Getting farmers involved

RIU

Validated RNRRS Output.

In Nepal, work to manage water and address soil and nutrient losses has focused on farmer participation. This is seen as the best way to produce appropriate outputs and ensure that technologies are adopted. Mixing scientific know-how with local knowledge also offers innovative ways to tackle local problems. To help with this, new methods have been developed to document and analyse local people's knowledge and perceptions of soil and water conservation methods. Researchers have also worked closely with farmers to produce adaptable ways of minimising the nutrient losses caused by erosion and leaching. At the project sites, 25% of those farmers not actually involved in the project have adopted the new soil and water management interventions—indicating the project's success.

Project Ref: **NRSP26:**
Topic: **6. Promoting Success: Partnerships, Policy & Empowerment**
Lead Organisation: **University of Wales, Bangor, UK**
Source: **Natural Resources Systems Programme**

Document Contents:

Description

Research into Use
NR International
Park House
Bradbourne Lane
Aylesford
Kent
ME20 6SN
UK

Geographical regions included:

Nepal,

Target Audiences for this content:

Crop farmers, Livestock farmers, Fishers, Forest-dependent poor,

NRSP26

A. Description of the research output(s)

1. Working title of output or cluster of outputs.

Incorporating local knowledge in participatory technology development of soil and water management interventions in the middle hills of Nepal

2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.

NRSP Production System: Hillsides

3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.

R7412

Institutional Partners:

School of Agricultural and Forest Sciences (now School of the Environment and Natural Resources),
University of Wales, Bangor
UK

Local Initiatives for Biodiversity Research and Development (LI-BIRD)
Pokhara, Kaski
Nepal

Agricultural Research Station, Lumle
Pokhara
Nepal

Royal Geographical Society (with IBG)
London

Environmental Change Institute
University of Oxford

Centre for Ecology and Hydrology
Bangor

International Centre for Integrated Mountain Development (ICIMOD)
Kathmandu
Nepal

4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? ***(max. 200 words)****. This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.*

Four major outputs of the project are proposed here for consideration. These outputs were produced during the project period from July 1999 to December 2003. A brief description of the outputs is presented here:

Output 1: Methodology for documentation and analysis of **local knowledge** and perceptions of soil and water conservation methods for incorporation into **participatory technology development (PTD)** to minimise soil and water losses developed for wider use

The availability and access to technological options that are effective in reducing **soil and nutrient losses** from ***bari* land** (rainfed upland) and that suit farmers' needs and environments have been very limited in **Nepal** as well as in the region. The interventions that have been directed at controlling **soil erosion**, including Sloping Agricultural Land Technology (SALT) (Partap and Watson, 1994), have not been widely adopted by the farmers although they are effective in reducing surface runoff and controlling soil erosion (Carson, 1992; Tang Ya, 1999). The output aimed at addressing this problem by documenting and understanding farmers' local knowledge and practices about, and their needs on **soil and water management**.

Output 2: Locally adoptable/ adaptable interventions which minimise nutrient losses by erosion and leaching developed by supporting farmers' research/ innovation and adopting PTD approach

The problem of low adoption of soil and water management interventions has also been due to lack of adequate farmer participation in the research and development process. Such interventions are generally developed at research stations or under conditions which are far from realities prevailing in farmers' field. The proposed output envisaged to utilize farmers' local knowledge and experiences and build on farmers' research and innovation to develop locally adapted soil and water management interventions. Interventions developed in such way also have high potential for scaling up by the wider farming communities.

Output 3: Methodology for **participatory assessment** of effectiveness of soil and water management interventions developed through PTD **promoting farmers' research/ innovation**

Methodologies for assessing effectiveness of participatory research and development are generally not well developed and those available are usually context specific. Due to the design and process of PTD promoting farmers' research and innovation, participatory assessment methods have to be used to deal with perception-based and qualitative data generated in the process.

Output 4: Methodology in PTD approach **combining farmers' local and scientific knowledge** developed for Hindu-Kush Himalaya (HKH) region developed and promoted

The problem of soil and nutrient losses in the hills are governed by a number of ecological and social factors that differ from place to place. Farmers in the hills of Nepal, therefore, need a participatory approach that utilizes their local knowledge and generates locally suitable and adapted soil and water management interventions. Such PTD approach would also be useful and applicable for HKH region of South Asia.

5. What is the type of output(s) being described here?
Please tick one or more of the following options.

Product	***Technology***	***Service***	***Process or Methodology***	***Policy***	***Other Please specify***
	X		*X*	*X*	

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

The outputs are primarily focussed on soil and water as factors of production of food crops in the *bari* land (non-irrigated upland). By minimising soil and nutrient losses, the outputs indirectly focuses on the production of maize, finger millet, potato and number of other crops grown in *bari* land.

7. What production system(s) does the output(s) focus upon?
Please tick one or more of the following options. Leave blank if not applicable

Semi-Arid	***High potential***	***Hillsides***	***Forest-Agriculture***	***Peri-urban***	***Land water***	***Tropical moist forest***	***Cross-cutting***
		X					

8. What farming system(s) does the output(s) focus upon?
Please tick one or more of the following options (see Annex B for definitions).
Leave blank if not applicable

Smallholder rainfed humid	***Irrigated***	***Wetland rice based***	***Smallholder rainfed highland***	***Smallholder rainfed dry/cold***	***Dualistic***	***Coastal artisanal fishing***
			X			

*9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**). Please specify what other outputs your output(s) could be clustered.*

The outputs proposed in the project could be clustered with outputs of the following projects:
R8452/ R8215 for soil management in lowland maize system
R6621 for soil and water management
R7830 for participatory irrigation management and PTD

R7446 for integration of PTD into research and extension
R6525 for methods of economic and environmental assessment of NRM
R7888 for rainwater harvesting
R7637 for integration of indigenous and biological knowledge

The methodology for documentation and analysis of farmers' knowledge and experiences would help all other outputs that aim to generate locally adapted and farmer preferred technologies. This is the first step in PTD through promotion of farmers' research and innovation. Poor farmers generally have limited resources and always try to maximise use. The PTD approach would help these farmers to design, test and adapt interventions for agricultural production and NRM to suit their needs and resource endowments. PTD could be used to a wide range of commodity to ensure generation of farmer preferred technologies. Similarly, the methodologies for participatory assessment of effectiveness of soil and water management interventions could be used to evaluate the usefulness of the technologies generated for other commodities though PTD. A wide range of soil and water management interventions, developed through one of the proposed outputs, to minimise soil and nutrient losses could also be used for soil fertility management, water harvesting and livestock fodder production.

Validation

B. Validation of the research output(s)

***10. How** were the output(s) validated and **who** validated them?*
Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the "who" component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (max. 500 words).

***How validated*:** By the design of the participatory technology development (PTD) approach used in the project, the validation of the outputs took place simultaneously as these outputs were being produced. The validation of farmers' local knowledge, i.e. *output 1* was done through repeated interviews with a large number of farmers from three farming communities representing three different agro-ecological domains and different ethnic groups of Nepal. The validation of local knowledge in soil and water management was also done by comparing with site-specific data collected by the scientists as well as with established scientific knowledge.

The validation of the PTD approach and the soil and water management interventions to minimise soil and nutrient losses from the *bari* land – mentioned in the rest of the outputs – was done through a number of participatory monitoring and evaluation methods built into the project (see McDonald *et al*, 2003, Shrestha, 2003, Shrestha *et al*, 2003). The research farmers of the three research sites engaged in PTD made their own observations and recorded their research and innovations to validate the effectiveness of the interventions. The validation of the interventions and the PTD approach were also made through (a) joint monitoring by research farmers, scientists and extension workers; and (b) village workshops organised annually at each research site. The feedback collected during these events was also used systematically and iteratively to validate the proposed

outputs.

The validation of the PTD approach and the soil and water management interventions developed in the project was also validated through another project funded by Hill Agricultural Research Project (HARP) of DFID (Project No. 84/01). The project used the same PTD approach in generating soil and water management interventions in sloping and shifting cultivation production system practised by *Chepang* indigenous ethnic communities in the central hills of Nepal (see Regmi *et al*, 2004).

***Who validated*:** All stakeholders involved in the project participated in validating the outputs both individually as well as jointly at various stages of the project. The farmers and the farming communities of the research sites were the primary stakeholders validating the project outputs. As mentioned earlier, the research farmers engaged in the PTD also carried out validation of the outputs as these were being tested in the field. These farmers well represented different gender, wealth and ethnic categories of hill farming communities. For example, these research farmers included 38 per cent of women, 30 per cent of poor farmers 7 per cent of socially excluded and disadvantaged (Shrestha, 2003).

The other stakeholders involved in the validation process were development experts and workers from District Agriculture Development Offices and District Soil Conservation Offices of Kaski, Tanahun and Palpa districts; Soil Science Division of NARC; and International Centre for Integrated Mountain Development (ICIMOD). These organisation provided feedback on the effectiveness of the outputs during their participation in the annual joint monitoring and evaluation of the project activities. As mentioned earlier, the HARP Project No. 84/01 also validated the outputs with marginal indigenous *Chepang* communities of Tanahun and Gorkha districts.

*11. **Where and when** have the output(s) been validated? Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above **(max 300 words)**.*

The outputs were initially validated at the three project sites where project activities were implemented and the proposed outputs were developed during the project implementation period from July 1999 to December 2003. These project sites lies in three different districts in the Western Development Region of Nepal, and represent different agro-ecological environments and socio-cultural settings. The detailed features of these sites are presented in Table 1. Of these project sites, Landruk represented upper mid-hill with high rainfall, Nayatola represented central mid-hill with low rainfall and Bandipur represented lower mid-hill with medium rainfall. All these sites represented hillside production system with smallholder rainfed highland farming system. Maize is the main food crop and the crop production is highly integrated with livestock production and forest resources of the community.

The outputs proposed were also validated in HARP Project No. 84/01 implemented at Kholagaun of Chhimkeswori Village Development Committee (VDC) in Tanahun district and at Thumka of Bhumlingchowk VDC in Gorkha district from July 2001 to July 2004 (Bimal *et al*, 2004). The sites also represented hillside production system with smallholder rainfed highland farming system. The production environment is very marginal, where crops are grown on sloping land with slopes up to 70 per cent and under shifting cultivation. The majority of the farmers are from an indigenous ethnic community called *Chepang* and are extremely resource poor. Soil erosion and land degradation is one of the major problems for crop production in the area.

Table 1. Details of the research sites selected for participatory technology development.

Description	Landruk	Bandipur	Nayatola
District	Kaski	Tanahun	Palpa
Village Development Commmittee (VDC)	Lumle	Bandipur	Kusumkhola
Ward No.	9	3 and 6	4 and 5
Altitude (metres asl)	1500-1800	550-1000	1000-1500
Rainfall (average annual mean)	3524 mm	1620 mm	1591 mm
Longitude/Latitude	28° 22.080' N 83° 49.536' E	27° 56.312' N 84° 24.454' E	27° 50.899' N 83° 26.977' E
No. of households	119	164	70
Major ethnic groups	Gurung, Brahmin, Magar and Kami	Brahmin, Magar, Newar and Kami	Magar, Chhetri and Kami
Terrace type	Bench	Bench	Sloping
Major crops and cropping systems in *bari* land	Maize intercropped with fingermillet, or bean, cowpeas or soybeans, and followed by wheat or barley in winter in the alternate years	Maize grown as sole crop as well as intercropped with fingermillet, or bean, cowpeas or soybeans, followed by winter wheat intercropped with winter legumes and mustard	Maize grown as sole crop as well as intercropped with *ghaiya* (upland rice) fingermillet, or bean, cowpeas or soybeans, with majority of the farmers keeping land fallow in the winter. maize. Orange orchards intercropped with maize or sole.

Current Situation

C. Current situation

12. ***How and by whom*** *are the outputs currently being used? Please give a brief description* ***(max. 250 words****).*

The project outputs are currently used by both research as well non-research farmers of the project sites on their own initiatives. The study conducted at the end of the project (McDonald *et al*, 2003; Shrestha, 2003) showed that, in addition to the research farmers, 25 percent of the farmers of the project sites reported to have adopted the new soil and water management interventions. Similarly, another 30 per cent of the farmers were willing to adopt the new interventions in the future. The study also revealed that due to promotion of farmers' research and innovation in the PTD approach adopted for the project, there was simultaneous exchange of information and

materials from research farmers to non-research farmers leading to wider use of the project output within the farming communities. Initially, the project also provided some material and training support on farmers' demand to enable them to use the project outputs.

*13. **Where** are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used **(max. 250 words).***

The outputs are currently being used in the three project sites of this project (question 12) and two project sites of the HARP Project No. 84/01.

*14. What is the scale of current use? Indicating how quickly use was established and whether usage is still spreading **(max 250 words).***

The scale of the current use is largely limited to the farming communities of the project sites mentioned under question 12. As the PTD approach allowed farmers' to be directly involved in developing new soil and water management interventions, the farmers of the project sites quickly started to use the new soil and water management interventions. The implementation of the project activities by research farmers in their own fields generated interest among other farmers and enabled them to see the effectiveness of the new interventions by themselves and acquire information and materials from the project as well as from their fellow farmers. These factors helped in rapid dissemination of the outputs within farming communities of the project sites.

The new soil and water management interventions developed in the project are still spreading, largely within the farming communities of the project sites. This spread is, however, slow due to limited availability of the material required to establish the new interventions. Spread outside the project sites will require additional effort and involvement of local government and non-government development organisations.

*15. What programmes, platforms, policy, institutional structures exist within the DFID PSA countries to assist with the promotion and/or adoption of the output(s) and in terms of capacity strengthening what do you see as the key facts of success? **(max 350 words).***

The Ministry of Forest and Soil Conservation and its network of District Soil Conservation Offices (DSCOs) are responsible for soil and water management programmes in Nepal. This is the main institutional structure responsible for promotion and/or adoption of the proposed outputs. There are a number of NGOs, such as CARE Nepal and Nepal Agro-forestry Foundation (NAF) who are also actively engaged in promotion of these outputs. Soil Science Division at NARC has also carried out a number of soil and water management related research. The coordination between these government and non-government organisations and the NARC needs to be strengthened for effective promotion of the proposed outputs.

At the regional level, ICIMOD has been active in carrying out a number of soil and water management related research and development work in South Asian countries. ICIMOD, therefore, was included in the project as one of the nodal stakeholders to promote the outputs in the South Asia region.

In our experience, strengthening capacity of these organisations in applying PTD for the promotion of farmers' research and innovation by combining local and scientific knowledge appears to the key element for the success

in promotion of the proposed outputs.

Current Promotion

D. Current promotion/uptake pathways

*16. **Where** is promotion currently taking place? Please indicate for each country specified detail what promotion is taking place, by whom and indicate the scale of current promotion **(max 200 words).***

Currently, the promotion of the project outputs is taking place largely in Nepal. Both new soil and water management interventions (technologies) and PTD approach (process) are being promoted by LI-BIRD in collaboration with District Agricultural Development Offices, District Soil Conservation Offices, District Forest Offices and community based organisation in Tanahun and Gorkha district of Central Development Regions of Nepal. The promotion activities are being implemented in two farming communities in Tanahun and two in Gorkha districts. More than 175 farming households are currently using the new soil and water management interventions in these farming communities.

ICIMOD has used the PTD manual and video produced by the project for the promotion of the outputs in its regional project (PARDYP) implemented in six countries of the HKH region.

LI-BIRD is now also collaborating with ICIMOD through IFAD funding to promote the project outputs adapted for productive and environment-friendly utilisation of community leasehold forests in Tanahun, Gorkha and Dhading districts of the Central Development Region of Nepal. The programme is targeted to improve the livelihoods of landless, smallholder and resource poor farmers in the area.

*17. What are the current barriers preventing or slowing the adoption of the output(s)? Cover here institutional issues, those relating to policy, marketing, infrastructure, social exclusion etc. **(max 200 words)**.*

Following are the current barriers slowing the adoption of the outputs:
a. Promotion of conservation-oriented programmes: Government policies and priorities have to a large extent been on promotion of conservation-oriented programmes with little focus on utilisation of soil and water resources for the benefits of the users.

b. Use of technology (hardware)-oriented approach: Despite a number of participatory watershed management projects implemented in the country, the technology-oriented approach is still dominant in such programmes. A process-led participatory approach that promotes farmers' research and innovation is not widely appreciated and applied.

c. Poor linkage and coordination between the service providers: The soil and water management programme of the concerned line agency, i.e. District Soil Conservation Office focuses largely on prevention of soil erosion and land degradation along rivers and gullies. Similarly, though soil and nutrient loss is one of the most critical factors in the hills of Nepal, it barely falls within the priority of the agricultural development programme. Lack of

coordination between these organisations further adds to the problem.

18. What changes are needed to remove/reduce these barriers to adoption? This section could be used to identify perceived capacity related issues ***(max 200 words).***

The following changes are suggested to reduce the barriers to adoption discussed in question 17:
a. The government policies should give higher priority to livelihood focussed soil and water management programmes with promotion of outputs that combine conservation with development goals of the resource poor farmers.

b. Promotion of PTD approach to enable farmers to develop soil and water management interventions that meet their development goals by minimising soil and nutrient losses from their cultivated land. This will require strengthening capacity of stakeholders in applying the PTD approach and facilitating farmers' research and innovation.

c. Use of new soil and water management interventions by farmers also requires easy access to new planting materials, technical information and other support from the service providers. This requires a strong and committed coordination among different service providers working for the benefits of the rural farmers.

19. What lessons have you learnt about the best ways to get the outputs used by the largest number of poor people? ***(max 300 words).***

The following lessons have been learned about the best ways to get the outputs used by the largest number of poor people:

a. Outputs based on farmers' local knowledge, experiences and needs are more readily adopted by the farmers.

b. Outputs that are generated by farmers' own research and innovation are more convincing to fellow farmers leading to higher use of such outputs. It also encourages farmer-to-farmer dissemination of the outputs. The PTD approach to technology generation, therefore, ensures higher use of the resulting outputs.

c. Outputs that generate rapid and significant economic benefits are likely to be used by the largest number of poor people. For example, farmers preferred to use soil and water management interventions incorporating vegetative barriers which minimise soil and nutrient losses that also provided fodder and forage to their livestock. Similarly, interventions that encouraged integration of fruit trees and other economic crops were also highly preferred.

d. Start-up external technical and material support at the initial stage of the farmer adaptation will boost farmers' willingness to use the outputs. As farmers gain expertise, confidence and realise benefits these can be phased out, but it also encourages other farmers to use the outputs.

e. Supplying planting materials for new soil and water management interventions from outside the village is not only costly but is also difficult to supply due to poor transportation networks in the rugged terrain of the hills of Nepal. Creating village resources, such as plant nurseries, addresses this problem and enhances use of outputs

by resource poor farmers.

f. Involvement of relevant institutional stakeholders in the generation and validation of the outputs helps in wider use of these outputs. Once these stakeholders gain confidence in the effectiveness of the outputs, they tend to include them in their regular programmes which reach large numbers of farmers through their extensive networks of field staff.

Impacts On Poverty

E. Impacts on poverty to date

20. Where have poverty impact studies on this output or cluster of outputs taken place? Please list studies here.

The soil and water management interventions generally have long gestation periods and therefore take time to generate visible impacts. Interventions to minimise soil and nutrient losses usually involve growing vegetative and/ or mechanical barriers, soil amelioration, draining off water etc. These interventions not only take time to be effective but the effects of such interventions are also gradual. The poverty impacts of these interventions are, therefore, not immediately visible. For this reason, the poverty impact study of the project outputs has not yet been done. Such study should be done at least 4 to 5 years after the completion of the project so that the impacts are visible and measurable. Studies of the livelihoods of the poor and their interaction with other (less poor) sections of society are an important part of NRSP's research, and this emphasis will be maintained in the continuing research led by LIBIRD with multidisciplinary teams.

The initial assessment of the effectiveness of the outputs was done toward the end of the project and has been reported in the following publications:

McDonald, M. A., Shrestha, P.K., Acharya, G. P., Tripathi, B. P., Lawrence, A. and Sinclair, F.L. 2003. *Incorporation of local knowledge into soil and water management interventions which minimise nutrient losses in the Middle Hills of Nepal*. University of Wales, Bangor. 24 pp + appendices

Shrestha, P.K. 2003. *Combining Local Knowledge in Developing Soil and Water Management Interventions to Minimise Soil and Nutrient Losses in the Middle Hills of Nepal: Using a Participatory Technology Development Approach*. PhD thesis, University of Wales

21. Based on the evidence in the studies listed above, for each country detail how the poor have benefited from the application and/or adoption of the output(s) ***(max. 500 words):***

- *What positive impacts on livelihoods have been recorded and over what time period have these impacts been observed? These impacts should be recorded against the capital assets (human, social, natural, physical and, financial) of the livelihoods framework;*
- *For whom i.e. which type of person (gender, poverty group (see glossary for definitions) has there been a*

positive impact;

- *Indicate the number of people who have realised a positive impact on their livelihood;*
- *Using whatever appropriate indicator was used detail what was the average percentage increase recorded*

Not applicable for the reasons stated under point 21.

Environmental Impact

H. Environmental impact

24. What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? ***(max 300 words)***

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

R7412 was an environmental project in the broad sense. Directly, it addressed problems of land degradation by seeking to minimise nutrient losses from *bari* land. The interventions developed show promise of being successful, and so fewer nutrients will be transported to water reservoirs, and more will go towards better cover for the land, including woody species. Increased biomass on the *bari* lands, along with better use of organic manures are potentially positive for the environment in sequestering carbon. The increasing emphasis on fodder production and stall-feeding of animals is environmentally beneficial. The project also fostered the use of a greater number of species (and encouraged the more secure growth of local varieties) and the intensification of land use on productive units of land. Therefore the project contributed to biodiversity enhancement directly on-farm (agro-biodiversity) and in relieving pressure from adjacent forest and conservation areas (native species biodiversity).

25. Are there any adverse environmental impacts related to the output(s) and their outcome(s)? ***(max 100 words)***

Environmental threats may include the greater demand for organic materials and livestock forage, and an increased off-take from adjacent forests. Increased production from *bari* land may also encourage a further swelling of the population and associated potentially negative environmental impacts. There may also be a diversion of water and nutrients away from *khet* land because of their better utilisation on *bari* land. Terrace collapse may also be a problem in some places if more water is conserved on *bari* land. However, an objective assessment would probably conclude that the immediate environmental benefits outweigh any longer-term threats.

26. Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? ***(max 100 words)***

Yes. The outputs are directly related to the management of soil and water, which are primary factors for crop production affected immediately in the event of climate changes and natural disasters. Better management of soil and water, minimising soil and nutrient losses, and increasing soil fertility increases the resilience of soil against adverse effects of climate change and natural disaster like flood and landslides. The farmers' research and innovation promoted through their engagement in the PTD process greatly increases the capacity of poor farmers to cope with the effects of climate change and natural disasters.

Annex

References

McDonald, M. A., Shrestha, P.K., Acharya, G. P., Tripathi, B. P., Lawrence, A. and Sinclair, F.L. 2003. *Incorporation of local knowledge into soil and water management interventions which minimise nutrient losses in the Middle Hills of Nepal*. Final Technical Report. University of Wales, Bangor. 24 pp + appendices

Regmi, B. R., Aryal, K.P., Shrestha, P.K and Tamang, B. B. 2004. *Participatory Identification of Integrated Technological Packages for Shifting and Sloping Land Areas*. Final Technical Report submitted to HARP.

Shrestha, P.K. 2003. *Combining Local Knowledge in Developing Soil and Water Management Interventions to Minimise Soil and Nutrient Losses in the Middle Hills of Nepal: Using a Participatory Technology Development Approach*. PhD thesis, University of Wales

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