

# Sustainable supply of tree seeds from community forests in the Mid-hills of Nepal

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Seeds collected by most of the district forest offices in Nepal including that of Kabhrepalanchok District is insufficient to meet the demand for the most important tree species planted. These organisations depend on private seed suppliers to grow seedlings at their nurseries. Community forests (CFs) offer prospects for the establishment and management of seed stands of locally preferred species. This paper proposes a strategy and procedures for the sustainable supply of seed from CFs in the Mid-Hill districts of Nepal, with especial reference to Kabhre Palanchok.

**Keyword :** Tree improvement, such, supply community forestry, Mid hills, Kabhre Palanchok, Nepal.

The physical and genetical quality of seed plays a very important role for a successful tree plantation. The seeds collected from selected local sources help guarantee better qualities. The District Forest Offices need seeds for their own nurseries and as well as to supply to FUG nurseries which produce seedlings for their own need and for community and private plantations. FUGs usually collect seeds that are locally available. If it becomes insufficient they approach the concerned District Forest Office for more seeds which they collect from various places. As these offices usually do not have established seed stands, they meet their demand by procuring seeds from either the Tree Improvement Programme (TIP) or private seed suppliers.

The district forest offices, FUGs and a few private seed suppliers most often collect seeds from a few individual trees. As such trees may no longer remain genetically sound, the suppliers do not assure the genetical or physical quality of the seed. Therefore in the absence of information on provenance trial, it is safe to collect seeds from local sources for nursery establishment.

The Tree Improvement Programme (TIP), established with the assistance of the Danish Government, helps preserve and improve the genetic resources of important tree species in Nepal. The programme has adopted an approach that encourages each district to become self-sufficient to supply quality seed by establishing its own seed sources for the most important tree species planted in the district. By now, the TIP has established 39 seed stands in national and CFs at 22 districts of the Central and Western Development Regions.

The present paper puts forward some ideas on how to help FUGs establish and manage seed sources in CFs. It is based on experience gained from: (i) community forest management in the various Mid-Hill districts of Nepal; and, (ii) TIP's ongoing programme of decentralisation of seed procurement and management.

## Existing seed supply system in Kabhre Palanchok District

The second phase of the Nepal-Australia Forestry Project (1979 - 1988) focussed mainly on plantations establishment in Kabhre Palanchok District. A steady supply of quality

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seeds was therefore needed at that time. Since seeds were often not readily available at district levels, they were obtained from India, New Zealand or Zimbabwe. Despite the project's efforts to promote local seed collection seed requirements could not be met due to the lack of suitable seed stands. At present, the district forest office demands seeds of various species from the TIP if the seeds collected by the rangers from the locally available species become insufficient for them. Alternatively, seeds are also purchased from private suppliers. Sometimes the species demanded are not delivered in time and sowing is delayed. To meet the required target, often a compromise for the less preferred species has to be done when seeds of particular species are not available.

### Strategy for sustainable supply of Seed

After the implementation of community forestry programme in the district, an entirely different approach, such as *uplifting the knowledge and skill of FUGs to establish and manage seed sources for the constant supply of most important species required in the district*, should be taken. As many potential seed stands have already been handed over to FUGs, (158 patches of forest covering 3,936 ha have been handed over to FUGs comprising 16,140 households and another 100 forest patches are under-going hand over), the DFO has no easy way to establish seed stands except to do this in CFs.

Such strategy offers the following opportunities:

- the technical support from the district forestry staff to FUGs will help develop and manage sustainable and reliable seed sources
- conservation of economically important species
- selling of surplus seeds to other FUGs within or outside the district may help generate income

This strategy may, however has the following constraints:

- possible disagreement to establish and manage seed stand
- difficulty to find a forest patch that is not heavily lopped or pruned.

### Procedure for establishing seed stands in CFs

This first procedure is to identify the district's seed demand, both in terms of species and annual planting targets. FUGs' network meetings are useful to discuss on the demand and supply from within the district.

For major and for the minor (nevertheless economically important) tree species it is desirable to identify stands that could be managed to provide seed in the required quantity. Those species which do not occur in stands, a group of individuals (farmers, each having a number of seed trees on their land) could be used to collectively manage a minimum of 30 trees for seed production. Seed collected from such trees is then bulked up and distributed. A procedure for establishing seed stands in CFs is described below. A decision model to help prepare the strategy is presented in Figure 1.

### Identification of seed stands in community forests

For the identification of the most appropriate seed sources in CFs, rangers working at the Range Post (RP) should be actively involved under the guidance of an Assistant Forest Officer (AFO). The rangers need to take a basic training on the establishment and management of seed stands, collection, processing and seed-storage. The rangers should be asked to suggest for such CFs that could possibly be developed as seed stands for locally preferred species. Each stand should be evaluated in terms of its access, condition, size, flowering, fruiting, and preferred phenotypic characters. This discussion should aim to exclude those stands which do not meet such criteria. This minimises the number of stands for further evaluation. The AFO, the ranger and the committee members of FUG should make field visits to evaluate and describe each of the CFs within which candidate seed stands occur.

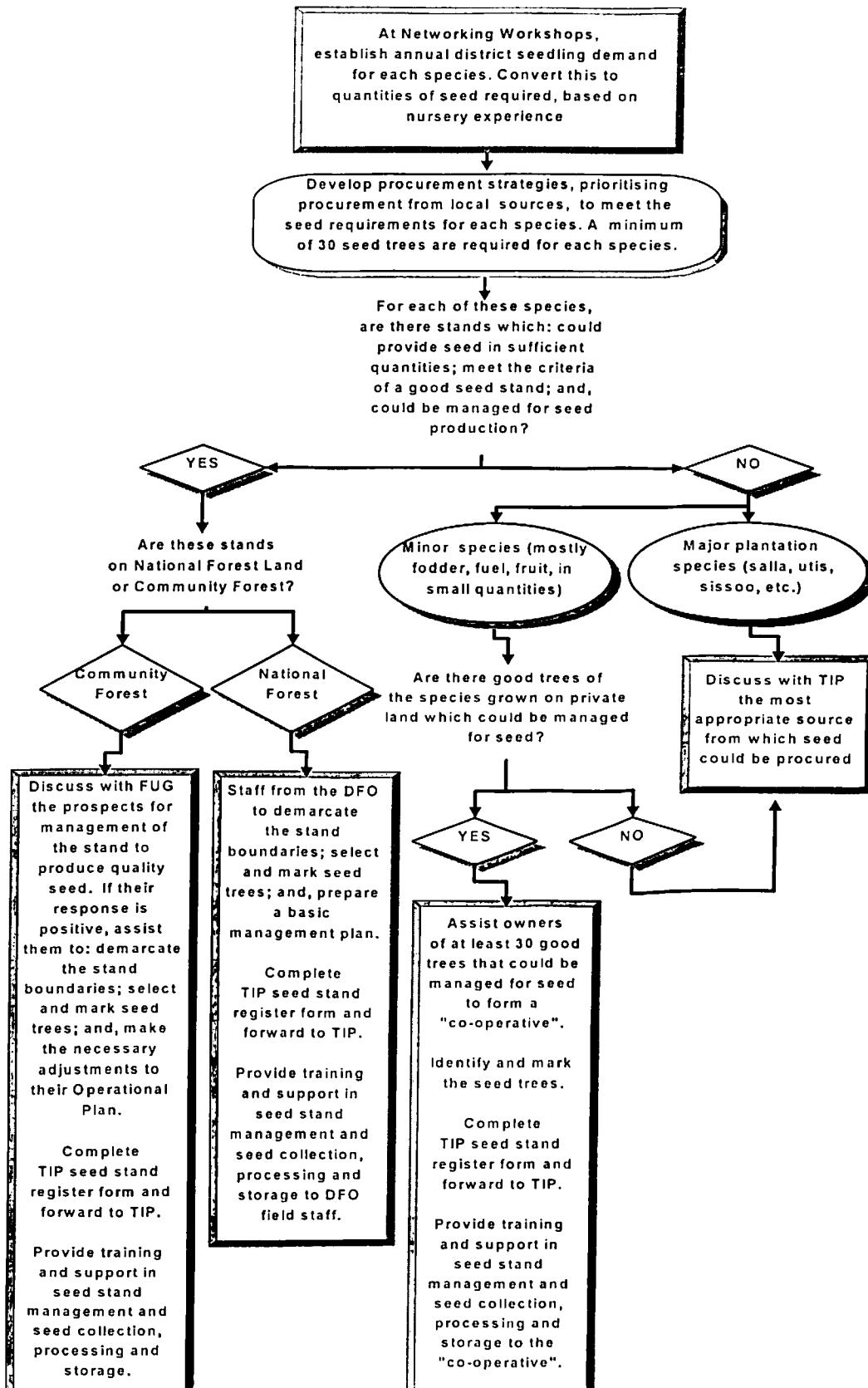


Figure 1. Decision model for securing a sustainable supply of quality tree seed at district level.

### Negotiation with FUG for establishing seed stands in CFs

Establishment of seed stands in CFs is a new practice for FUG, the FUG members might ask why they should produce seeds at the cost of fodder and fuelwood. After selecting a CF for seed stand establishment, the ranger should clarify the following points:

- why a good seed is important for them
- why their forest would make a good seed stand
  - provisions such as participation and unanimous decision of FUG members, and amendment of Operational Plan OP needed to establish and manage seed stand
- what support will be provided by the DFO to the FUGs
- possibility of income generation by selling seeds.

Once these points are made clear, the FUG should know the various aspects of establishment, management and protection of the seed stand so that this decision could be incorporated in (OP). The ranger should help the FUGs on the following matters:

- identification of seed stand and its boundaries
- protection measures against fire, pest/diseases, illegal felling, encroachment, penalties, etc.
  - involvement of FUG members for silviculture operations of seed stands and integration of seed production with other works
- selection of a FUG member responsible to look after the seed stand and decide the role and responsibilities for the establishment and management of seed stand, seed collection and storage
- co-ordination mechanism with district forest office
- technical support

The District Forest Officer (DFO) or AFO should facilitate to bring out a consensus on the above matters and then help the FUGs develop a schedule for each activity required.

Amendments of OPs could also be done if necessary.

Management of seed stand should be made compatible with other management objectives otherwise the existence of seed stand will be at stake.

### Establishment and management of seed stands in CFs

The FUG is the management authority of a CF. Hence, the FUG's decisions about how to manage a seed stand in their CFs must be incorporated in the OP. When the OP is approved from the DFO, the ranger should work with the trained FUG member to demarcate seed stand, select mother trees preferred by the users, and mark them.

### Co-ordination of the FUG with Range Post/Ilaka Office, District Forest Office and TIP

The RP is the local forestry office which is directly in contact with the FUGs. The successful management of seed stands by FUGs will therefore depend on the technical assistance of RP staff to FUGs and a feedback to the district forest office about the FUG's performance. The district forestry staff should supervise the technical support provided to FUGs and help the FUGs to exchange seeds within the district. The TIP should be linked with the FUG through the district forest office for testing seed quality and to facilitate the exchange of seed between districts.

### Seed exchange procedure

District Forest Officers can play a key role to facilitate seed exchanges between FUGs. The ranger should calculate the quantity of seeds likely to be produced from the established seed stands while determining the amount of seed required for the FUG nurseries. After deducting their own requirement, the ranger can estimate surplus seed available for seed exchange.

FUGs can also exchange the excess seeds to the RP or Ilaka. The remot area FUGs have

problems communicating with other FUGs. This inhibits seed exchange. Hence a seed exchange through the district forest office/ RP which may work as an intermediary between the suppliers and the receivers, could be developed. The FUG networks also offer better opportunities to facilitate this exchange.

### Planning seed procurement

Preparation of the district annual plan begins in February each year. During this time each RP should collect information on how much area is to be planted and the number of seedling to be grown by the FUGs through networking workshops, OPs, or by direct consultations with FUGs. These data are submitted to the district forest office and presented at the Ilaka level planning meeting. The district forestry office compiles the RP data to calculate district targets which are proposed at regional planning workshops, general assemblies of District Development Committees and Project Co-ordinating Committee (PCC) meetings. After discussion of each target, and with necessary amendments, there final adjusted targets for the district are approved by the Department of Forest (DoF).

- In the beginning of the fiscal year the DFO should call a meeting of field staff, where the annual targets are discussed and adjusted for each RP. In the mean time each RP should submit species-wise seedling production targets for the FUGs and district forest nurseries. The issues that may arise during planning for seed supply are mostly about surpluses and deficits of seeds which is to be met by the district forest office in co-ordination with other districts and the TIP.

### Conclusions and recommendations

In the Mid-Hill districts CF plantations for reclamation of degraded and open sites and private plantation programmes are gaining momentum. This is due to the growing awareness of communities that they can meet their own need of forest products while conserving environment. In order to meet the demand for seedlings, FUGs and district forest offices have been operating a large number of

nurseries, however a better quality of seedlings is not yet grown. The establishment and management of seed stands in National Forest is generally insufficient to meet such demand. There are however good prospects for quality seed supply from CFs through mobilising FUGs and their resources.

For the successful implementation of this approach the following points require attention:

- **Quality seed production as a priority programme:** Instead of depending on private seed suppliers, the district forest offices should aim at becoming self-sufficient in seed supply, through establishing seed sources in their districts. These seed sources could be seed stands in either national forest or CFs, or, seed provided by co-operatives of individual tree growers. The district Offices should include this as a priority programme in their district annual plans.
- **Capability building:** Rangers are mainly responsible for providing technical advice to FUGs. However, as they have limited knowledge and experience in the establishment and management of seed stands, they require training before they are able to provide adequate support to FUGs. District forest offices should incorporate such training programmes to train rangers. This should be based on TIP's curricula, for which training support material is available from either Community Forestry Training Programme or TIP.

The basic knowledge and skills for the establishment and management of seed stands should be transferred to FUGs also. As to organise training to all FUG members is not practicable, negotiation should be held to train one person from the FUG selected to look after the seed stand(s). It is recommended that the training should be organised district-wise under the facilitation of rangers.

- **Seed Storage:** The district forest office should develop a basic seed storage and testing facilities so that the collected seeds

can be stored properly and tested for viability and purity, before distribution.

- **Monitoring and supervision:** The DFO/AFO should visit seed sources at regular intervals, discuss problems and prospects with the FUGs.
- **Support to FUGs:** Being a new activity, the FUGs will require frequent advice and supervision from the district forestry staff, therefore, the ranger should visit the FUG at regular intervals until the FUG gains confidence and becomes self-reliant.

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