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Honorable President Inaugurated National Agriculture Genetic Resources Conservation Centre (Gene Bank)

Honorable President Dr. Ram Baran Yadav inaugurated National Agriculture Genetic Resources Conservation Centre at a special function in Khumaltar on 7th October, 2010.



Honorable President Dr Ram Baran Yadav at Inaugural Function of National Agriculture Genetic Resources Conservation Centre
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Consultative Technical Workshop on Climate Change

A consultative technical workshop on climate change: Livestock sector vulnerability and adoption in Nepal was jointly organized by ILRI, Li-BIRD, Heifer International-Nepal and NARC from 28-29 October, 2010 at Hotel Himalaya, Lalitpur with the objective of enabling food and nutrition security in an era of climate change through facilitating policy formulation, research and development activities.



Participants of Consultative Technical Workshop on Climate Change at Kupondole, Lalitpur

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Annual Progress Review Workshop

The two days workshop was organized to review the annual program and budget of Nepal Agricultural Research Council (NARC) at head Office, Plaza on August 30, 2010.

During the two days program the progress of annual program presented from different institute (NARI/NASRI), Regional Agricultural Research Stations,

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President Dr. Yadav expressed good wishes for the success of Gene bank and thanked all the concerned officials for its timely establishment. On the occasion Mr Mrigendra Kumar Singh Yadav, Minister for Agriculture and Cooperatives; Mr Nathu Prasad Chaudhary, Secretary, Ministry of Agriculture and Cooperatives; Dr Subodh Narayan Jha, Member, National Planning Commission; Dr Bhartendu Mishra, Executive Director, Nepal Agricultural Research Council spoke on various aspects of Nepalese heritage on genetic resources and its importance for the nation.

Dr Madhusudan Upadhyay, Chief of the centre highlighted the need and importance of the Gene bank.

A press meet on Gene Bank and its importance was organized after the inaugural program at the centre's premises. Around fifteen journalists of various media houses participated in the program and interacted with the concerned NARC officials.

Nepal being a small country possesses high level of diversity in flora and fauna because of the extreme variation in altitude, complex topography, diverse climatic conditions and agriculture system superimposed with ethnic diversity, usages and ritual requirements of different people. It is estimated that over 6500 species of flowering plants (About 2.33% of the world species) exists in Nepal out of which 370 species are endemic. The member of edible plant species is approximately 600 belonging to 172 families. The richness of fauna is exhibited by available diversity in 645 species of butterflies, more than 6000 species of moths, 185 species of fresh water fishes, 850 species of birds, 185 species of mammals and 144 species of spiders. The preservation of biodiversity and natural variation within species has become a global concern. Natural variation is essential to the evolutionary process and to long-term species survival. Genetic diversity ensures that no two members of a species or population are genetically identical, and that no individual carries all the possible trait variants in a particular species. The diversity within a species allows it to survive and adopt to new environments, new pests, and changing climates.

Genetic diversity among species has a significant impact on human life as well. There are uncountable members of species that have yet to be identified, many of which could prove to benefit mankind in some way. The preservation of this remarkable diversity is therefore integral to human life. The genetic resources must survive in order for their benefits to be discovered.

Generally, conservation of species for prosperity is managed under natural and artificial environments using in-situ and ex-situ approaches. The choice depends upon the objectives, kinds and priorities of the germplasm.

Gene bank is a facility for conserving and using the genetic resources in sustainable manner to meet the present needs and aspirations of future generation. It conserves genetic wealth instead of rupees, gold or other valuable goods. The rich heritage of genetic resources, which feeds and sustains human kind, is conserved through seeds, semen, vegetative propagules, tissue culture, embryos, gametes or cells, DNA etc. The preservation of genetic resources in gene bank, is one of the most useful techniques of ex-situ conservation for cultivated domesticated and wild species.

Gene bank was established with the mission to alleviate property and malnutrition through conservation and sustainable use of genetic resources.

Field Visit Organized

A field visit for rice research and seed increase in Khumal farm was organized by National Agriculture Research Institute (NARI) on October 6, 2010 to monitor upland field research block where research conducted by Agriculture Botany Division, Agronomy Division and Plant Pathology Division. Field visit was accompanied by group of scientist/technicians from different division and units and the team also visited low land rice field areas in which rice breeding bocks, agronomy-FS seed increase block, environment unit related plot and soil science research plot were managed. The program was coordinated by Mr Ashok Mudwari, Director of NARI.

Project Wrap-up Workshop

A project “Integration of grain legumes in Rice and Maize based cropping system for enhancing food security and income generation in Tar and River-valley of central region” Wrap-up workshop was organized on 30th July, 2010 at NARC Conference Hall, Singh Durbar Plaza, Kathmandu.

The project was funded by National Agriculture Research & Development Fund (NARDF) for three years and six different VDC of Ramechhap district were chosen to introduce six legumes viz. Lentil, Peas, Pigeonpea, Cowpea, Mugbean and Soybean for local cropping pattern Ramechhap one of the potential area for grain legume production adopting different cropping pattern suitable for producing grain legume crops. Major cropping patterns were Rice-Fallow-Maize, Rice-Wheat-Maize and Rice-Potato-Maize in which Rice-Fallow-Maize cropping pattern area was maximum and those legume crops had been best suited to increase income and uplift livelihood of the local people, the leader of the project Mr. Ramji Khadka said.

Smt Bishnu Vaidya, a participating farmer from Jhara-1, Sindhuli said, we have increased our legume production by six times and area had been increased by five to six times during 3 years period after the inception of the project. She further reported that in the beginning we faced problem of accessible market to sale our produce.

Another farmers Mrs. Ganga Prasai shared her experience in this way: Earlier the land was kept fallow but now a days with the introduction of grain legume crops we got it very profitable and now my family is able to earn a good deal of money and sent our children in a boarding school with the grain legumes earnings. The whole communities are happy by growing legumes as a cash crops.

Gopal Silwal, Manager of the small farmers cooperative, Dhading expressed his anxiety about the climate change effects on the crops and it will be a great threat for farmers to attain the present yield in the future.

In the concluding remarks Mr. Sanjay Yadav, Member Secretary of NARDF expressed his views by pointing out about the sustainability of the project since the project is going to be terminated. He extend happiness about the project output and the success of the project. He urges to the farmers to continue the activities, for this the role and responsibilities of farmers and local groups is vital after the completion of the project.

The Executive Director of NARC Dr Bharatendu Mishra gave his concluding remarks by giving thanks to all the members of outreach division of NARC for Successfully completed the project and such successful technology should be further, strengthened in the leadership of this division to other outreach command area.

Talk Program on Role of Biologicals and Botanicals

A talk program on Role of Biologicals and Botanicals in alternate systems of Agriculture was organized at NARI Conference Hall on 6th August 2010.

During 1967-1978 the use of Chemical pesticides was increased by seven fold in India and three fold increase in Nepal. It was briefed in the program that indiscriminate use of pesticide give outcomes to 3'R' i.e. Resistance, Resurgence and Residues which is alarming symptoms to plants.

The use of bio-fertilizers is important since use of chemical fertilizer is creating a lot of hazards to human health. Bio-fertilizers are carrier-based microbes which is easily available in the market with the different brand name. Symbion-N is a bio-fertilizer used to treat seed @ 15-20 ml./lit of water. Similarly, Symbion – P is a phosphorus solubilizer, Symbion-K is a potash solubilizer and mobilizer, Symbion – Fe, Symbion VAM Plus which contains mycorrhizal spores is organic fertilizer, Dors (Digested organic supplement) which is digestive compost like vermi-compost, BioCure-F, Nimbecidine (contains Nimbecides) and Bio-catch are the trade products that can be used in plants without side effects. The program was organized by the Horticulture Society of Nepal and the General Secretary of Society Dr. Krishna Prasad Paudyal gave vote of thanks at the program.

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Divisions, Commodities Program, Agriculture Research Stations both from agriculture and livestock sectors and it was reported more than 95% achievement of the work targeted for fiscal year 2066/67 completed timely and successfully. In overall progress review of NARC, presentation led by Dr. Min Nath paudel delivered major technological achievements during the period and highlighted some facts and figures as follows:



Annual Review Workshop

i. Sector wise project distribution in F.Y. 2066/67

- Total Project = 440
- Total budget = 56,80,50,000
- Allocated % of budget in NARC of the GoN total budget – 0.19%
- Crop – 37%
- Horticulture – 24%
- Livestock – 17%
- Fisheries – 7%
- Other (Multi-sectors) – 15%

ii. Project allocation according to geographic region F.Y. 2066/67

Area (Geographic region)	No. of Projects.	%
Terai	130	30
Mid-hills	287	65
High hills	23	5

iii. Program-wise budget allocation F.Y. 2066/67

Program	No. of Projects	Operational cost ('000)	%
On-farm Research	241	36601	30
Outreach Research	97	16471	13
Seed Production	39	31310	25
Res. Support Project	16	13071	12
Res. Mgt. Project	47	25047	20
Total	440	122500	100

Major technological achievements (2066/67)

Lalka Basmati Rice:- Released for eastern Terai, resistant variety to Neck blast, blast and blight.

Ghaiya – 1 :- It is released for rainfed condition in Terai and foot hills, aerobic rice which yields 2.5 to 3.5 t/ha and mature in about 115 days.

Manakamana-5 :- Newly released maize variety recommended for mid hills, tolerant to logging and stay green after maturity, yield about 5.3 t/ha.

Manakamana-6 :- Suitable for eastern mid-hills western mid-hills, logging tolerant and stay green after maturity.

Aaditya:- Released wheat variety tolerant to high temperature and hot wind, tolerant to leaf rust and yellow rust.

NL 971:- Newly wheat variety tolerant to leaf rust, hot wind and high temperature and moderately resistant to yellow rust & Helminthosporium leaf blight.

Shrijana:- A hybrid tomato cultivar which gives >20ton per ha yield, tolerant to bacterial and nematode wilt and blights.

Feeds and fodder research :- Improved silage bag technique for winter feeding and technology available for year round green fodder production.

In addition to these technologies several technologies on rice, maize, legumes, millet, buckwheat and jute are under pipeline and will be come-up with complete package of practices in coming year.

In the occasion, special guest Dr. Subodh Narayan Jha, Member of Planning Commission gave remarks on the need and importance of Agriculture research.

Joint Secretary of Ministry of Agriculture and Cooperative Dr. Uttam Bhattarai raised the issue of gap between research technologies and its dissemination to its clients through effective way and Department of Agriculture should take pro-active role in this context. He also stressed the need of post harvest and processing research in which the research is poor in this sector.

Secretary of Ministry of Agriculture and Cooperatives Mr Nathu Prasad Chaudhary said seed and breed is the key for the development of Agriculture sector in Nepal. He informed that around 3.16 Lakhs metric tons of food is deficit in the country. It is the big challenge for us and we should think seriously to this issue and how to overcome the problem jointly he added.

In the occasion chief guest Mr. Mrigendra Kumar Singh Yadav, Minister for Agriculture and Cooperative and Chairperson of NARC Council said, the investment in agriculture sector is very poor and ministry is trying to convince the concerned ministry to increase budget and investment in Agriculture sector. He further urged to the scientists and staffs of NARC to take the responsibility of conducting relevant research very sincerely and it is the major duty of NARC scientist to do quality research for the better livelihood of Nepalese farmer.

Mr Dinesh Pariyar, Director, Planning and Coordination of NARC, highlighted the objective of the workshop and gave stress for the need of basic research based on problem related to farmers.

Dr Tek Bahadur Gurung, Director of NARC (Livestock and Fisheries) gave vote of thanks to the participants.

In the concluding remarks, chairman of the session Dr. Bhartendu Mishra, Executive Director of NARC said we have achieved very good research output with very limited budget and other resources and for that scientists deserves appreciation. He also added that NARC staff should get incentive for better works and need motivation.

Budget Program Presentation

The program for Fiscal Year 2067/68 was presented at Conference Hall of Ministry of Agriculture and Cooperatives on December 29, 2010. On the occasion Mr. Dinesh Pariyar, Director, Planning and Coordination gave an overview and highlights of major achievements of research conducted by NARC during fiscal year 2066/67.

Dr. Baidya Nath Mahato, Chief of Planning Division presented the budget program of fiscal year 2067/68.

The program was chaired by Dr Subodh Narayan Jha, Member of National Planning Commission (NPC). Special Guest Mr Nathu Prasad Chaudhary, Secretary of Ministry of Agriculture and Cooperatives, Joint Secretaries from Ministry of Agriculture and Cooperatives, Director General of Department of Agriculture, Director General of Department of Livestock Services, DDG from Department of Food Technology and Control, Senior Officials from NARC were present in the program.,

Dr Bhartendu Mishra, Executive Director of NARC welcome all the delegates in the occasion and Mr Dinesh Pariyar gave vote of thanks to all the participants.

Seed Distribution and Interaction Program

A program of PVS seed distribution and interaction with farmers was organized by Plant Pathology Division, Khumaltar under the project Integrated Management of yellow rust disease of wheat in hills of Nepal funded by the National Agriculture Research and Development Fund (NARDF) on October 27, 2010 at Danchi VDC of Kathmanau.

On the occasion new variety of wheat seed was distributed to farmers of Danchi VDC, Kathmandu for Participatory varietal selection (PVS). During the program farmers were raised different problems and the pathologist gave answers of their questions.

Talk Program Organized

A talk program on “Full Bright Experience Sharing” organized by Communication, Publication and Documentation Division (CPDD) at NARI Hall, Khumaltar on 26th December 2010.

Dr Baidya Nath Mahato, Principal Scientist of NARC and Full Bright Scholar gave an overview of Full Bright Scholarship and shared his experience during the stay at USA as a program speaker.

NEPCAT Training on Documentation and Dissemination of SLM

A five days training program on Nepal Conservation Approaches and Technologies (NEPCAT) documentation and dissemination of Sustainable Land Management (SLM) organized by the ICIMOD at Khumaltar from 25-29, October 2010.

The main objective of the training was to enable the participants to use the WOCAT tools for documentation, evaluation, monitoring and dissemination of soil and water conservation technologies and approaches and to exchange experiences and knowledge in the field of sustainable land management.

Mr Manoj Kumar Thakur from Communication, Publication and Documentation Division (CPDD) and Mr Kamal Sah from Soil Science Division were participated in the WOCAT training program.

Training, Workshop/Seminar, Study and Tours

S.N.	Name	Position	Office	Subject	Duration	Country
1	Prakash Bhattarai	Technical Officer	National Potato Research Program	M.Sc.Ag (Hort.)	July 13, 2010 to July 12, 2012	India
2	Nabal Kishor Yadav	Director, Finance and Admin.	Singadurbar, Plaza	Food Safety Management for Asian Developing Countries	July 21-August 10, 2010	China
3	Sarad Bajracharya	Technical Officer	Agronomy Division, Khumaltar	M.Sc Study (Agronomy) G.B. Pant University and Agri. Technology, Pantnagar	July 23, 2010 - July 22, 2012	India
4	Harischandra Bastola	Sr. Technical Officer	Plant Pathology Division, Khumaltar	Spawn Production and Cultivation of Mushroom	July 24, 2010 to July 23, 2011	Japan
5	Pradip K. Karki	Technical Officer	RARS	Application of Molecular Markers in Vegetable and Legume Breeding	26-31 July, 2010	India
6	Siddhi Jeevan Bhusal	Scientist- S1	Entomology Division, Khumaltar	Ph.D in Plant Breeding and Genetics	July 25 2010 - July 24, 2013	USA
7	Tika Bdr. Karki	Senior Scientist	RARS, Lumle	Ph. D Agronomy in IAAS	July 31, 2010-July 30, 2012	Nepal
8	Jagat Devi Rangit	Senior Scientist, Chief (S4)	Agronomy Division, Khumaltar	Durable Solution for water scarcity and land ecosystem degradation	2-Aug-10	India
9	Dr. Madhu Sudan Upadhaya	Senior Scientist (S4)	Botany Division, Khumaltar	Workshop on high level officers of AFACI member countries	August 7 to 14, 2010	Republic of Korea
10	Raju Kandel	Technical Officer	ABD, Khumaltar, Lalitpur	M.Sc Study in Livestock (CCS Hariyana Agri. University	August 8, 2010 to August 7, 2012	India
11	Sagar Paudel	Scientist- S1	Animal Nutrition Division, Khumaltar	Ph.D in Feed manufacturing technology	August 9, 2010 to June 30, 2013	Norway
12	Preenil K.C	Technical Officer	Paster and fodder Division, Khumaltar, Lalitpur	M.Sc Study (Agroforestry), Dr. Y.S Parmar University of Hort. & Forestry, Solan	August 15 , 2010 to August 14, 2012	India
13	Netra Prasad Wasti	Senior Scientist (S4)	Animal Nutrition Division, Khumaltar	Best practice in quality milk production and dairy value chain	August 15 to 20, 2010	USA
14	Dr. Anand Gautam	Senior Scientist (S4)	Agri. & Env't. Unit, Khumaltar	Program on SAARC Australia Project on Food Security in South Asia	20-Aug-10	Bangladesh
15	Dr. R.B Prasad	Administrative Director, NARC	Main Office, NARC	Observation Visit to Crop Science Institute, India	17 to 23 August, 2010	India
16	Luma Nidi Pandey	Senior Scientist (S 3)	Goat and Sheep Research Program, Jumla	Observation Visit to Animal Science Institute, India	17 to 23 August, 2010	India
17	Dr. Doj Raj Khanal	Senior Scientist (S4)	Animal Health Research Division	Country Programme Framework (CPF) Review and Finalization meeting	August 23 to 25, 2010	Vienna
18	Bhoj Raj Pokhrel	Technician	Animal Breeding Division, Khumaltar, Lalitpur	Repair and Maintenance of Lactoscans at milkotron	August 30 to September 2, 2010	Bulgaria
19	Amar Pun	Technical Officer	Horticultural Division, Khumaltar	Practical Management Courses for Horticulture	August 30 to October 15, 2010	The Netherlands
20	Daya Mani Devi Gautam	Senior Scientist (S 3)	Agronomy Division, Khumaltar	Leadership Courses for Asian and Afriacn Women for Research and Extension in Rainfed Rice Ecosystem	Sept. 6 to 17, 2010	IRRI, Philippines
21	Tek Prasad Gotame	Scientist- S1	Horticultural Division, Khumaltar	Ph.D Study (Unpaid Leave)	Sept. 13, 2010 to Sept. 12, 2013	Denmark
22	Suraj Baida	Senior Scientist (S 3)	Plant Pathology Divison, Khumaltar	Observation visit for the continuation of Ph D Research	September 13 to October 13, 2010	India
23	Dr. Bhartendu Mishra	Executive Director	Main Office, NARC	APARIS Steering Committee Meeting and ICT Workshop	Sept. 14 to 16, 2010	Thailand
24	Manoj Thakur	Senior Scientist (S3)	CPDD, Khumaltar	ICT Workshop	Sept. 14 to 16, 2010	Thailand
25	Acchitmit Lal Chaudhary	Technical Officer	RARS, Tarahara	Training Program on Hybrid Rice Industrialization in Asia Countires	September 16 to 24, 2010	China
26	Dinesh Pariyar	Director, Planning and Coordination	NARC, Singadurbar, Plaza	SAARC Workshop on Bio-diversity Conservation	September 21-22, 2010	BHU, Varanasi, India
27	Dr. Tek Bahadur Gurung	Director, Livestock and Fisheries	NARC, Singadurbar, Plaza	Global Conference on Aquaculture 2010	September 22-25, 2010	Thailand
28	Dr. Bhartendu Mishra	Executive Director	NARC, Singadurbar, Plaza	16th Regional Steering Committee meeting of the Rice-Wheat Consortium	1-2 October, 2010	Bangladesh
29	Dr. Dhurba Bdr. Thapa	Senior Scientist (S-4)	Agri.Botany Division, Khumaltar	2 nd Part Training course on Standardization of Stem rust field notes and germplasm evaluation. with discussion	5-12, October, 2010	Kenya

S.N.	Name	Position	Office	Subject	Duration	Country
30	Mr. Hari Kumar Prasai	Chief	ARS, Doti	Rice Breeding Course	5-20, Oct., 2010	Phillippines
31	Mr. Ram Bdr. K.C	Chief	ARS, Malepatan	Regional Workshop on Improvement of Vegetable & Adaptive Trials in SAARC Countries	8-9 Oct, 2010	Bangladesh
32	Dr. Bhartendu Mishra	Executive Director	NARC, Singadurbar, Plaza	14th CORRA Meeting and Agrobiodiversity Workshop	11-15 Oct. 2010	Republic of Korea
33	Mr. Bhanu Pokhrel	Chief	ARS, Surkhet	Modern Breeding Technology for Chickpea Improvement	25 Oct- 19 Nov. 2010	India
34	Mr. Suresh Rai	Senior Scientist (S-4)	Agri.Botany Unit, Khumaltar	AgMIP Kickup Workshop	28-30 Oct., 2010	USA
35	Sudeep Gautam	Senior Technical Officer	SARPOD, Khumaltar	The 3rd International Rice Congress	8-12 Nov., 2010	Vietnam
36	Sudha Sapkota	Scientist (S1)	SARPOD, Khumaltar	The 3rd International Rice Congress	8-12 Nov., 2010	Vietnam
37	Dr. Bhartendu Mishra	Executive Director	NARC, Singhadurbar, Plaza	The 3rd International Rice Congress	8-12 Nov., 2010	Vietnam
38	Mr. Resham Babu Amagain	Scientist (S1)	Agri.Botany Division, Khumaltar	The 3rd International Rice Congress	8-12 Nov., 2010	Vietnam
39	Mr. Ganesh Shah	Senior Scientist (S-4)	Agriculture Engineering Research Centre, Ranighat, Birjung	Challenging Programme on Climate Change and Food Security	8-10 Nov., 2010	India
40	Dr. Ananda K. Gautam	Senior Scientist (S-4)	Agri. Env't. Unit, Khumaltar	Challenging Programme on Climate Change and Food Security	8-10 Nov., 2010	India
41	Dr. Niranjana Pd. Adhikari	Director	Crop and Horticulture, NARC, Singhadurbar, Plaza	IFAD-954 -ICRISAT Project Annual Review and Planning and Project Steering Committee Meeting	11-13 Nov., 2010	India
42	Dr. Dev Kanta Chaudhary	Director	RARS, Nepalgunj	IFAD-954 -ICRISAT Project Annual Review and Planning and Project Steering Committee Meeting	11-13 Nov., 2010	India
43	Mr. Hari Krishna Shrestha	Senior Scientist (S-4)	NARC, Singhadurbar, Plaza	IFAD-954 -ICRISAT Project Annual Review and Planning and Project Steering Committee Meeting	11-13 Nov., 2010	India
44	Mr. Ghana Shyam Malla	Senior Scientist	Agri. Env't. Unit, Khumaltar	Regional Sharing Workshop on Community Perceptions on Climate Change	11-13 Nov., 2010	India
45	Mr. Santa Bd. B.K	Senior Scientist	RARS, Lumle	M.Sc. Study	Nov. 17, 2010	IAAS, Nepal

The workshop was focused on the climate change vulnerability and adaptation to the livestock sector. Nepal is one of the high mountain ecosystems where the vulnerability and the rise of climate change has been rated highest most-especially to the poor, the most abundant population engaged in farming. Livestock is an integral part of subsistence farming system, contributing about 13% of its GDP in the national economy. The contribution of livestock to society comes from quality food and nutrition, manure for soil fertility, draft power, tanneries and several other industries such as carpet and wool etc.

The climate change has posed new challenges to the sustainability of livestock production with serious implications to poor farmers, which is anticipated to be less positive and more negative to livestock industry and the society.

According to most recent studies, many heavily populated countries of the world could face extreme and giant drought reaching a scale in some regions if ever, seen in modern times in the next 30 years unless greenhouse gas emissions are reduced. However, some countries close to India might be wetter.

On the inaugural address Professor Dr. Subodh Narayan Jha, Member of NPC expressed, it is big time that Government of Nepal should gear up to mitigate the effect of climate change in Nepalese livestock farming. He further added, this gathering of livestock and related experts would lead to fruitful discussions and useful recommendations on preparation and protection of livestock wealth against probable consequences of climate change. He hoped this workshop would center around for addressing the identified gaps as well as the need for researchable agendas. He also expressed that livestock is the soul of

Nepalese farmers which provides not only livestock but nutrition and nutritious food to our children.

Other speaker Dr. Madhav Karki, DDG, ICIMOD expressed in his remarks that Nepal is the fourth most vulnerable country with respect to climate change in the world and it created high price inflation of around 17% in 2008.

Dr. Iain Wright, Regional Representative from ILRI stressed for the need to improve ILRI partnership with NARC to improve the livelihood of Nepalese people.

Agriculture and Cooperative Secretary Mr Nathu Prasad Chaudhary said it is the high time to address the issue of climate change and needs to create awareness at community level. He also added that some law has to be made in changing perspective of climate change to cope up with the new issues.

The chief guest Honorable Minister for Agriculture and Cooperative Mrigendra Kumar Singh Yadav pointed out the green house gas emissions is high and animal production is low in Nepal. The attention should be given to improvement in nutrition through forage, pasture and develop market linkage for animal products so that the farmers can be benefited much. Adaptation measures have to be developed for sustainability of farm animals.

In the chairperson remarks Dr. Bhartendu Mishra, Executive Director NARC said the contribution of livestock sector to GDP is remarkable, which contributes 30% in Mountain, 20% in Hills and 9.7% in Terai.

Dr. Tek Bahadur Gurung, Director of Livestock and Fisheries Research, NARC highlighted on the objective of the workshop and gave welcome speech. Mr. Dinesh Pariyar, Director of Planning and Coordination delivered vote of thanks.

The workshop was concluded with the valuable outcomes and recommendation.

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