

**NEPAL AUSTRALIA COMMUNITY
RESOURCE MANAGEMENT AND
LIVELIHOODS PROJECT**

Livestock Adviser's Report - April 2004



Prepared for

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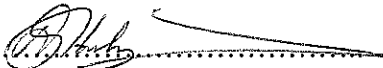
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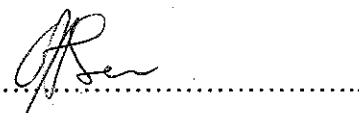
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Acronyms

CD	Community Development
CDG	Community Development Group
CF	Community Forestry
CM	Community Motivator
DEO	District Education Office
DFO	District Forestry Office
DLSO	District Livestock Office
DSCO	District Soil Conservation Office
DSCWM	Department of Soil Conservation and Watershed Management
FUG	Forest User Group
LIP	Livelihoods Improvement Program
NACRMLP	Nepal Australia Community Resource Management and Livelihoods Project
OP	Operational Plan
WEP	Women's Empowerment Program

Summary

This report details the recommendations of the Livestock Adviser following the Adviser's 6-week visit to Nepal during February-April 2004.

The Terms of Reference for the visit are provided in Annex 1. Deliverables for the visit were agreed prior to the visit by the Adviser, the Team Leader and the Project Director. The deliverables were:

- A concise written report detailing:
 - a clear strategy for integrating the fodder interventions which were tested in 2003 with the Project's Livelihood Improvement Program.
 - ways in which fodder initiatives with Forest User Groups (FUGs) (supported by relevant networks) could be institutionalised; along with suggestions for ways in which the Project could facilitate this institutionalisation.
- A concise written description of a 12-month program of activities designed to support the delivery of Output 3.4: 'Department of Soil Conservation and Watershed Management supported to expand conservation activities within existing districts.'
- A comprehensive strategy and work plan that places Department of Soil Conservation and Watershed Management (DSCWM), at the centre of district-wide 'bio-engineering' initiatives using forage species. The strategy and work plan should have been developed in collaboration with key stakeholders and if possible endorsed in writing by the Director General of DSCWM.
- Written material, which identifies and describes activities and outcomes for Outputs 3.3 and 3.4, in a form suitable for inclusion in the Annual Plan 2004/2005 and as requested by the Team Leader.

Progress is encouraging. Field staff and participating communities are actively involved. Forage development is on-going in Project corridors and other miscellaneous sites. Contract bulking-up activities have been initiated involving seed production and vegetative propagation. The 2004 program is on schedule, with timely availability of Australian and locally purchased planting material. Where possible, the forage development has been integrated with the Livelihoods Improvement Program (LIP), particularly at field level. The need for closer working relationships between the technical and community development teams is being addressed, and the issues are expected to be resolved with the development of considerable momentum at field level, by the end of the 2004 monsoon.

A strong field program has been planned with the two District Soil Conservation Offices (DSCOs) to encompass the majority of households within their selected sub-watersheds and other miscellaneous communities, forage development on communal land, and vegetative stabilisation of landslides and roadsides. This program has been endorsed by the Director General of DSCWM, and field activities have begun. Joint programs have been agreed with the District Livestock Offices (DLOs), including development of compounds as resource centres for distribution of planting material, and dissemination of improved genetic material through their various livestock groups, some of which are within the Project's targeted FUGs. Development activities are encompassing FUGs and various Community Development Groups (CDGs), and alternative delivery mechanisms involving schools and women's groups are being piloted.

The security environment dictates the need for a very flexible approach, and also the need for generating quick and conspicuous field results. Extensive field work was undertaken with farmers/community representatives and a wide range of Project field staff, without difficulties.

1 Introduction

This report details the recommendations of the Livestock Adviser following the Adviser's visit to Nepal during March and April 2004. The Terms of Reference for the visit are provided at Annex 1. Deliverables for the visit were agreed prior to the visit by the Adviser, the Team Leader and the Project Director.

This input covered extensive field trips in both districts with Project and line agency staff; numerous meetings with farmers, FUG and Community Development Group (CDG) representatives, and line agency staff; field level training, assistance with local seed procurement, establishment of farmer level resource centres, initiation of the contract seed production program, and planning meetings within the Project. There were some interruptions and rescheduling of field programs resulting from *bandhs*, but in general field work went smoothly. No difficulties were encountered during field travel, regardless of the political orientation of the numerous rural communities visited.

2 Key Activities and Observations

2.1 Review of Activities to Date

The 2004 forage development is gaining momentum and is on schedule, with timely delivery of planting material and setting up of field work. This contrasts with the 2003 seasons, when both summer and autumn sowings were seriously delayed. Approximately 560 kg of seed of useful species not currently produced in Nepal have been imported from Australia, and 2500 kg of seed have been purchased from other parts of Nepal. Details are given in Annex 1.

Dissemination of planting material has been organised through various agencies and mechanisms, encompassing the District Forestry Office (DFO), DSCO, DLSO, District Education Office (DEO) and other networks. Mixing, packaging and labelling of seed in various kit sizes will be completed before the end of April, and distribution has already begun. Dry sowing (i.e. before the rains begin) is appropriate for most strategies and species.

An FUG forage development program has been planned to encompass on-farm and communal areas. It includes selected FUGs within the Project's corridor program, and miscellaneous additional FUGs. Partly because of the lack of DFO presence at field level, delivery mechanisms need to be flexible and a range of options are being piloted. Joint programs have been agreed with the DLSOs¹, including development of compounds as resource centres for distribution of planting material, and dissemination of improved genetic material through their various livestock groups, some of which are within the Project's targeted FUGs.

¹ DLSO programs within the two districts encompass more than 400 Leasehold Forestry groups and more than 250 miscellaneous livestock groups. None of these are working with the range of superior forage genetic material currently available within the Project.

More than 20 “farmer resource centres²” have already been contracted for vegetative propagation of key grass and legume species. These sites, with access to irrigation, will be able to provide vast quantities of slips/cuttings for distribution from the onset of rains. They will be subsequently strengthened with the provision of additional species, with individual areas of up to 0.2ha expected to be under forage. They will be able to provide additional functions in local demonstration/training, and monitoring of benefits. Additional simplified “resource centres” are also being established in widely scattered sites, but without any contract arrangement with the Project.

A number of farmers have been given preliminary training in seed production, and small clusters of seed producers are being organised in key locations.

The range of new material introduced for Upper Slopes programs has generally performed well, despite late establishment, in sites as high as 2500m. (The real potential of introductions at sites above that altitude can not be assessed until at least after the onset of rains.) Seed setting of some key species which may have a role on infertile soils³ is showing early promise but will need close attention during April-May-June to monitor yields and assess appropriate manual harvesting techniques. A range of grasses have established well and were beginning to seed heavily by late March-April 2004.

It is anticipated that the forage program will be showing widespread conspicuous results by September 2004.

2.2 Proposals for Ensuring Effective Integration with the Livelihoods Improvement Program (LIP)

2.2.1 Key Issues

The forage development program has already gained momentum within the selected corridors and in other sites. It is one facet of the development process, and if managed carefully can provide an excellent entry point for other interventions and for addressing equity issues. Farmers and field staff are highly motivated, and positive about involvement in the Project's forage interventions.

Farmers, and especially women, recognise forage supply as a major constraint on production, and the labour involved in collection as a major cost. (This recognition applies even in areas with little or no exposure to development programs, and cannot be claimed as an outcome of participatory meetings.) Uptake rates are consequently very high, with or without lengthy discussions prior to the supply of planting material⁴.

² The farmer resource centres have been selected on a range of criteria. Because they are partly for the pre-monsoon bulking-up of cuttings/slips, some irrigation potential is necessary. Vehicle access is important in most cases, because of the need to transport quite large volumes of planting material from the site. Sites have generally been scattered, to maximise the potential for local lateral distribution, and for training/demonstration. In general farmers with a background in nursery management and in community leadership have been chosen. Where possible, poorer farmers have been used, because of the potential for income generation, at least in the short term.

³ Including the new Serradellas, rose clover, crimson clover, and annual and perennial Lotus species.

⁴ Regular monitoring, adjustment of technical packages, and regular technical support from field staff have a much stronger impact on the outcome of the program than a lengthy lead-up process aimed at defining the needs and the program. It is difficult to “plan” effectively before participating farmers have had some exposure to the technical options available.

A weakness in the current implementation of the LIP process is the strong interpretation of "livelihoods" in terms of improved incomes. This discounts the potential role of the forage program in reducing women's labour and improving family nutrition, and of other programs which may directly improve family welfare but without increasing incomes; this weakness needs to be urgently addressed.

Field staff involved in the LIP and other processes are well aware of these issues and consistently report a strong farmer demand for assistance with forage development at all levels. Even at this early stage, they have reported that involvement with the forage development activities has improved their acceptance within the communities. (There is no doubt that it will also improve their security). This will be consolidated by September/October 2004, when conspicuous on-farm and communal land programs will already have been established in widely scattered sites within the target FUGs.

The forage team, when working within the corridor approach, has consistently worked alongside field staff, most of whom are aware of the basic features of the forage development activity. This working arrangement will continue throughout the 2004 program, and by the end of the season all field staff will have sound hands-on experience with key genetic material and technical strategies/delivery mechanisms. At that stage a more rational approach for formalising the integration of the forage program within LIP can be instituted. This would be supported by:

- development of brief "case studies" of individual farmers and communities, describing production and labour benefits deriving from forage development, to be used in subsequent participatory meetings;
- more emphasis on exchange visits, within the project areas, for field staff and farmers;
- support with technical fact sheets and field manuals; and
- exposure of the HQ Community Development (CD) team to forage activities in wide ranging target communities, and occasional direct involvement of that team in the dissemination of planting material.

2.2.2 Planned Activities

Programs have been planned for dissemination of seed through various agencies and mechanisms.

Joint activities have been agreed with the DLOs⁵, including development of compounds as resource centres for distribution of planting material, and dissemination of improved genetic material through their various leasehold forestry and livestock groups, some of which are within the Project's targeted FUGs.

An FUG forage development program has been planned to encompass on-farm and communal areas. It includes selected FUGs within the Project's corridor program, and miscellaneous additional FUGs. Partly because of the lack of DFO presence at field level, delivery mechanisms are flexible and a range of options are being piloted.

⁵ DLSO programs within the two districts encompass more than 400 Leasehold Forestry groups and more than 250 miscellaneous livestock groups. None of these are working with the range of superior forage genetic material currently available within the Project.

In conjunction with the two DSCOs, activities have been planned to encompass the majority of households within their selected sub-watersheds and other miscellaneous communities, forage development on communal land, and vegetative stabilisation of landslides and roadsides. This program has been endorsed by the Director General of DSCWM, and field programs have begun. The approach, strategies, and agreed targets are presented in Section 4.

An innovative schools program is being undertaken in collaboration with the District Education Offices (DEOs), involving the dissemination of seed mini-kits and (in some cases) vegetative planting material, to up to 40,000 students⁶.

Fifty to one hundred farmers are likely to be involved in intensive seed production from this season, with a much larger number involved in opportunistic harvesting from areas established primarily for forage production. The seed production activity will require close supervision throughout the growing and harvesting periods. It is anticipated that the groups will be able to produce seed of a number of species not currently produced elsewhere in Nepal, and that there could be a strong demand from other projects, given adequate promotion. However, initially all seed produced could be readily absorbed within the two district programs. Updated estimates of production, and production parameters, are given in Annex 3. The contract bulking up with farmers encompasses some highly promising new genetic material. Material introduced into the districts in 2003, primarily Mott Napier and forage peanut, has assumed popularity with farmers already, but the program needs to retain a very broad genetic base. Notes on the propagation of the new material are presented in Annex 4.

It is anticipated that at least 7000 farm households and numerous FUG communal areas will be directly involved during 2004. This is in addition to activities within the DSCO program, the Schools program, and miscellaneous joint activities such as those being coordinated with the DLSOs. Development will be initiated in all of the 27 FUGs currently involved in the LIP processes, with the scale dependent primarily on the implementation capacity of the FUG leadership, on the security situation pertaining at the time, and on interaction between the FUG and local field staff. It is expected that at least 2500 households will be directly involved within these targeted FUGs. Of the 34 WEP groups currently involved with the Project, most will participate in forage development.

2.2.3 Forage in the Context of “Enterprise Development”

Forage programs support the enterprise development thrust. Already activities are reported by farmers to be significantly increasing milk production. Whilst this will have a direct impact in terms of family nutrition, it must be carefully handled in terms of “enterprise development”.⁷

⁶ The schools program has good prospects for success if it is kept very simple. Whilst it can provide an indication on using a similar approach for delivery of other inputs/processes subsequently, at this piloting stage it should not be complicated by attempting to deliver more than one input.

⁷ There are major inefficiencies in milk production in milk-shed areas in many parts of Nepal, particularly due to high input costs, with very low profitability. Commonly more than 80% of gross milk revenues are spent on concentrate feeds. Risks can be minimised with forage based systems. It is also recommended that the Project enlist the assistance of dairy technology expertise, available within the Third Livestock Development Project, to define mechanisms for alternative dairy products suited to more remote areas.

The other major enterprise likely to benefit immediately from the program will be goat production. Goat prices are consistently very high, and farmers fully understand the importance of targeting the peak prices of major festival periods. Also, traditional marketing systems are well developed and entail an acceptable mark-up through the marketing chain. There are no clearly evident opportunities for improving on this marketing system, or for providing farmers with assistance in managing the financial aspects of the enterprise.

The seed and forage slip production programs will involve direct and immediate income generation for limited numbers of farmers.

In rural areas with access to significant peri-urban dairy programs, forage production (generally for sale as fresh-cut green forage) can be highly profitable, frequently with higher returns than vegetable production.

There is an increasing trend in some mid-hill environments for farmers to shift to some extent from traditional cereal cropping towards perennial forage development on a basis of improved profitability and reduced labour demand. This is increasingly pertinent with out-migration of working-age males from many rural areas. The shift would not be directly promoted by the Project, but farmers will rapidly gain enough experience to determine whether any such shift suits their system. The situation should be closely monitored from the outset by the enterprise development team. The team should also closely monitor production parameters, including labour, within key sentinel farms of varying sizes.

2.2.4 Forage Development and Poor Farmers

There is a widely held perception that forage development is appropriate only for larger farmers and will not benefit small and landless households. The range of options cater for all farmers, including the very poor, and with the inclusion of communal land development, even for landless farmers (of whom there are few within most rural communities). On-farm strategies include intensification/stabilisation of cropping systems with intercropping, back-yard forage development based on very highly productive grass species, cover cropping under trees, and establishment on terrace risers which are an untapped resource in almost all systems. The use of productive multi-purpose tree legumes is applicable to every farm size. Packages are infinitely flexible.

Seed production of some key species (including villose jointvetch, Greenleaf Desmodium, and Wynn cassia) is based on opportunistic collection from terrace risers, and is likely to be taken up primarily by poorer households. In sites close to peri-urban dairying, forage production can be more profitable than vegetable production, and even small intensively-managed back-yard areas can generate substantial income. Goat production frequently provides poor households with the best option for improved incomes; even small increments in high quality forage production can have a major impact on goat productivity in terms of fecundity, mortality reduction, and increased growth rates.

Uptake rates are commonly at least as high in poor households as in wealthier households. There is evidence of this within very poor communities already involved in 2004 programs. The argument that only wealthier farmers will allocate some land to forage development is absolutely invalid, and has been disproved in many parts of Nepal.

3 Institutionalising Forage Development

3.1 General Discussion

The current security situation is having a major impact on piloting various approaches to institutionalising forage development within the FUG or other networks. However, a number of factors need to be taken into consideration.

FUGs can provide a useful umbrella structure for initial delivery, in that smaller groupings of farmers (such as various livestock groups) are typically also members of the FUG. The financial accountability and planning responsibility implicit in the system also strengthens the case for emphasising delivery through the system. However, many poorer farmers remain marginalised within the FUG structure, and without special efforts and innovative approaches the elites who commonly control FUGs may not be inclined to ensure participation of poorer farmers. This needs to be addressed in strictly monitored guidelines on distribution of forage packages or mini-kits.

For some sub-programs direct delivery through tole groups better meets the Project's interests in equity. The CDG and CDG network delivery system currently used by DSCO teams is working well in both districts. At this piloting stage, excessive emphasis on delivery of the program directly through the FUG is fraught with risk. The marginalisation of disadvantaged groups in many FUGs is a key issue. Currently there is almost no representation of DFO staff at field level, and hence no line-agency structure for delivery. (In comparison, staff of DSCO and DLSO are still able to maintain relatively harmonious relations with many communities. It appears that the planned DSCO forage programs may be fully deliverable even in the current security environment.)

Difficulties associated with the complexities and delays in the Operational Plan (OP) revision system, and in the inventory system, appear to be jeopardising the Community Forestry (CF) process. Until more sustainable and user-friendly systems are instituted, the full benefits of formalising the inclusion of forage development within the OP cannot be achieved. DFO attitudes to enterprises/activities (such as livelihood improvement through vegetable production or livestock) which are perceived to be peripheral to community forestry further exacerbate the problem. This issue could be quickly addressed through more exposure to field program initiatives, but such exposure is unlikely without an improved security environment.

3.2 Recommendations

- Maintain a high degree of flexibility, in piloting various delivery mechanisms.
- Ensure that the DFO and FUG hierarchy are fully informed of all initiatives, but include some direct initiatives through tole groups, the schools program, WEP programs, livestock groups etc.
- Foster field exposure of key DFO staff to initiatives within other programs, including the DSCO programs.
- Support field-based workshops for key staff from DOF, DFO and other implementing groups.
- Develop a strategy for exposure to DFOs from potential Stage 2 Project districts.

- Support exchange visits between FUGs/tole groups, as soon as field results are conspicuous (in September-October).
- Facilitate exposure of key FUG representatives to the forage development program.
- Assess and develop any potential role of FUG representatives in delivery of the program in currently-targeted FUGs and in more remote sites within the two districts.
- Assess and develop the role of FUG representatives in piloting similar activity in new districts.
- Pilot inclusion of forage development in OPs on a limited scale, for selected FUGS.
- Continually assess the likelihood of spontaneous lateral adoption within and between FUGs (which will partly determine the level and nature of institutionalisation required).

4 Proposed Twelve-Month Program of Activities to Support DSCWM Expand Conservation Activities within Existing Districts

4.1 Background

There is an urgent need to develop innovative approaches to watershed management which are low-cost, meet some of the key livelihoods needs of the communities, and which offer prospects of spontaneous lateral adoption. Previous programs have focussed heavily on single sub-watersheds, with considerable expenditure on infrastructure development. Whilst this has been popular with targeted communities, it has not been readily replicable.

Recent experience within the Project districts and elsewhere in Nepal has shown that a range of low-cost forage-based interventions are appropriate to the majority of farmers, and can ameliorate some of the land degradation issues on private and communal land. A range of new genetic material is continually becoming available to meet the demands of extremely diverse agro-ecological systems. Much of this material has already been introduced into the project, and is being bulked-up.

There is extremely strong community and individual farmer interest in the new approaches, and support from DSCO and Project field staff has been excellent.

4.2 Stakeholder Involvement in Developing the Approach

Initial interest in alternative options was generated through involvement of DSCO staff in the 2003 study tour to relevant districts in the Western Region, where the Third Livestock Development Project had initiated a wide range of new strategies with locally available and new genetic material. This was further strengthened through DSCO-initiated tours (also to the Western Region) involving a broader group of stakeholders from within target communities, including some outside of selected sub-watersheds. Meetings have been conducted between Project staff and key DSCO staff in each district to discuss appropriate strategies and to plan activities for the 2004 season. Meetings have also been conducted with numbers of individual farmers, CDGs, and CDG network representatives to explain the options and to prepare tentative plans for implementation.

Programs have already been initiated to develop farmer-level resource centres (inside and outside of key sub-watersheds) to:

- generate initial enthusiasm and credibility;
- provide timely exposure to the strategies and genetic material;
- provide a focus for future local farmer-farmer training;
- provide some vegetative genetic material for local distribution from the outset of the monsoon; and
- test the response of farmers and communities to the various interventions.

Stakeholders have been made aware of the “action-learning” nature of the program, and of the extreme flexibility implicit in its implementation.

4.3 Key Elements in the Approach

The key elements of the approach to forage-based soil conservation and watershed management for the 2004 seasons are:

- Initiate various forage-based interventions to assist in stabilisation/productivity improvement on-farm and in communal land.
- Initiate a simple and flexible program for roadside and landslide stabilisation through direct broadcasting of seed.
- Use a broad range of genetic material, sown in mixtures for most strategies (to minimise risk of failure and to allow for the environmental diversity.)
- Encompass existing selected sub-watersheds (with a saturation approach to involve the majority of farmers), and other scattered locations to include a wider range of environments and to foster more spontaneous spread.
- Emphasise areas below 1800m initially, but include some higher altitude sites.

4.4 Implementation

The Project will provide technical support where required, hands-on training and back-up extension materials, and seed and other planting material for the 2004 programs.

Key vegetative material would be provided from farm-level resource centres (establishment on-going in April 2004). The Project would support contract production of this material during the first season. Some farmer groups would be supported in the establishment of contract seed production programs, particularly for key legume species.

The Project would also support within- and inter-district tours for key stakeholders (including those from other significant sub-watersheds), on-farm workshops within CDGs, and would foster regular farmer-farmer exchange visits. In October/November, field-based workshops would be coordinated, to include DSCO staff from other key districts, and other relevant projects/donors.

In collaboration with the key stakeholders, the program would be closely monitored in terms of technical performance of strategies and genetic material, individual farmer and community responses, and the appropriateness of various delivery mechanisms. Recommendations for subsequent programs would then be refined.

4.5 Agreed Scale of Programs and Work Plan

The following scale of activities presented in Table 1 was agreed during key stakeholder meetings. The objective is to establish flexible and widespread programs. The “targets” are used to allocate sufficient seed and other planting material, but the success would not be determined primarily on meeting those targets. An indicative work plan is given in Table 2.

Table 1: Targets for DSCO Programs in Project Districts

Dist.	Targeted h'holds (number)		Comm. Land (ha)*	L'slides (ha)**	Roads/ Tracks (km)	Grazing Land (ha)
	Selected Sub-w'sheds	Scattered Locations				
Sindhu	642	100	1	100	50	2
Kabhre	700	300	3	100	20	1

*Likely to be increased during implementation.

**The landslide seeding targets have been reduced from initial projections, to match seed availability.

4.6 Strategy Packages

The packages will vary according to factors such as location and farm size. However, it is important, in the majority of packages, to ensure nominated areas are not exceeded, and that seeding rates are adhered to. Farmers will have the opportunity subsequently to expand areas with their own planting material. Seed for all programs will be pre-mixed at the seed store near Budol, and packaged in conveniently sized lots accompanied by simple instruction pamphlets.

4.7 On-Farm Packages

Vegetative establishment would be emphasised in small back yard areas and on terrace risers, for key species including erect grasses (Mott, guinea, Setaria, Forage peanut etc). Direct seeding is anticipated to average 1 ropani per farm, with half on terrace risers; species include Leucaena, Wynn Cassia, stylo, jointvetches, Greenleaf Desmodium, climbing legumes, rhodes grass, signal grass, etc.

Some scattered “resource farms” would also be supported in similar establishment, but on a larger scale. These would provide localised demonstration/training sites, and would also enable monitoring of key parameters such as labour use and incremental livestock productivity. In selected cases individual farms and communities would also be involved in contract production of planting material (seed and vegetative material).

4.8 Forage Development on Communal Land

This program would follow the approaches well proven in the mid-hills (and in the Project's 2003 program near Srichap), with contour strip establishment of forages. However, mixtures would be broader than in most other programs, to accommodate wide variations in site characteristics. They would also include species with higher nutritive value than those commonly used. Key species would be stylo, jointvetches, Wynn cassia, Aztec atro, Leucaena, Signal grass, Rhodes grass, and gamba grass. Some selected sites would be used for opportunistic seed production.

4.9 Landslide Seeding

Direct seeding of landslides and landslips would be undertaken from before the monsoon until late August. It would include communal and private land. Sites with loose soil, and particularly fresh landslides, would be targeted. It is therefore imperative for the program to be extremely flexible, and for DSCO staff to have seed on hand for immediate sowing throughout the season. Key species would be Gamba grass, signal grass, kikuyu, Bahia, Alpha, Leucaena stylo, jointvetches, Wynn Cassia, and Aztec atro, and with small quantities of other species included for evaluation.

4.10 Roadside Forage Development

Roadside forage development can assist in stabilisation of roadsides, provide an effective entry point for introduction of new genetic material for grazing or cutting, and establish a convenient source of planting material for local farmers. Only sites with disturbed soil would be sown. Species include stylo, Wynn Cassia, jointvetches, Aztec atro, Leucaena, and signal grass. In some selected sites, the program would also establish forage peanut vegetatively.

4.11 Over Sowing of Communal Grazing Land

Small pilot activities would be undertaken, on scattered sites, without any additional inputs such as stock control. Key species would be villose and Glenn jointvetches, and Wynn Cassia.

Table 2: Indicative 2004 Annual Program, NACRMLP/DSCOs

Activity	M	A	M	J	J	A	S	O	N	D	J	F
Planning with stakeholders	X	X	X						X	X	X	X
Procurement of planting material	X	X										X
Packaging and distribution		X	X	X	X							
Est. of farmer "resource centres"		X	X	X								
Forage establishment on-farm			X	X	X	X						
Communal forage establishment			X	X	X	X						
Landslide seeding		X	X	X	X	X						
Roadside seeding		X	X	X	X	X						
Technical support	X	X	X	X	X	X	X	X	X	X	X	X
Exchange visits						X	X	X	X			
On-site Workshopping/promotion								X	X			
Monitoring						X	X	X	X	X	X	X
Development of follow-on program									X	X	X	X

5 Contract Arrangements for the Production of Seed and Vegetative Planting Material

Firm arrangements have already been made for contract production of vegetative planting material from more than 20 farmer resource centres, most of which are located within the Project corridors.

Seed production would encompass both intensive/specific seed production areas (which would also be used for forage production) and opportunistic harvesting from areas established primarily for forage production. In both cases, contracts would be initially for one season only. In the current uncertain security environment, only a limited program has been initiated to date, and any expansion will be further assessed during the next input. It is imperative that the Project be in a position to honour any contracts with farmers. Because forage seed production would fit into improved farming systems and forage development, longer term arrangements are not crucial, and farmers have accepted this.

Workshops in October-November involving other donors/projects would serve to evaluate and promote the role of the new genetic material in other parts of Nepal, and it is anticipated that some demand may arise from such promotion.

In general it requires some time for a market to develop for such new material, and it may be necessary for the Project to underwrite the program initially. This is more valid in view of the approach of introducing small quantities of seed to communities, and enabling them subsequently to expand without further substantial support. Also, farmers/communities participating in the early stages are assisting in defining genetic material suited to the particular environment. Instituting a cost recovery system prematurely could deny very small farmers the opportunity of participation, and severely complicate distribution of seed for communal land development and for land stabilisation. It could also jeopardise the effectiveness of field staff in various extension activities. (Extension staff should not be seen to be involved in sales of inputs.) In the longer term, when the species are more widely accepted, a spontaneous market may develop as it has for berseem clover and oats in other areas, but most expansion of the use of perennial species is likely to be through the support of other projects.

Given the nature of the seed production program, and the necessary spread of production sites, it is not feasible for the program to be under the sole direction of the DSCWM. The program will not be successful if the Project does not take the lead role during the initial stages.

6 Notes on Upper Slopes Programs

Good results have been achieved with the forage program in intermediate altitudes (say, 1800-2500m) with high uptake rates and promising forage productivity and seed setting. If this development continues to expand, it could have a significant impact on oak forest management. It is too early to judge success in higher altitudes (where in any case the urgency of finding technical solutions is much lower, because of the short duration of

grazing, and because of the massive human out-migration.) However, there are some indications that some new genetic material will persist and spread, complementing the white clover and ryegrass which is already naturalised over large areas, and also providing some incremental production on less fertile soils.

Goat and chauri workshops were conducted, and stimulated much local interest. Arrangements have been made for community members to visit Jiri to observe the performance and management of improved dairy cattle. It is expected that some heifers will be purchased by participants during this visit.

There is a strong demand for a greatly expanded forage program in the intermediate altitude areas, and locally available seed will not be sufficient to support this. It is strongly recommended that the Project import additional temperate species seed for this activity. Details are presented in Annex 5.

7 Proposal for Satellite Programs in Other Districts

The Project is in the process of identifying possible new districts for inclusion in Stage 2. It is proposed that arrangements be made for early introduction of a range of forage genetic material into all districts which could be chosen. This could be achieved efficiently through the Project's "farmer resource centre" approach. It should cover at least a couple of sites per targeted district, encompassing mid-hills and Upper Slope environments. This would serve a number of functions:

- Providing a source of vegetative planting material at the time of implementation, and avoiding the long delays inherent in procuring material from other districts and gradually bulking up during the implementation period, when material should be distributed to participating communities⁸.
- Providing a focus for stimulating local awareness, and for local training during implementation.
- Providing an opportunity for monitoring productivity of various genetic material in new environments, and refining technical recommendations before larger scale implementation.

No obligation or commitment would be required for continued Project involvement in the resource centres, as farmers would in any case derive a benefit from the new forage. Project and line agency staff and other participating stakeholders from the two Project districts (with sound experience in current forage development activity) could be involved in this program.

⁸ Establishing a separate seed production capacity within each participating district is not recommended. Seed is readily transportable, and required in relatively small quantities. In general, each community would be provided with seed once only. (Most of the genetic material promoted is perennial, or regenerates very readily.) Also, seed production programs require close supervision initially to be successful, and this would not be feasible in widely scattered districts. In contrast to this, vegetative planting material is required in very large quantities, and the logistics of long distance transport are not feasible. Technically, such production is extremely simple, and close supervision is not required.

The approach would assist in refining the process for district or area selection, in gaining an understanding of the replicability of the forage program approaches, in improving exposure of staff to other parts of Nepal, and in planning start-up activities. It would also provide an opportunity for evaluating possibilities for incorporating a high-mobility trek approach which has been successful in earlier work in various sectors.

It is anticipated that such piloting would require one week per district, with teams of 2 plus supporting porters. It would be best undertaken in August, when most species could still be successfully established; by then the bulk of the forage development program within the two Project districts would have been completed.

8 Staffing

The appointment of two full time field staff has enabled the current success of the program. It is crucial that livestock/forage development staff are not diverted from their key technical tasks in which they already have considerable expertise. In this regard, any non-specific monitoring activities should be undertaken by incremental staff or Community Motivators (CMs).

All field staff, including those with peripheral involvement in forage development, have performed remarkably well, often under extremely difficult conditions. They need and deserve very strong support from professional staff. In particular, the artificial division between CD and technical staff is potentially destructive and should be addressed urgently, primarily through encouraging more inter-active field visits in the full range of communities in which the programs are being initiated.

9 Training

The emphasis on hands-on training and inter- and intra-district visits for staff and farmers has proved successful in stimulating a rapid start-up of local activity. This emphasis should be maintained. The following initiatives are recommended:

- Frequent farmer-farmer exchange visits within Project areas, particularly within key focus activities such as seed production and the development of farmer resource centres.
- Very frequent field staff exchange visits within Project areas.
- Urgent preparation of simple case studies to support training programs for farmers and staff.
- Orientation of CD/enterprise development staff in field level forage development activities.
- Reciprocal visits to the Project areas for key DLSO staff who have been instrumental in developing successful approaches in other districts such as Lamjung, Kaski, and Palpa, and who have facilitated successful field visits for farmers, field staff, and line agency staff from the Project districts.
- Reciprocal visits to the Project areas and farming communities, from key farmers (such as Ram Hari Adhigari from Palpa) who have been instrumental in facilitating the successful development of the farmer resource centre concept, and who have helped in training of staff and farmers during Project-sponsored study tours⁹.

⁹ This is strongly supported by key farmers within the target communities.

Field programs need to be supported with fact sheets and very basic manuals. The Nepali language *Forage Development Manual*, prepared under the Third Livestock Development Project, remains adequate for most of the activities in the mid-hills, and arrangements should be made immediately for procuring these for field staff and key farmers and farmer groups.

For the Upper Slopes species, simple fact sheets with line-drawings of key species should be prepared immediately. At this stage, these could complement the *Forage Development Manual*. It is not timely to prepare a separate manual for Upper Slopes programs (particularly as appropriate species and strategies recommendations are still being developed.)

10 Monitoring

Monitoring must be kept extremely simple if it is to provide a useful tool and not impact negatively on development activities in the field. In particular, it is crucial that key field staff not be diverted from their core tasks, to undertaking lengthy monitoring activities. Anecdotal evidence can be very useful in assessing the impact of the programs. Also, estimates of farmer uptake rates and spontaneous adoption (beyond the first year) will be extremely important. However, there is also an urgent need for hard physical data on program impacts, particularly in terms of livestock production. Whilst some of this could be best monitored by other agencies, it is inevitable that Project field staff will have much better access to target communities than will most other groups. There is some merit in using students for monitoring activities. However, the collection and collation of data will provide Project and counterpart staff with valuable insights into performance, and will assist them in planning subsequent activity; also, there is a need for continuity which is not afforded through the involvement of students. Basic production data would form the basis of fact sheets supporting the livelihoods programs.

Key parameters to be monitored would be:

- Numbers of participants in each program (DSCO, FUG, WEP, Schools etc).
- Proportion of participants using mini-kits without supervision (scattered sentinel communities only).
- Spontaneous lateral adoption amongst neighbours (difficult to measure, but some assessment should be possible from Year 2).
- Seed distributed by species.
- Area sown by major categories (landslides, communal land etc).
- Seed production per unit area, in sentinel seed producing farms only.
- Labour for fodder collection with and without forage development.
- Milk production (peak lactation yield, top producing cow, in sentinel households only, without purchased concentrates; impact on purchased feed costs).
- Goat production (age to first kidding, kid mortality, growth rates).

Annex 1

Terms of Reference

Annex 1: Terms of Reference

Duties: Working closely with the Australian Team Leader and the locally engaged specialists, the Adviser will:

- As part of a strategy to develop wider uptake of newly introduced forage species, ensure that the Project's various interventions with forage and fodder, which were implemented during year 1, are integrated with the FUG Livelihoods Improvement Program.
- Develop and articulate a clear strategy for institutionalising fodder initiatives with FUGs, incorporating networking support of government agencies (particularly, DoF, DSCWM, and Livestock Department) and those local service providers which have the potential to provide support.
- Develop a 12-month program of activities designed to support the delivery of Output 3.4: 'Department of Soil Conservation and Watershed Management supported to expand conservation activities within existing districts.' In particular:
 - Facilitate the development of a comprehensive strategy and work plan that places DSCWM at the centre of district-wide 'bio-engineering' initiatives using forage species.
 - If possible, obtain endorsement of the strategy and work plan from the Director General of DSCWM.
 - Work with the Project's training and other specialists to ensure that DSCWM staff will have the necessary technical expertise and that appropriate training and extension material will be available.
 - Work with the Project's relevant Enterprise Development Team(s) to support FUG enterprises in respect of improved fodder use and/or seed production.
 - Make recommendations for ways in which funds for the payment of fodder seed could be moved between the Project, DSCWM and seed producers.
 - Support the Team Leader in the preparation of the draft Annual Plan 2004/05 — particularly in identifying and describing activities and outcomes for Outputs 3.3 and 3.4 of Component 3: Sustainable Resource Management.

Reporting Relationship: The Livestock Adviser (Australian/New Zealand) will report to the Australian Team Leader.

Deliverables:

Using the NACRMLP Report Template provided to the Adviser:

- A concise written report detailing:
 - a clear strategy for integrating the fodder interventions which were tested in 2003 with the Project's Livelihood Improvement Program.
 - ways in which fodder initiatives with FUGs (supported by relevant networks) could be institutionalised; along with suggestions for ways in which the Project could facilitate this institutionalisation.
- A concise written description of a 12-month program of activities designed to support the delivery of Output 3.4: 'Department of Soil Conservation and Watershed Management supported to expand conservation activities within existing districts.'
- A comprehensive strategy and work plan that places DSCWM at the centre of district-wide 'bio-engineering' initiatives using forage species. The strategy and work plan should have been developed in collaboration with key stakeholders and if possible endorsed in writing by the Director General of DSCWM.
- Written material, which identifies and describes activities and outcomes for Outputs 3.3 and 3.4, in a form suitable for inclusion in the Annual Plan 2004/2005 and as requested by the Team Leader.

Annex 2

Seed Procurement Feb-April 2004

Annex 2: Seed Procurement Feb-April 2004

Seed Purchases from Australia, March 2004

Common Name	Scientific Name	Quantity (kg)
Villose jointvetch	Aeschynomene villosa	50
Wynn Cassia	Chamaechrista rotundifolia cv Wynn	100
Aztec atro	Macroptilium atropurpureum cv Aztec	50
Glycine	Neonotonia wightii cv Cooper	25
Greenleaf Desmodium	Desmodium intortum cv Greenleaf	20
Llanos macro	Macroptilium gracile cv Maldonado	5
Centurion centro	Centrosema pascuorum cv Cavalcade	25
Temprano Perennial stylo	Stylosanthes guianensis cv Temprano	25
Nina Perennial stylo	Stylosanthes guianensis cv Nina	25
Hi-Gane Paspalum	Paspalum atratum cv Hi-Gane	10
Gamba	Andropogon gayanus cv Kent	50
Katambora Rhodes	Chloris gayana cv Katambora	70
Signal	Brachiaria decumbens	75
Bahia grass	Paspalum notatum cv Argentine	25
Kikuyu	Pennisetum clandestinum cv Whittet	5

March-April 2004 Seed Purchases from other Areas in Nepal

Species	Quantity (kg)	Price (Rs/kg)
Leucaena	260	60
Palpa stylo	800	400
Glenn jointvetch	1000	60
Molasses grass	200	100
Miscellaneous 1/	300	300

1/ This includes miscellaneous sub-tropical legumes and temperate grasses and legumes.

Annex 3

Seed Production 2004

Annex 3: Seed Production 2004

Tentative 2004 Seed Production Program within Project districts

Species	Area/unit ha	No. units	Prodn area Ha	Est yield Kg/ha	Tot prodn kg	Price Rs/kg
Axillaris	0.1	2	0.2	500	100	300
Glycine	0.1	10	1	400	400	250
Wynn cassia			3	200	600	400
Glenn j'vetch			2	500	1000	60
Villose			1	400	400	200
New stylos	0.1	6	0.6	400	240	400
Tarramba Leucaena					300	100
Misc. trop. legumes					500	200
Misc. trop. grasses					100	150
Misc. temp. legumes					100	200
Misc. temp. grasses			2	200	400	150

N.B. Apart from the temperate species, none of this seed would be available until at least autumn 2004; in April 2004, commitments had been made for only a fraction of this activity.

Annex 4

Bulking-Up of Key New Genetic Materials

Annex 4: Bulking-Up of Key New Genetic Materials

Common name	Latin name	Notes
Tarramba Leucaena	<i>Leucaena leucocephala</i>	Seedlings from Budol to be planted in at least 3 farmer resource centres, hedgerows, minimum 300m from other Leucaena.
Suisila Lotus	<i>Lotus ornithopodioides</i>	Ensure seed collection from Budol nursery and farmer resource centres in Chautara and Mude.
Mulato	<i>Brachiaria brizantha X B. ruziziensis</i>	Establish at 2 low altitude farmer resource centres, multiply vegetatively until August, attempt seed production.
Axillaris	<i>Macrotyloma axillare</i>	Transplant Budol seedlings into trellis systems, 2 low altitude farmer resource centres.
Various African Trifoliums	<i>Trifolium</i> spp	Ensure collection of all seed from Budol nursery and from Mude farmer resource centre.
New comm. Temperate species*	Various	Ensure collection of all available seed from Chaubas and Chiple farmers. Assess best manual collection systems.
Sumba Setaria	<i>Setaria sphacelata</i> var <i>splendida</i>	Transplant from Budol and Chautara office site to 2 farmer resource centres. Vegetative propagation only. Do not attempt seed production.
Alex Paspalum	<i>Paspalum necorae</i>	Transplant from Budol into Mude farmer resource centre and one lower altitude site. Bulk up vegetatively until August, and then attempt seed production.

* Yellow and pink Serradellas, Biserrula, rose, crimson, Balansa clover, temperate grasses.

Annex 5

Temperate Seed Importation 2004

Annex 5: Temperate Seed Importation 2004

Australian Seed Importation for May-June 2004

Species	Cultivar	Quantity (kg)
Perennial ryegrass	Kingston	100
Tall Fescue	Jesup, Prosper	50
Cocksfoot	Porto	50
Grazing Brome	Gala	50
Caucasian clover	Endura	10
Crimson clover	Dixie	20
Balansa clover	Paradana	20
Red clover	Renegade	20
Rose clover	Hykon	20
White clover	Tahora	30
Lotus	Maku	50
Yellow Serradella	Santorini	50
Pink Serradella	Cadiz	10
Kale	Chou Moellier	5
Fodder turnip	Purple Top	5
Plantain	Tonic	10
Chichory	Puna	20

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