**Left:** Meeting of a riverbed farming group near Dhangadi. (Juerg Merz)
**Right:** Watermelons grow well and are a favourite crop in riverbed farming areas. (Juerg Merz)

# Land distribution and allocation for riverbed farming

**Nepal:** बगर खेतिको लागि भूमि बितरण र बिभाजन

## Riverbed farming provides landless and land-poor households with the possibility to earn an income from on-farm activities close to home

At least 20% of the households in the Terai, the plains of southern Nepal, do not own land. In order to make a living, these households commonly rely on share cropping and work in low paid off-farm jobs. The approach described here allows these farmers to make the most of the large areas of fallow land near riverbeds which are normally unclaimed and not cultivated. Since the lands near riverbeds have alluvial soils and sufficient moisture, they are suitable for seasonal vegetable cultivation during the dry season. In order for these landless and land-poor households to be able to farm these riverbed areas, they need to have access to suitable plots and the necessary agricultural inputs and training.

Potential riverbed areas are identified using topographic maps; subsequently, field verification identifies whether the selected riverbed areas are indeed suitable for cultivating horticultural crops. During the field verification, target groups in the given riverbed area are identified and the land is assessed in consultation with them. The relevant stakeholders are the village development committee and the district agricultural development office. Local resource persons are selected from target groups, which typically consist of 20 to 25 households, and are given training so that they can provide the local technical support. Once the farmer target groups have been identified and the riverbed sites selected, the group is given the legal support needed to get a leasehold agreement with the land owner, often the state. The riverbed area is then parcelled out to landless and land-poor households based on fixed selection criteria. This approach works best when the riverbed land area is at least 3 ha because it means that every target household can cultivate at least 0.13 ha (4 kattha), the least amount of land which can provide a meaningful cash income.

**WOCAT database reference:** QA NEP 34
**Location:** Kanchanpur and Kailali Districts, Nepal
**Approach area:** 400 ha
**Land use:** Originally fallow riverbed land now used for one season crop production
**Type of approach:** Project/programme based
**Focus:** Increasing the income of landless and land-poor households by encouraging them to cultivate previously unexploited riverbed areas
**Related technology:** Riverbed farming (QT NEP 34)
**Compiled by:** Hari Gurung, HELVETAS Swiss Intercooperation
**Date:** July 2011, updated March 2013

The technology was documented using the WOCAT (www.wocat.org) tool.

ICIMOD HELVETAS Swiss Intercooperation NEPAL WOCAT

## Problems, objectives and constraints

### Problems

- A high number of landless and land-poor households subsist on share cropping and low paid off-farm work
- The number of landless and land-poor households is increasing because many farmers have lost their agricultural land due to floods, many hill farmers are migrating to the Terai, and an increasing population means that holdings are divided up into ever smaller plots
- Inadequate agricultural extension for riverbed farming
- There are no local level policies which allow landless and land-poor farmers access to marginal lands

### Aims/objectives

- Give landless and land-poor households access to riverbed land for cash crop cultivation so that they can increase their household income and their food security

### Constraints addressed

| Major | Constraint | Treatment |
|---|---|---|
| Access to agricultural land | Riverbeds are generally owned by the state (village development committee, municipality, or community forest users' groups) and in some cases, by private owners. The owners are reluctant to provide access to the riverbed land because of the Tenant Law. | Farmers and land owners agree on a 3-year lease for riverbed land. The land is allocated according to the size of the group, the size of the land, and its location relative to the river. Each member is allocated 4 katthas (0.13 ha) perpendicular to the river flow. A border is determined and the area is guarded at night. |
| Access to agricultural extension | The government's extension service does not cover riverbed farming | Local resource persons are trained and mobilized to provide agricultural extension services to riverbed farmers. |
| Access to agricultural input supply | Seeds for crops which are suitable for riverbed farming generally come from India and the local agrovets often cannot supply them on time. | Agrovets are informed about the type of agricultural inputs needed (seeds, fertilizers, bio-pesticides) and how to supply them. Riverbed farmers are trained on how to use local and improved seeds and how to conserve and store them. |
| **Minor** | **Constraint** | **Treatment** |
| Lack of either a local or a central policy for riverbed farming | Unclear government policies may limit access to riverbed land and subsidies from poverty alleviation programmes | Lobby local bodies to address issues of riverbed farming policies |

## Participation and decision making

### Stakeholders/target groups

Authorities: district development committee, municipality, village development committee

Line Agencies: district agricultural development office, district forest office

Land users: Landless and land-poor household district development committee, municipality, village development committee

### Approach costs met by:

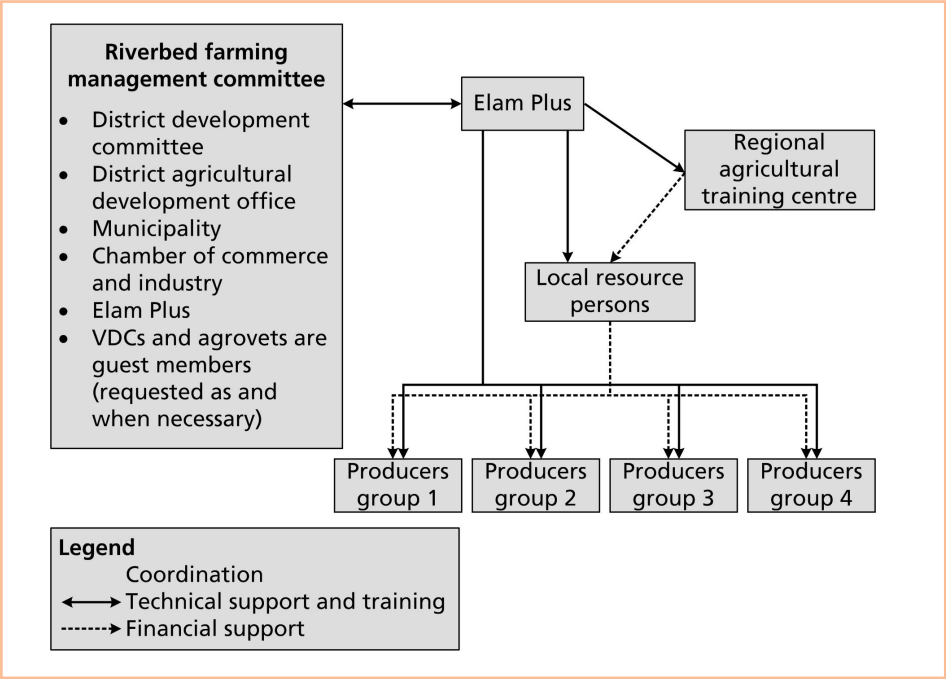
| | |
|---|---|
| Producers' groups | 60% |
| Supporting organizations | 40% |
| **TOTAL** | **100%** |

**Decisions on choice of the technology:** Farm coordinators consult with the Elam Plus team, the District Agricultural Development Office, local resource persons, and producers groups to come up with a mutually agreed technology.
**Decisions on method of implementing the technology:** Producers groups and local resource persons work in close collaboration with farm coordinators and the enterprise development officers of Elam Plus.
**Approach designed by:** Elam Plus, in close consultation with the regional training section, the district agricultural development office, and the district soil conservation office
**Implementing bodies:** Farmers who are supported by Elam Plus

### Land user involvement

| Phase | Involvement | Activities |
|---|---|---|
| Initiation/motivation | Interactive | Group meeting conducted with key members of a group, request for follow-up forwarded to supporting organization. |
| Planning | Interactive | The riverbed area is selected and the land is distributed to the members. The arrangements are agreed in consultation with both men and women of the producer group. |
| Implementation | Self-mobilization | Land preparation, sowing, irrigation, weeding, harvesting, and marketing. Both men and women are involved. |
| Monitoring/evaluation | Interactive | The process of requesting access to the riverbed land involves group level discussions between farmers and government officials or land owners. Key members of the group (e.g. chair person or secretary) are involved in monitoring and evaluating the success of the riverbed farming programme. |
| Research | Interactive | Farmers pilot crop innovations based on the research design suggested by supporting organizations and they provide feedback on how successful the implementation was. |

**Differences in participation of men and women:** Men and women are equally involved in riverbed farming
**Involvement of disadvantaged groups:** 99% of all beneficiaries are from disadvantaged groups




**Organogram**
Role of riverbed farming management committee:
- Organize, review, and plan meetings
- Decide on suppliers
- Oversee the land lease process and insure that the land is properly allocated
- Conduct field monitoring

Role of Elam Plus:
- Organize stakeholders' meetings for managing and generating resources
- Funding support
- Introduce innovations
- Train local resource persons

Role of local resource persons:
- Provide technical support to farmers
- Support producers groups to maintain records and bookkeeping
- Support producers groups to find market linkages

Role of Regional Agricultural Training Centre:
- Develop modular training package
- Train local resource persons

(AK Thaku)

## Technical support

**Training and awareness raising:** The Regional Agricultural Training Centre of the Department of Agriculture trains the local resource persons. Once trained, they help to raise awareness among landless and land-poor farmers of the advantages of riverbed farming and they also give them technical training and extension services.
**Advisory service:** The District Agricultural Development Office provides plant protection expertise and Elam Plus provides technical backstopping and field learning.
**Research:** Innovations, such as piloting new crops, selecting appropriate varieties, and trying out new cultivation techniques are activities supported by Elam Plus through regular communication with the local resource persons.

## External material support/subsidies

**Contribution per area (state/private sector):** Farmers receive a financial contribution of USD 540 (NPR 38,500) per hectare per season. This lump sum given by Elam Plus is intended to cover the cost of agricultural inputs such as seeds, organic manure, fertilizers, agricultural tools/equipment, biopesticides, micro elements, and labour costs.
**Labour:** Labour is provided by the farmer groups themselves costing an equivalent of USD 213 (NPR 15,100) per hectare.
**Inputs:** In the first year, USD 331 (NPR 23,531) worth of inputs are provided by the supporting organizations. In the second year, only 50% is provided, mainly to cover the cost of the seeds. In the third year, only 50% of the cost for the services of the local resource persons and market linkage support are provided.
**Credit:** No credit was extended for riverbed farming, but the groups have initiated their own savings schemes. These group funds can be used for loans to purchase the required inputs.
**Support to local institutions:** Local resource persons form their own organizations and their capacity is strengthened.

**Remarks:** All costs are rough estimates by the technicians and authors. Exchange rate USD 1 = NPR 71 in July 2011

## Monitoring and evaluation

| Monitored aspects | Methods and indicators |
|---|---|
| Technical | In total, 35 local resource persons were trained and mobilized in Kailali and Kanchanpur Districts. |
| Socio-cultural | Riverbed farming indirectly reduces outmigration and the need for farmers to seek off-farm employment like collecting and cutting fuelwood and other seasonal labour. |
| Economic/production | On average, households can earn USD 352 (NPR 25,000) in 6 months from 0.13 ha (4 katthas) of land. |
| Area treated | In 2011, a total area of 396 ha was under riverbed cultivation with support from Elam Plus in Kailali and Kanchanpur. |
| No. of land users involved | In 2011, about 3,000 landless and land-poor households were involved in 122 riverbed farming areas. The number of households increased from 2000 in 2008 to 3165 in 2012. |
| Management of approach | Management of the riverbed farming programme is handled by Elam Plus. The riverbed farming management committee plays an active role in co-ordinating fund contributions from stakeholders for input purchases, organizing planning and review meetings, conducting joint field monitoring, and other related activities. |

## Impacts of the approach

**Improved sustainable land management:** Previously underutilized land resources are productively used for vegetable production and income generation. When farmers use organic methods, the impact on the river ecology is minimal.
**Adoption by other land users/projects:** Other groups and projects have started to replicate riverbed farming in their own areas by imitating what they have observed of groups working with Elam Plus.
**Improved livelihoods/human wellbeing:** Households earned on average USD 352, or NPR 25,000, per household from 0.13 ha of land. Locally traded, this is equivalent to four months' worth of additional food grain.
**Improved situation of disadvantaged groups:** The vegetable consumption of disadvantaged groups has improved. In addition, they also earned cash from riverbed farming that they spent to purchase education, health care, and food grain.
**Poverty alleviation:** Cash income from the sale of riverbed farming produce helped to alleviate poverty to some extent.
**Training, advisory service, and research:** Local resource persons are trained at the regional agricultural training centre. Need-based advisory services are provided by the district agricultural development office. Additional support on piloting new crops and implementing new cultivation techniques is provided by Elam Plus.
**Land/water use rights:** About 65% of the riverbed land is owned by the state and the rest is privately owned. Individual land right issues are discussed in the group and negotiated among group members. Generally, the choice of crops for riverbed farming depends on the type of soil and the sand moisture level; attempts are made to minimize the amount of river water used. So far, downstream farmers have not complained about any overuse of water by upstream riverbed farmers. In this regard, water rights issues are not generally raised.
**Long-term impact of subsidies:** Inputs are provided during the first and second years only; producers know that there will be a gradual reduction in the amounts they receive from supporting organizations. Should they require support in the future, producers groups are linked to other development agencies or the Micro Enterprise Development Fund, which is collected from various stakeholders and used to fund demand-driven enterprise and agriculture extension services required for the promotion of farm and off-farm products.

## Concluding statements

**Main motivation of land users:** Landless and land-poor farmers are convinced of the benefits; to date, they have not experienced any difficulty in marketing their produce. Farmers gained considerable experience and basic technical know-how in riverbed farming. More than 85% of the producer groups continued their riverbed farming activities in the third year crop cycle, when they did not receive any inputs except technical support from local resource persons. They purchased agricultural inputs from their savings funds.

**Sustainability of activities:** The local stakeholders in the riverbed farming approach are committed to providing funds and to being actively involved in reviews, planning, and joint field monitoring. Riverbed farmers have gained basic know-how, and trained local resource persons are available to help at the local level if needed. The Micro Enterprise Development Fund now has a presence in the district and producers can access support from them for riverbed farming. Farmers' groups have already organized savings schemes that can be used to purchase the required agricultural inputs. The majority of farmers continued riverbed farming beyond the third crop and many made a significant income. Riverbed farming has a negligible negative impact on the environment. When all of these factors are considered, riverbed farming is indeed a sustainable activity.

| **Strengths** and →how to sustain/improve | **Weaknesses** and →how to overcome |
|---|---|
| Local government stakeholders are positive about riverbed farming and the current level of coordination from Elam Plus is appreciated. → This needs a model so that it can be institutionalized and replicated in other areas. | Currently riverbed farming producer groups are scattered and their production is limited. → Production needs be market-led and farmers should have better links to markets. |
| Trained resource persons who can provide extension services are available locally. → The local resource persons need to be linked with the Micro Enterprise Development Fund and their services need to be diversified to include aspects all along the market chain. | Riverbed farming is supported on a case-to-case basis by line agencies and non-governmental organizations. → The Ministry of Local Development can develop a riverbed farming policy to ensure that landless and land-poor farmers have access to riverbed lands. |
| Local agrovets are available and they have the capacity to provide the right inputs. → Local agrovets need to be aware of the needs of this new type of farming in order to ensure timely inputs. | |
| Groups have mobilized their savings funds to purchase inputs. → Encourage the formation of savings and credit groups. | |
| Riverbed farming increases household income. → Market-led production should be further promoted. | |
| Marketing facilitators have been developed in each group. → Capacity building of the marketing facilitators needs further attention. | |
| Village development committees have to become involved in the land leasing process. → Develop policies related to land leasing. | |

**Key reference(s):** None
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