow up by INHERE. ETC Foundation also linked up with CCAFS for their interest in Prolinnova country platforms in Africa and also made efforts to draw attention for linkage in Asia. INHERE supported this effort with the required information support.

INHERE participated in the India Budget Meet session held on Dec 6, 2012 in New Delhi which included the aspect of Climate Change.

Presentation of the LINEX- CCA Project was made on International Mountain Day on Dec 11 at a meeting organised by FAO and the Mountain People Forum at the UNDP Conference Room in New Delhi.

Monitoring and Evaluation and Impact Assessment:

The completion of baseline data collection and formatting enabled preparation of Monitoring and Evaluation formats to be used in the project. During the backstopping visit by Ms Chesha Wettasinha, ETC Foundation in November 2012 the LINEX-CCA team of INHERE was facilitated for development of Monitoring and Evaluation Formats. The draft formats have been shared with colleagues on December 13, 2012. Inputs from colleagues and finalisation is in process.

In the meantime the draft Monitoring and Evaluation Formats have been tried for utility and ease of reporting.

Annexure I

Field Trials result of Kharif crop (Paddy, Maize, Finger millets, Arhar)					
		Area (in nali)	Crop Detail	Yield (Kg/nali)	Yield of local cultivator (Kg/nali)

Village name	farmer Name	Dhan	Madua	Arhar	Makka	Dhan	Dhan	Madua VL-149	Arhar VL-1	Makka QPM-9	Dhan	Madua VL-149	Arhar VL-1	Makka QPM-9
	D. S. Bisht	1	2	2	1	VL-87	35	30	---	50	30-35	20-25	---	60-65
	Kamala devi	1	2	2	1	VL-87	32	25	---	50	30-35	20-25	---	60-65
	Hira singh	1	2	2	1	VL-85	35	25	---	45	30-35	20-25	---	60-65
	Anand singh	1	2	2	1	VL-87	32	14	---	65	30-35	20-25	---	60-65
Khatyari	Puspa devi	1	2	2	1	VL-87	34	25	---	50	30-35	20-25	---	60-65
Sub Total		**5**	**10**	**10**	**5**		**33.6**	**23.8**		**52**	**30-35**	**25-30**		**60-65**
	Nandan singh	0	2	2	1			15	---	50		20-25	---	60-65
	Shanti devi		2	2	1			14	---	50		20-25	---	60-65
	Champa devi		2	2	1			15	---	50		20-25	---	60-65
	Lila devi		2	2	1			16	---	45		20-25	---	60-65
Bhaltwani	Heera singh		2	2	1			15	---	40		20-25	---	60-65
Sub Total		**0**	**10**	**10**	**5**			**15**		**47**		**20-25**		**60-65**
	Diwan singh	1	1	2	1	VL-87	35	15	---	60	30-35	20-25	---	60-65
	Dev singh	1	1	2	1	VL-87	32	14	---	65	30-35	20-25	---	60-65
	Tara datt	1	2	1	1	VL-87	30	16	---	55	30-35	20-25	---	60-65
	Nandan singh	1	2	1	1	VL-87	35	18	---	60	30-35	20-25	---	60-65
Querali	Ambuli	1	2	1	1	VL-87	30	20	---	60	30-35	20-25	---	60-65

	Devi													
	Devaki devi		2	1	1	VL-85	35	20	---	60	30-35	20-25	---	60-65
	Bhagwat devi		2	1	1	VL-85	30	22	---	50	30-35	20-25	---	60-65
	Hema singh		2	1		VL-87	30	20	---	50	30-35	20-25	---	60-65
Sub Total		**5**	**14**	**10**	**7**		**32.1**	**18.1**		**57.5**	**30-35**	**20-25**		**60-65**
	Pratap singh	1	2	2	1	VL-87	20	15	---	50	30-35	20-25	---	60-65
	Mahendra singh	1	2	2	1	VL-85	35	14	---	50	30-35	20-25	---	60-65
	Syam singh	1	2	2	1	VL-87	35	16	---	50	30-35	20-25	---	60-65
	Sudan singh	1	2	2	1	VL-87	30	18	---	45	30-35	20-25	---	60-65
	Madan singh	1	1	1	1	VL-87	30	18	---	45	30-35	20-25	---	60-65
Malsakhet	Dev singh		1	1		VL-87	35	19	---	40	30-35	20-25	---	60-65
Sub Total		**5**	**10**	**10**	**5**		**30.8**	**16.7**		**46.7**	**30-35**	**20-25**		**60-65**
	Chandan singh	2	2	2	1	VL-87	30	20	---	50	30-35	20-25	---	60-65
	Hansa datt	1	2	2	1	VL-87	35	20	---	48	30-35	20-25	---	60-65
	Santi devi	1	2	2	1	VL-85	30	18	---	46	30-35	20-25	---	60-65
	Chandra datt	1	2	2	1	VL-87	30	20	---	50	30-35	20-25	---	60-65
Brahmdevch auri	Dev singh		2	2	1	VL-87	30	23	---	52	30-35	20-25	---	60-65
Sub Total		**5**	**10**	**10**	**5**		**31**	**20.2**		**49.2**	**30-35**	**20-25**		**60-65**

	Gopal singh	0	1	2	1				---	48		25-30	---	65-70
	Siv singh		1	2	1			16	---	50		25-30	---	65-70
	Khim singh		1	2	1			18	---	50		25-30	---	65-70
	Jagat singh		1	2	1			20	---	65		25-30	---	65-70
	Jiwan singh		1	2	1			25	---	60		25-30	---	65-70
	Prem singh		1	2	1				---	60		25-30	---	65-70
	Ratan singh		2	2	1			16	---	60		25-30	---	65-70
	Pratap singh		2	2	1			16	---	55		25-30	---	65-70
	Basnti devi		2	1					---	54		25-30	---	65-70
Rampur	Bhagirat singh		2	1				18	---	55		25-30	---	65-70
Sub Total		**0**	**14**	**18**	**8**	**0**		**21.5**		**55.7**		**25-30**		**65-70**
	Kishan singh	1	2	2	1	VL-87	40	26	---	50	35-40	25-30	---	65-70
	Mehrab singh	1	2	2	1	VL-85	40	24	---	48	35-40	25-30	---	65-70
	Ganga singh	1	2	2	1	VL-87	40	28	---	60	35-40	25-30	---	65-70
	Devaki devi	1	2	2	1	VL-87	35	26	---	60	35-40	25-30	---	65-70
	Pan singh	1	2	2	1	VL-87	35	25	---	60	35-40	25-30	---	65-70
Naugaon	Yasoda devi		2	2		VL-87	40	25	---	55	35-40	25-30	---	65-70
Sub Total		**5**	**12**	**12**	**5**		**38.3**	**25.7**		**55.**	**35-40**	**20-25**		**65-70**

										5				
	Anand singh	0	3	2	1			15	---	60		25-30	---	65-70
	B.S. kuwar		3	2	1			15	---	65		25-30	---	65-70
	Dharam singh		2	2	1			18	---	60		25-30	---	65-70
	Kedar singh			2	1			15	---	55		25-30	---	60-65
Maikholi	Gani devi		2	2	1			20	---	60		25-30	---	65-70
Sub Total		**0**	**10**	**10**	**5**			**16.6**		**60**		**25-30**		**65-70**
	Pratap singh	0	2	2	1			15	---	60		20-25	---	60-65
	Gabar singh		2	2	1			15	---	60		20-25	---	60-65
	Dhan singh		2	2	1			15	---	50		20-25	---	60-65
	Balwant singh		2	2	1			20	---	55		20-25	---	60-65
Hargarh	Dev singh		2	2	1			18	---	55		20-25	---	60-65
Sub Total		**0**	**10**	**10**	**5**			**16.6**		**56**				**60-65**
	Prem singh	0	2	2	1			15	---	55		20-25	---	60-65
	Narendra singh		2	2	1			20	---	50		20-25	---	60-65
	Gajendra singh		2	2	1			20	---	50		20-25	---	60-65
	Kamala devi		2	2	1			15	---	50		20-25	---	60-65
Beena	Sarop singh		2	2	1			15	---	50		20-25	---	60-65
Sub Total		**0**	**10**	**10**	**5**			**17**		**51**		**20-25**		**60-65**

	Mahipal singh	1	2	2	1	VL-87	45	18	---	50	35-40	20-25	---	65-70
	Ganga singh	1	2	2	1	VL-85	40	20	---	50	35-40	20-25	---	65-70
	Govind singh	1	2	2	1	VL-87	40	19	---	55	35-40	20-25	---	65-70
	Bahadur singh	1	2	2	1	VL-87	35	25	---	60	35-40	20-25	---	65-70
Rohida	Buthi devi	1	2	2	1	VL-87	38	16	---	52	35-40	20-25	---	65-70
Sub Total		**5**	**10**	**10**	**5**		**39.6**	**19.6**		**53.4**	**35-40**	**20-25**		**65-70**
Total		**30**	**120**	**120**	**60**		**34.2**	**19.2**		**53.088**	**30-40**	**20-30**		**60-70**

Annexure II

Field Trials in Joint Experimentation for Winter Crop (Rabi)

S.N.	Village Name	Altitude	Wheat					Lentil for Rainfed		Gram for rainfed		Mustard for rainfed		Barley for rainfed		Pea		
			No. of cultivator Male/Female		Area Rainfed/Irrigated	Area (in Nali)	Qty. (in kg.)	Area (in Nali)	Qty. (in kg.)	Area (in Nali)	Qty. (in kg.)		Qty. (in kg.)	Area (in Nali)		Rainfed/Irrigated		Qty. (in kg.)
1	Khatyari Talli	1200	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
2	Khatyari Malli	1200	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
3	Bhaltwani Walli	1300	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
4	Bhaltwani Palli	1300	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
5	Brahmdevc hauri	1300	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-

6	Querali walli	1450	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
7	querali Palli	1450	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
8	Malsakhet	1500	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
9	Jaintha	1450	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
10	Sirda	1100	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
11	Gajar	1100	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
12	Kotyura	1000	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
13	Naugaon	1250	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
14	Golkhal	1300	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
15	Taragtal	1250	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
16	Maikholi	1100	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
17	Hargarh	1300	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
18	Beena	1400	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
19	Jogina	1400	2	3	Rainfed	5	5	5	5	4	6	5	1	4	4	-	-	-
20	Rohida	1600	2	3	Irrigated	5	5	5	5	4	6	5	1	4	4	-	-	-
21	Ratkhet	1000	1	-	Rainfed	-	-	4	4	1	1.5	2	0.5	1	1		2	3
22	Kanhoni	1000	1	-	Rainfed	-	-	4	4	1	1.5	1	0.25	1	1		2	3
			42	**60**		**100**	**100**	**108**	**108**	**80**	**120**	**103**	**20.75**	**82**	**82**	**0**	**4**	**6**