

Report on Exchange Workshop on System of Rice Intensification

Growing more food to feed the ever-increasing population has been a concern to all nations. Continuous efforts were made to develop technology in maximizing the production with the given set of inputs. Scientist and farmers in Nepal start growing more rice with same or even less input adopting a technology popularly known as “System of Rice Intensification (SRI)”. Here, rice is grown by transplanting 8-12 days young single seedling generally at the spacing of 25 cm x 25 cm or even wider. Different from the conventional methods, it requires small amount of seeds and does not need continuous flooding except during the flowering stages. When the land start cracking due to drying, a small amount of water is applied just to moisten the soil. Alternate dry and moist condition of soil improved aeration and thus helps the plants to grow vigorously. Weed control makes essential part in the SRI for better growth. The System of rice intensification (SRI) was developed by Fr. Henri de Laulanie in the 1980s in Madagascar. Since then the technology has been spreading widely in the rice growing countries.

People and Resource Dynamic Project of the International Center for the Integrated Mountain Development organized a one day Exchange Workshop on the SRI on 19 December 2005. Annex 1. The gathering was addressed by Dr. Eklabya Sharma, the Integrated Programme Manager of the Natural Resource Management Programme of the ICIMOD. Dr. Sharma highlighted the importance of the SRI technology in growing more rice for sustainable food security. Citing the example of low cost technology by increasing the yield (2-3 times) in maize by inoculating seeds using rhizospheric bacteria in Sikkim, he emphasized the importance of low cost technology such as SRI, which are affordable and acceptable to the local farmers in the Hindu Kush Himalayan Region.

The workshop was organized to share information and experience on SRI from different districts of the Nepal, to document the information and experience, and to identify and recommend the future field research / study. Eight papers from different districts were presented. Annex 2. 36 scientist and farmers (Annex 3) were participated in the workshop.

The workshop pointed out research needs on the weed management, how weeds could be efficiently removed as the first weeding in SRI that demands more labor than in the conventional method. Control irrigation and draining the waterlogged area are two major issues of the water management in the SRI. Research on the optimal water requirement for the better growth has been indicated, as second important research needs. Research on variety, age of seedling, spacing, and soil fertility management in maintaining long term nutrient balance were some other research aspects reflected by the workshop. Annex 4.

The workshop emphasized to integrate the SRI in the national agriculture extension policy. Extension programme such as awareness building through campaigns, radio and television, training through farmer field school, farmer interaction, study tour and workshop are identified. Exchange workshop and networking are also identified to strengthen the coordination among the different line agencies. Participants also emphasized strengthening of local institution to implement the programme at grass root level. Annex 4.

Mr. Bholu Man Singh Basnet, the Chief Scientist, Communication, Publication and Documentation Directorate of the Nepal Agriculture Research Center (NARC) chairing the presentation session indicated that good seed is crucial for producing healthy seedling. He also pointed that solarization helps in producing healthy seedling and SRI multiply the production. He highlighted the importance of the integrated approach of combining different techniques for optimizing the production. Dr. Ram Pratap Shah, Executive Director of the NARC chairing the concluding session pointed out any technology must support the sustainable yield for its wide adaptation. Research will play greater roles in polishing the technology, where Nepal Agriculture Research Center can play important role. He also assured that NARC would be carrying out necessary research to support in developing such important innovations.

**Annex 1. Table1. SRI Workshop Programme,
Venue: ICIMOD Conference Hall, 19 December 2005**

Time	Session
9:00-9:15	Arrival and Registration
9:15-9:30	Opening Remarks by Dr. Eklabya Sharma, Programme Manager, Natural Resource Management Programme-ICIMOD. Introduction to the participants
Presentation Session on SRI Works: Chaired by Dr. Bholu Man Singh Basnet	
9:30-10:00	Presentation by Mr. Madhav Dhakal on PARDYP's Work on SRI
10:00-10:30	Presentation by Mr. Rajendra Uprety, DAO-Morang
10:30-11:00	Presentation by Mr. Raj Kanta Jha, DAO-Dhankuta
11:00-11:30	Presentation by Mr. Lal Mani Sharma, DAO-Dang
11:30-12:00	Presentation by Mr. Janme Jay Gairhe, National Rice Research Programme-Dhanusha
12:00-12:30	Presentation by Mr. Madan Raj Bhatta, National Wheat Research Centre-Bhairahawa
12:30-13:00	Presentation by Mr. Buddhi Kanta Pokharel, Churia Watershed Management Project-Janakpur
13:00-13:30	Presentation by Ms. Dayamani Devi Gautam, NARC-Lalitpur
13:30-14:30	Lunch Break
Group Work Session	
14:30-16:00	Group Work: Four groups will be formed. Each group will have 7 Participants. Two Topics for group work. Topic 1. Topics for future research, Topic 2. Future outreach strategy (Role of different agencies: DOA/NARC/), Two groups will work on each topic.
16:00-16:30	Presentation of Group work. Session chaired by the Dr. Ram Pratap Shah, Executive Director-NARC
Closing	
16:30-17:00	Remarks by Dr. Ram Pratap Shah, Executive Director-NARC Vote of Thanks by PARDYP

Annex 2. Paper Presented

S.N.	Paper	Presenter
1.	PARDYP's Experience on System of Rice Intensification	Mr. Madhav Dhakal
2.	System of Rice Intensification (SRI) Performance in Morang district	Rajendra Uprety
3.	SRI-New Technology to increase production of rice.	Mr. Raj Kant Jha
4.	System of Rice Intensification Trial in Dang District: Method & Approach	Mr. Lal Mani Sharma
5.	System of Rice Intensification: Researcher to Farmer – An Adaptive Perspective View of Nepal	Mr. Janme Jay Gaire
6.	On-station and on-farm studies on Systems of Rice Intensification (SRI)	Mr. Madan Raj Bhatta
7.	An Experience on SRI in Churia and Siwalik Regions of Sarlahi and Mahottari Districts	<i>Buddhi Pokharel</i>
8.	System of Rice Intensification (SRI)	Ms. Dayamani Devi Gautam

**Annex 3. Participants list of the "Exchange Workshop on System of Rice Intensification"
ICIMOD Conference Hall, Khumaltar, 19-Dec-05**

S.N.	Name	Designation	Address	Email	Telephone
ICIMOD					
1	Mr. Keshar Man Sthapit	Country Coordinator / PARDYP	ICIMOD/PARDYP, P. O. Box 3226, Kathmandu	kssthapit@icimod.org	5525313
2	Mr. Madhav Dhakal	Research Associate, Soil & Water Conservation, Hydrometeorology / PARDYP	ICIMOD/PARDYP, P. O. Box 3226, Kathmandu	mdhakal@icimod.org	5525313
3	Mr. Pradeep Dangol	Research Associate, Database Management Hydrometeorology / PARDYP	ICIMOD/PARDYP, P. O. Box 3226, Kathmandu	pdangol@icimod.org	5525313
4	Mr. Samden Lama Sherpa	Godawari D & T Centre Manager	ICIMOD/NRM, P. O. Box 3226, Kathmandu	ssherpa@icimod.org	5525313
5	Mr. Sanjeev K. Bhuchar	Assistant Programme Coordinator / PARDYP	ICIMOD/PARDYP, P. O. Box 3226, Kathmandu	sbhuchar@icimod.org	5525313
Within Kathmandu					
6	Dr. Bholan Man Singh Basnet	Principal Scientist (Agronomist S-5)	NARC, Khumaltar, Lalitpur, P. O. Box: 5459, Kathmandu	cpdd@narc.gov.np , cpdd@mos.com.np , basnetbms@yahoo.com	5523041(O), 4472643 / 4498012 @, (fax) 977 1 5521197 / 4262500, 98510 75874
7	Mr. Chiranjibi Adhikari	Adjunct Scientist	CIMMYT South Asia Regional Office, Cornell University, CIMMYT International, P. O. Box:5186, Kathmandu	cadhikari@mos.com.np	4219640, 4219639 (O), 4475250 (R), 9851077068 (fax)9771 4229504
8	Mr. Govinda Prasad Koirala	Chief Agronomist	Agronomy Division, NARC, Khumaltar, Lalitpur	agronomy@khanal.mos.np	01 5521169
9	Mr. Hari Bhandari	Programme Director	DOA, Crop Development Directorate, Harihar Bhawan, Pulchowk, Lalitpur	cropdev@enet.com.np	01 5528129, 9851081472 (fax) 01 5553341
10	Mr. Jaganath Joshi	Assistant Technology Development Officer	Department of Soil Conservation and Watershed Management, forestry Complex, Babar Mahal, Kathmandu	jaganathjoshi@hotmail.com	4220828/4220857(o), (fax) 977 1 4221067
11	Mr. Narayan Prasad Bhandari	Vegetable Development Officer	Vegetable Development Directorate, Khumaltar	narayangulmi@yahoo.com	5523701
12	Mr. Ram Pratap Shah	Executive Director	NARC, Khumaltar, Lalitpur		
13	Ms. Daya Mani Devi Gautam	Scientist	Agronomi Division, NARC, Koteswor, Ward No.35, Kathmandu	NA	5521169 (o), 2050288 (R), 9841 322813
Outside Kathmandu					
14	Mr. Andreas Jenny	Sagoal & INF	Deva Dhulbari chowk, Nepalgunj	ajenny@inf.org	081 526615
15	Mr. Arjun Prasad Bajagai	Junior Technician	District Agriculture Development Office, Dhulikhel, Kavre		011 661201, 9841273014
16	Dr. Madan Raj Bhatta	National Wheat Coordinator	Nepal Agricultural Research council, National	nwrp@nec.com.np	071 522196/071

			Wheat Research Programme, Rupandehi, Bhairahawa		520226, 071 520431 ®, (fax) 071 521905
17	Mr. Buddhi Kantia Pokharel	Natural Resource Management Officer	Churia Watershed Management Project, Baribas-Mahottari, Bardibas, Janakpur District	buddhip@carenepal.org	041 523309 (c/o), 9854020058, 9841343292, (fax) 041 523494
18	Mr. Janmenjai Gairhe	Scientist	National Rice Research Programme (NRRP), Baniniya - 3, Hardinath, Dhanusha District, P. O. Box No.17 Janakpur	nrrpjnk@yahoo.com , nrrpjnk@nec.com.np , Janmajaya@gmail.com , Janmajaya@yahoo.com	98540 20465, 977 041 540301
19	Mr. Krishna Raj Adhikari	PARDYP Field Office Incharge	PARDYP Field Office, Dhulikhel Municipality - 3	jhik_khola@asiaonline.com.np	011 61071
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22	Mr. Rajendra Uprety	Agriculture Extension Officer	District Agriculture Development Office, Biratnagar - 6, Morang	dladomorang@wlink.com.np	021 521358/526568 (o), 021 525054 ®, 021 - 526568
23	Mr. Rajesh Kumar K. C.	Spice Crop Development Officer	Spice Crop Development Centre, Tamaghat, Panchkhal - 6, Kavrepalanchowk	rajeshkce@yahoo.com	011 663034, 01 4495606 Res.
24	Mr. Ramesh Lamichhane	Field Assistant	PARDYP Field Office, Dhulikhel, Dhulikhel Municipality - 3, Bhimshenshan, Kavrepalanchowk	ramesh_lam@yahoo.com	011 661071
25	Ms. Kamala Humagain	PARDYP Field Assistant	PARDYP Field Office, Dhulikhel Municipality - 3	kamala_hum@yahoo.com	011 61071
26	Mr. Naresh Chandra Ghimire	Agriculture Extension Officer	District Agriculture Development Office, Dhulikhel, Kavre	NA	011 661201 (o), (fax) 011 661201
27	Mr. Govinda Koirala	Farmer	c/o, Churia Watershed Management Project, Kalinjor - 5, Sarlahi, Dhanusha (Janakpur)	NA	
28	Mr. Hari Bikram Khand	Farmer	c/o, NRRP, Hardinath, Manendranagar-6, Pakadiya, Dhanusha	NA	
29	Mr. Kishor Luitel	Farmer	Jhorhat VDC, Ward No: 2, Morang	NA	9842033559
30	Mr. Rama Shankar Mishra	Farmer	Hatti Bangai VDC - 8, Rupandehi, Bhairahawa	NA	071 520043/071 527743
31	Mr. Udhav Raj K. C.	Farmer	Recomened by Dr. Bholi Man Basnet	NA	
32	Mr. Upendra Aryal	Farmer	c/o, DADO, Dhankuta - 3	NA	
33	Ms. Ambika Humagain	Farmer	Patleket - 8, Kalehe, Kavrepalanchowk	NA	
34	Ms. Ganga K.C.	Farmer	NARC, Kavre VDC, Ward No: 2	NA	
35	Ms. Shabritri Rana	Farmer	TNNP - 5, Dang	NA	082 560492

Annex 4. Presentation of the Group Works.

Group 1. Outreach Strategy

Issues	Recommended Strategy	Suggested Responsible Organization
Weed management	Development and use of the light weeding tool	Agriculture Engineering Campus-Dharan Private sector
	Use of herbicides	Ranighat, NARC, DOA
Water management	Area for winter rice (boro) and Chaite rice	Related GOs and NGOs
Soil management	Emphasize organic farming	DAO / NARC/NGOs
Awareness raising	Training, workshop, Printing material, Electronic (Radio, TV), Study tour	GOs, I/NGOs, Private sector, ICIMOD
Technology development and research	Variety and location specific technology development	NARC, Private sector, ICIMOD
Networking (Coordination programme)	Development and resource mobilization based on integrated approach	All interested organization

Members: - Bholu Man Singh Basnet / Rajendra Lamichhane / Hari Bhandari / Janme Jai Ghaire / Ms. Ganga K.C. /

Group 2. Outreach Strategy

Issues	Recommended Strategy	Suggested Responsible Organization
Inadequate awareness	<ul style="list-style-type: none"> • Interaction with farmers • Workshop / Training • Study tour • Information communication 	Related organization (DOA, NARC, NGOs, INGOs, CBOs)
Inadequate commitment from the farmers	Encourage farmers Method demonstration Result demonstration	
Inadequate coordination	Exchange workshop Networking (Technology exchange)	
Agriculture extension policy on SRI	Establishment of SRI unit Skill development of the staff	DOA, NARC
Monitoring	Establishment of the monitoring team	DOA, NARC, NGOs, INGOs, CBOs

Members of the Group works

Madan Raj Bhatta / Naresh Chandra Ghimire / Kishor Luitel / Kamala Humagai / Andreas Jenny / Sabitri Rana

Group 3.Future Research Needs

Issues	Recommended Strategy	Suggested Responsible Organization
Weed management	Station based	NARC
Planting method 1. Variety 2. Age of seedlings 3. Spacing	Farmers' field level, observation trail-10 farmers site	All
Soil fertility management 1. Long term nutrient management 2. Chemical, organic, bio-fertilizer test (Different doses)	On site Farmers' field level, observation trail-10 farmers site	NARC All
Seed treatment 1. Solarization 2. Dry / Wet seed bed 3. Salt solution test (Embryo)	Farmer based	All All Dhankuta
Adoption with adaptation research Socio economic aspects	Farmer based	All (Questionnaire ICIMOD collection)
<ul style="list-style-type: none"> • Water management • Water requirement Design concept: Treatment <ul style="list-style-type: none"> • Control (Rainfed condition) • SRI normal condition • 5 cm – 7 days interval • 10 cm-7days interval • 5 cm 15 days interval • 10 cm 15 days interval • Farmers' existing condition 	On station	NARC (Provided fund)
Seasonal test (i.e. variety, age of seedling and spacing)	Farmers field i.e. at least 10 farmers	All

Members of the Group Work: Raj Kant Jha / Rajendra Upreti / Krishna Adhikari / Samden Sherpa / Upendra Aryal / Uddhav Raj K.C. / Govinda Koirala / Niranjana Adhikari / Madhav Dhakal / Lal Mani Sharma / Sanjeev Bhuchar / Arjun Prasad Bajagai / Kishor Luitel / Udhav Raj K.C. / Upendra Aryal

Group 4. Future Research Needs

Issues	Recommended Strategy	Suggested Responsible Organization
<ul style="list-style-type: none"> Handling young seedlings 	<ul style="list-style-type: none"> Seedling age spacing Water management Nutrient management (Chemical fertilizer and FYM) Weed management Nursery, transplanting time interval Water requirement? Disease / pest infestation 	Research publication and training (ToT)-NARC
<ul style="list-style-type: none"> Water management (Drying/wetting, rainfed irrigation (assured)) 		Extension (DOA) <ul style="list-style-type: none"> Farmer training Technology transfer Technology verification Service providing Quality control
<ul style="list-style-type: none"> Weed management (Chemical, Mechanical and Manual) 		
<ul style="list-style-type: none"> Nursery bed / seedling (Single, double, Transplanting time) 		
<ul style="list-style-type: none"> Nutrient management (Chemical, FYM, Green manure) 		I/NGO <ul style="list-style-type: none"> Training Trainer training Service provide Advocacy
<ul style="list-style-type: none"> Knowledge-technology 		
<ul style="list-style-type: none"> Unproductive tillers at late stage 	SRI improved conventional	
<p>Appropriate seedling</p> <ul style="list-style-type: none"> Age Spacing Nutrient management (Fertilizer) Water requirement mgt. Varietal differences <p>Local specific requirement Time and area specific nursery</p>	<ul style="list-style-type: none"> Economic viability Stakeholder identification (NARC), DOA, I/NGOs, CBO) Training need identification for different stakeholders Information channels Farmers Capacity building of local Research linkages 	<p>Local agrovet</p> <ul style="list-style-type: none"> Input supply Input output market

Members: - Chirinjivi Adhikari / Budhi Raj Pokhrel / Dr. Jagannath Joshi / Daya Mani Gautam / Rama Sankar Misra / Hari Bikram Khand / Ambika Humagai / Rajesh K.C. / Govinda Koirala / Rama Shankar Mishra