Pilot Study to Investigate a Participatory Approach for Roadside Protection of Rural Roads in Nepal
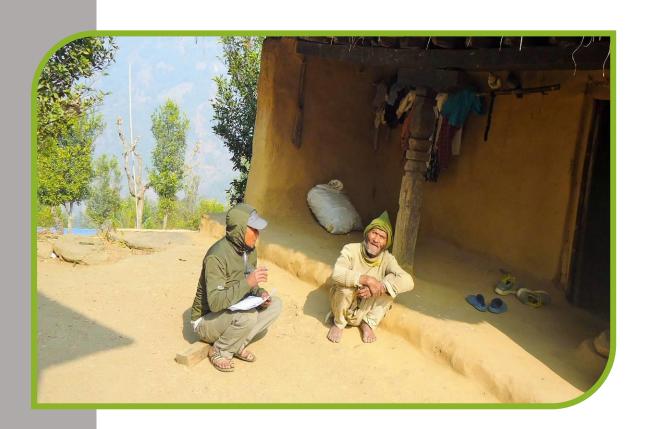
Baseline Report on Sites 1 & 2

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Cover Photo: Mr. Ratna Bahadur Rai, one of the future beneficiaries of the project, being interviewed during baseline survey

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Abstract

This report describes and combines the results of baseline studies conducted at the two selected pilot study sites for the participatory roadside stabilisation project in Nepal. Both these sites are located in Dhankuta District in the Eastern Hills.

The baseline results for the 17 households belonging to the Road User Group (RUG) for Site-1 and the 35 households belonging to the Road User Group (RUG) for Site-2 were gathered and are analysed in this report using a sustainable analysis framework where a project indicator is proposed for each of the six livelihood assets. For natural assets, land productivity (maize yield) is proposed; for physical assets, ownership of a TV set; for economic assets, annual income; for human assets, number of children in private schooling; for social assets, number of households belonging to the RUG; and for political assets, awareness of the legal provisions surrounding the Right of Way.

The baseline report notes that the context of the project has undergone a radical change as a result of Nepal's political federalisation, which came into full force in December 2017. Responsibility for rural roads is now in the hands of local municipalities. This means that the responsible municipalities will have to fund the part of the project costs originally foreseen to be covered by the District Development Committee / Department of Local Infrastructure (DoLI). The rural municipality of Shahidbhumi and the urban municipalities of Dhankuta and Pakhribas in which sites 1 & 2 lie are broadly supportive of the project and it is anticipated the project will work closely with the representatives of these municipalities during the course of implementation.

Key words

Rural roadside plantation, road slope protection, land use policy, Right of Way utilisation, productive land use, participatory approach, livelihood, poverty alleviation, local self-governance, socio-economic analysis, baseline

Acknowledgements

Acronyms, Units and Currencies

$	United States Dollar (US$ 1.00 ≈ NRs 0.0096)
AFCAP	Africa Community Access Partnership
ASCAP	Asia Community Access Partnership
CGI	Corrugated Galvanised Iron
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads, now known as Department of Local Infrastructure, DoLI
RECAP	Research for Community Access Partnership
RoW	Right of Way
RUG	Roadside User Group
UML	United Marxist Leninist (political party)
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)

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Executive Summary

This report sets out the findings of the baseline study for the two pilot study areas of the participatory roadside stabilisation project NEP 2071D. Both sites are located in the hills of Eastern Nepal, in Dhankuta. The baseline data was collected in the latter part of 2017 (Site-1) and in July 2018 (Site-2). The baseline data was gathered using a broad livelihoods analysis framework - considering in turn natural, physical, economic, human, social and political assets or capitals.

As of December 2017, Nepal has become a federal state with elected representatives in all 761 government units - Federal, Provincial and Municipal. This has profound implications for the project, in that under the Local Government Operations Act 2074 BS (2017 AD), responsibility and thus funding for rural roads no longer lies with the Department of Local Infrastructure (DoLI), but instead with the 753 local Municipalities. In this changed context, it will take time for the legislative details surrounding RoW to be clarified. It is also likely that different Municipalities will give differing priority to roadside maintenance.

The Shahidbhumi Municipality, which is now responsible for part of the Hile - Chhintang rural road located at **Site-1** is broadly positive about the proposed participatory roadside planting. The same is true of the 17 household members of the Road User Group (RUG). Thus, during the baseline survey conducted in this area, it was possible to reconfirm the site suitability. The RUG members are ethnically homogenous, being all of the Rai hill ethnic group. They are also already active in a variety of community groups, indicating a positive social capital, with considerable experience in group organisation and decision-making. Nevertheless, they are of varied economic status – with a reported annual household income ranging from $ 235 to $ 15,960. The natural assets of the households are rather limited; at a reported 1.29 metric tonnes of maize per ha, the agricultural productivity is well below the national average. The households' physical assets, however, is rather better than national norms – with every household having a toilet and nearby water source, and all but one having a stone house with a corrugated roof. In terms of human assets, the majority of household members are at least literate; this applies to 81% of men and 78% of women. However, they have no knowledge of improved composting techniques or marketing goods produced from *amrisso* (broom grass) and bamboo; this is considered as part of human assets as it is a skill that can be learned. Politically, the area is a stronghold of the Communist Party of Nepal (UML), and the Municipality enjoys strong links to Federal decision-makers. The knowledge of the household members with regard to issues pertaining to Right of Way is, however, limited. The baseline indicators are summarised in the table below.

At **Site-2**, the two responsible municipalities (Pakhribas and Dhankuta) are positive about the proposed participatory roadside planting works. The same is true of the 35 household members of the Road User Group (RUG). Thus, during the baseline survey conducted in this area, it was possible to reconfirm the site suitability. The UG members are ethnically heterogenous, majority being Janajatis (91.43% comprising of Magars and Newars), Brahmin (3%) and Dalit (6%) ethnic groups. While every household claimed membership to some community groups, it was found that none were members of School Management Committee or local cooperatives. Their membership was limited to local savings and credit groups (77%), such as farmers or mother's groups and with Community Forest Users Group (CFUGs) as their general members (22%), indicating an average social capital with limited experience in group organisation and decision making. The households also exhibited varied economic status – with a reported annual household income ranging from $145.5 to $13,836. The natural assets of the households are rather limited; at a reported 1.47 metric tonnes of maize per hectare, the agricultural productivity is well below the national average. The households' physical assets, however, is rather better than national norms – with every household having a toilet and nearby water source, and as many as 86% households having houses

in stone-mud wall and corrugated roof, and the rest with houses in brick-cement masonry. In terms of human assets, the majority of household members are at least literate; this applies to 94% of men and 82% of women. 38% of the children go to private schools. However, they have no knowledge of improved composting techniques or marketing goods produced from *Amrisso* (broom grass) and bamboo; this is considered as part of human assets as it is a skill that can be learned. Politically, the area is a stronghold of the Communist Party of Nepal (UML), and the municipalities enjoy strong links to Federal decision-makers. The knowledge of the household members with regard to issues pertaining to Right of Way is, however, limited. The baseline indicators are summarised in the table below.

Table 1: Summary of baseline values from Site-1 & Site-2

Asset	Indicators	Site-1 baseline value	Site-2 baseline value
Natural	Productivity of maize	1.29 metric t/ha	1.47 metric t/ha
Physical	Ownership of television set by household	59%	83%
Economic	Overall annual household income	5,854 USD	3,399 USD
Social	Membership of RUG (households)	17	35
Human	Number of children in private schools (total)	One child	16 (5 girls, 11 boys)
Political	Understanding of legal provisions regarding RoW	12% households	48% households

1   Introduction

This report sets out the findings of the baseline conducted by the HELVETAS team on behalf of ReCAP in the two pilot study areas both located in Dhankuta. The baseline details are given in Annex.

On 8 December 2017, Nepal reached a turning point in its political and administrative development as it became a federalized state with elected representatives in all 761 government units i.e. one federal, seven provincial and 753 municipal governments. The successful completion of the Federal and Provincial elections on 7 December, following earlier local level elections, means that the implementation of federalization can proceed in full. The implications for this project are profound. The future of the current government implementing partner, DoLI, is uncertain. In practical terms, the local Municipality, or Palika, has become the key government partner, as under the Local Government Operations Act 2074 BS (2017 AD), it is this body that holds responsibility for the maintenance of the local road system.

The original aim of this research project was to develop a system of participatory roadside management that would at once give local people the opportunity to earn an income from roadside plantations (sharing the benefits gained with the government) and contribute to roadside stabilisation through establishing a vegetative cover. As part of this, it was necessary to investigate and clarify legal aspects relating to the Right of Way (RoW), and to test and finalise the Roadside Plantation Manual, to be used by DoLIDAR far more widely. In the changed context, the following should be noted.

- Although the legal responsibilities of the Federal state, Provinces, and Municipalities are broadly defined, the details are still under elaboration. How long it will take to clarify legal aspects of RoW is unknown.
- It is unclear what relevance the Roadside Plantation Manual will have as far as the Municipalities are concerned, as the manual was planned in a different institutional context
- The physical, social and economic characteristics of the 753 Municipalities are very different, and all have to prioritise their activities according to need and available budgets. It is quite likely that different Municipalities will give differing priority to roadside maintenance.

2   Background

This report combines baseline data collected over October - November 2017 at Site-1, and in July 2018 at Site-2. It is supplemented by observations made during a field visit by the Country Director, Dr Bharat Pokharel, in February 2018. He was accompanied by a senior HELVETAS engineer, Niraj Acharya during this visit. This visit was partly to reappraise the situation on the ground after meeting with the ReCAP Team Leader and the Regional Technical Manager (for Asia) on 26 January 2018, and partly to meet with the elected representatives of the relevant local municipalities In Dhankuta and Pakhribas Urban Muncipalities (Site-2) and in Shahidbhumi Rural Municipality (Site-1). Obviously, these elected representatives did not feature as key stakeholders in the original study plan, as they had not then been elected. However, their support is now crucial for project success.

The elected municipal representatives have now been in post for just over one year and have had time to take stock of the situation in their respective localities. They have prepared their detailed annual plan and budget for the ongoing fiscal year and are in the process of developing Town Development Plans and a Municipal Transport Master Plan in the case of the Urban municipalities. As a general comment about the budgetary planning by the new Municipalities in Nepal, there are widespread reports of the high expectations of citizens being difficult to align with practical budgetary limitations. Municipalities are starting to consider how to address issues relating to the

RoW for roads under their jurisdiction and there exists further scope to sensitise the local governments in this above process. Memorandum of Understandings were signed with the municipalities, in which roles and responsibilities related to the project was defined and agreed upon.

3   Approach and Methodology

During the inception phase of this research project, the key immediate potential beneficiaries – those living adjacent to the two-road study sites or owning land there – were identified. In each case, these people were called together, and a Roadside User Group (RUG) was formed. It may be noted that despite the road section being slightly lengthened in each case, the number of households involved is less than that originally envisaged in the project proposal. It was then estimated that 40 households were likely to be involved at each site; in fact, the number was only 17 at Site-1 and 35 at Site-2.

A questionnaire was developed to gather baseline data on the households – essentially to obtain a socio-economic picture, and to establish indicators for tracking any major changes over the period of project intervention. An enumerator was trained at each site, and data collection proceeded over the last two months of 2017. The baseline data was then collated in a database and cross-checked. Data was broadly organised using a Sustainable Livelihoods Framework, taking the six livelihood assets or capitals: natural, physical, economic, social, human and political (the latter is sometimes considered a social asset, but we have chosen to take it separately, with a separate indicator). Developed in the late 1990s and widely used by DFID as well as other development agencies, the Sustainable Livelihoods Framework remains a simple but useful tool for assessing the sustainability of household livelihoods, and any changes to them.[1]

4   Study Results

The baseline data is attached in the Annex and is described below with specific reference to the 17 RUG households – comprising 134 individuals at Site-1 and the 35 RUG households – 171 individuals at Site-2.

4.1   Natural assets

At **Site-1,** full details of the existing vegetation were recorded at 25 m intervals. This information will

be elaborated in the Site Plantation Report. A video of the roadside vegetation also exists. To briefly summarise, the roadside vegetation comprises grasses, patches of *amrisso* (broom grass) interspersed with *utis* (*Alnus nepalensis*), and other species of no current economic value such as *banmara* (*Eupatorium adenophorum*). In general, the *amrisso* has been planted; some of the households also reported having planted the *utis*, whilst other trees came up naturally. In two small places, cropping (currently of millet and sesame) extends up to the road, and thus within the RoW. Of note is that *amrisso* and large bamboo (*Dendrocalamus* spp.) clearly grow well in the area (the bamboo more in gully locations). Cultivating them should thus not pose a significant problem; the challenge will lie more in marketing for a good price. In addition, the land on the upper side of the road is quite steeply sloping – so better soil

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[1] For a brief overview of the Sustainable Livelihoods Framework, see http://atha.se/content/sustainable-livelihoods-framework

stabilisation is perceived positively by local people. The ownership of land adjoining the RoW is all private. A little further from the road, there is a community forest, as well as land belonging to a locally renowned temple.

For **Site-2,** details of the existing vegetation were recorded at 100 m intervals. This information will also be elaborated in the Site Plantation Report. A video of the roadside vegetation also exists. To briefly summarise, as in site-1, the roadside vegetation comprises grasses, patches of a*mrisso* (broom grass) interspersed with *utis* (*Aldnus nepalensis*), and other species of no current economic value such as *banmara* (*Eupatorium adenophorum*). In general, the *amrisso* has been planted (two significant patches make about 0.1 hectare); some of the households also reported having planted the *utis*, whilst other trees came up naturally. In two small places, cropping (currently of tomato and maize) extends up to the road, and thus within the RoW. Of note is that *amrisso* and large bamboo (*Dendrocalamus* spp.) clearly grow well in the area (the bamboo more in gully locations). Cultivating them should thus not pose a significant problem; the challenge will lie more in marketing for a good price. The ownership of land adjoining the RoW is all private. At the two ends of the pilot section are the Marga and Dharmashal markets. There is an observed tendency of buying and selling of lands adjoining these two markets, looking at the future prospects for market expansion.

For both sites, the proposed indicator for the natural asset of the RUG households is land productivity, calculated in terms of the dominant crop, which is maize. The hypothesis is that if the households cultivate a substantial quantity of *amrisso*, they will be able to increase the productivity of their land through composting (for which training is to be given), using the *amrisso* leaves for fodder – and thus obtaining manure; and potentially also, with the sale of brooms, buying agricultural inputs to increase land productivity.

For **Site-1**, the current land productivity is reported to be on average 65.7 kg maize per *ropani*, which comes to 1.29 metric t/ha. This is very low at roughly half the current national average of 2.5 tonnes/ha. For **Site-2,** the current land productivity is reported to be on average 75 kg maize per *ropani*, which comes to 1.47 metric t/hectare – also very low.

Table 2: Baseline results for natural assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-1 baseline value
Natural	Productivity of maize	1.29 metric t/ha	1.47 metric t/ha

4.2   Physical assets

At **Site-1**, the physical assets of the RUG households are observed to be slightly better than the national average. All households have toilets (compared to the current national average of just over 80%). With regard to drinking water, 13 (76%) are supplied from a community tap, whilst 4 obtain their water from an open spring. All but one has a stone-walled house with a corrugated iron sheet roof; the one exception is a household with wooden walls and a thatched roof. The area is connected to the grid, so all households have electricity (compared to a national average of about 85%).

At **Site-2,** The physical assets of the RUG households are also observed to be slightly better than national averages. All households again have toilets and of the total households, three households (8.5%) have toilets with temporary structures. With regard to drinking water, 31 households (87%) are supplied from a community tap, whilst 4 obtain their water exclusively from unprotected source. Of the 31 households obtaining water from community tap, five (14%) households obtain their water from both a community tap as well as unprotected source. As many as 30 (86%) of the houses have stone-mud wall with corrugated iron sheet roof, while five (14%) of the houses are of brick-cement masonry. The area is connected to the national grid, so all households have electricity.

One of the most common assets bought by households once they have some available cash is a TV (even more common is a mobile phone – with most people aspiring to a smart phone – but this is especially the case for households with a member working abroad). Ownership of a TV is therefore recommended as the indicator for physical assets. The current number of households with a TV is 10 (59%) at Site-1 and 29 (83%) at Site-2.

Table 3: Baseline results for physical assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-2 baseline value
Physical	Ownership of television set by household	59%	83%

4.3   Economic assets

At *Site-1*, all of the RUG households own land, although only one claims to be self-sufficient in food. The majority (13, 76%) report 6 – 9 month's food sufficiency, although 3 households produce less than 6 month's food supply. Ten (59%) out of the 17 households are receiving remittances from at least one family member working abroad. This is roughly in line with national figures, which indicate that every second household in Nepal is in receipt of remittances from outside the country. Most households (15, or 88%) are engaged in paid agricultural labour, whilst four (24%) households are engaged in local, off-farm work.

All households raise at least some livestock, although only 11 (65%) report generating an income from livestock sale. Discussions with the members indicated that the main constraint for livestock raising is labour – younger men often being absent due to migration.

An interesting point of note is with regard to land prices. Although many of the RUG members lost land to road construction when this took place some 5 years back, the price of land adjacent to the road is said to have increased nearly five-fold since the road was completed. Additionally, opportunities for marketing produce such as mandarin (*suntala*) and tomatoes have opened up – opportunities that can also be exploited for *amrisso* production.

It is well known that most people are hesitant to divulge information about their household income, and thus it is difficult to obtain accurate information. Nevertheless, the question was asked, as it was clear that most households do not fully rely on agriculture for their livelihoods. The answers received were then triangulated against other information such as landholding size, family members working abroad, sale of agricultural produce, off-farm income, etc. Households were also asked what income they currently gain from using land under the RoW, but this question appeared to be too difficult for them to answer with any degree of accuracy. Overall household income is thus taken as the indicator of economic assets. The average reported income of the 17 households was $ 5,854 (including remittances). Nevertheless, this masks a significant difference between households, and is higher than the mode - most households reporting an income of NRs 100,000 – 500,000 (approximately $ 960 – 4,800). The highest reported income, from a household benefitting from overseas remittances, is NRs 1,656,000 ($ 15,920) whilst the lowest is NRs 24,500 ($ 235). The richest four households reported an income of over NRs 1,000,000 ($ 9,600), whilst the poorest three reported an income of below NRs 100,000 (approximately $ 960).

At **Site-2,** all of the RUG households again own land, however, food sufficiency from their own production differs. Twelve (34%) claim to be self-sufficient in food, while an equal number reported less than 3 month's food sufficiency. Households that claimed 3 – 6 month's food sufficiency was eight (23%), while three (9%) households claimed food sufficiency for 6 -9 months.

Twelve (34%) out of the 35 households are receiving remittances from at least one family member working abroad. This is less than the national average, which indicates that every second household in Nepal is in receipt of remittances from outside the country. Most households (31, or 89%) are engaged in paid agricultural labour, whilst five (14%) households are engaged in local, off-farm work. Four (11%) of the households were found to engage in both paid agriculture as well as local, off-farm work.

Most of the households (33, 94%) raise at least some livestock, and as many as 30 (86%) generate income from livestock sales. Unlike Site-1 which had reported that almost every second household received remittances, at Site-2, roughly everyone in three households receive remittances. Trade has also been observed as one of the major income sources in this site which is obvious as the site is closer than Site-1 to Hile, which is the second largest market centre in Dhankuta.

Again, all of the RUG members claimed that they had lost land to road construction when this took place some 12 years back. The price of land adjacent to road is said to have increased to a huge 38.29 times since the road completion. The average land price per hectare was $ 1,522 before road construction. The valuation of land at present is $ 58,258. Additionally, opportunities for marketing produce, mainly tomatoes have opened.

Answers received about household income were again triangulated against other information such as landholding size, family members working abroad, sale of agricultural produce, off-farm income, etc. Households were also asked what income they currently gain from using land under the RoW. It was found that the average income per year was $ 22.7, ranging from $18.2 – $ 27.2 from 500 square metre (one ropani) of land. The average reported income of the 35 households was $ 3,399 (including remittances). Nevertheless, this masks a significant difference between households, and is higher than the median ($ 2,854) - the income reported ranged from approximately $ 145.5 – $ 13,836. The richest three households reported an average income of more than $ 10,000, whilst the poorest nine reported an average income less than $ 1,000 (Nepal's GDP Per Capita reached $ 1,003.64 USD in Jul 2018). The annual income of the middle 23 households ranged from $ 1,000 to $ 6,000. The highest reported income, from a household benefitting from overseas remittance, is $ 4,363 whilst the lowest is $ 1,818.

Table 4: Baseline results for economic assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-2 baseline value
Economic	Overall household annual income	$ 5,854	$ 3,399

4.4   Social assets

At **Site-1**, Whilst there are considerable economic differences between households, in terms of ethnicity, they are homogenous; all belong to the Rai ethnic hill group. Fourteen of the 17 households are members of the local community forest user group (CFUG); one is a member of a cooperative, and three are members of a school management committee. In addition, the majority, that is, 15, report being members of other community groups (farmers' groups, mothers' groups, etc). The social assets of the RUG are thus quite high, with clear experience of self-organization, meeting procedures, etc. Of the 17 households, 14 report making regular contributions through their community groups, with a monthly saving of some $ 0.2 – 1.5.

At **Site-2**, while there are considerable economic differences between households, the households are also different in terms of ethnicity compared with Site-1. Janajatis comprise 91%, Dalit, 6%, and Brahman, 3%. All households are members of some sort of community groups (mother's group, farmer's group). Twenty-seven (77%) are affiliated with the local savings and credit groups, and their average annual saving is $ 8.2. Twenty-two (62.8%) households are members of Community Forest

User Groups (CFUG). Compared to site-1, the social assets of the RUG are not as high, considering their membership status with local institutions (school management committee, CFUG, savings and credit groups).

The simple indicator of social assets proposed is membership of the RUG. As the RUG has just been formed, this is the one indicator is not expected to increase (unless households split),but could potentially decrease if members are unhappy with the project.

Table 5: Baseline results for social assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-2 baseline value
Social	Membership of RUG	17	35

4.5   Human assets

At **Site-1,** the human assets of the RUG, in terms of basic literacy, are quite high and show no major difference between men and women. Of those individuals aged over 5, 81% of men and boys are literate, whilst 78% of women and girls are literate. With one exception, all children of school-going age up to 16 (School Leaving Certificate, SLC) are attending the local government school; the exception is attending a private school. Amongst those who have higher education – above SLC – there are 12 men and 8 women, indicating a divergence in educational opportunities according to gender. However, the sample is too small to draw major conclusions. This is despite the fact that family size, at 7.9, is higher than the national average of 4.6[2].

Regarding agricultural knowledge, there is no practice of manure application during *amrisso* cultivation, and none of the 17 households have knowledge of improved compost making techniques. Similarly, 12 out of the 17 households lack skills in making marketable products (broom or bamboo goods) from *amrisso* or bamboo.

At **Site-2**, human assets of the RUG members in terms of their basic literacy, are also quite high (89%) and show a higher literacy rate for men (94%) than women (82%). Of the children of school age, 62% go to government schools, while 38% go to private schools. Equal numbers of girls and boys (three each) were found to go to college. Amongst those who have higher education – SLC and above – there are nine men and three women, indicating a divergence in educational opportunities according to gender. However, the sample is too small to draw major conclusions. This is despite the fact that family size, at 4.88, is a little higher than the national average.

Similar to Site-1, at Site-2 the practice of manure application during a*mrisso* cultivation is not known and none of the 35 households have knowledge of improved compost making techniques. Similarly, none of the households possess skills in making marketable products (broom or bamboo goods) from *amrisso* or bamboo.

As there is a general perception in Nepali society that private schooling (in English medium) is superior to government schooling, and this is known to be something in which parents invest if they have available finances, the proposed indicator of human assets is number of children in private education.

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[2] Nepal Annual Household Survey 2015 – 2016, UNDP and Government of Nepal.

Table 6: Baseline results for human assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-2 baseline value
Human	Number of children in private schools	1	16 (five girls, 11 boys)

4.6   Political assets

Site-1 is a politically strong municipality; the place name itself, Sahidbhumi, means land of the Martyrs, and commemorates two dozen communist leaders from local cadres who were killed in earlier times. The Communist Party of Nepal (United Marxist Leninist) has an outright majority in the Municipality and has strong links to the ruling party at Federal level. For the purposes of this study, political assets are interpreted very narrowly as knowledge of legal matters related to roadside management. All households were questioned in this regard. Probably as a result of inception phase visits, 7 (41%) of the households had heard of RoW; however, only two of them knew anything substantial regarding current policy.

At **Site-2,** only 17 households have knowledge about the provision of RoW. However, 18 stated that they had only heard of RoW and actually had little knowledge.

Political assets normally refer to political influence: access to and knowledge about decision-making processes outside the immediate community. As such knowledge is a crucial part of this study, the proposed indicator for the political assets of households is awareness of the legal provisions regarding RoW.

Table 7: Baseline results for political assets (Sites 1 & 2)

Asset	Indicator	Site-1 baseline value	Site-2 baseline value
Political	Understanding of legal provisions regarding RoW	12% households	49% households

5   Conclusions

All the respective municipalities and the RUG members of both sites were found to be positive about the proposed roadside planting works. With the exception of economic and social assets, Site-2 fares better than Site-1 in the remaining four out of the six livelihood assets.

Where physical assets are concerned, both sites fare better than the national average. All households have electricity, toilets and a nearby water source, and almost all households are either made of mud wall with corrugated roof or are of brick and cement masonry, with the exception of one. Concerning natural assets, measured by productivity of maize, both sites fare below the national average, however Site-2 performs relatively better than Site-1.

With economic asset, the average household income at Site-1 is higher than at Site-2. In Site-2, only one in three households receives remittances from at least one family member, while at Site-1 this is true for every second household - the same as the national average. One of the major sources of income for Site-2 is trade. Apparently, Site-2 which sits within two municipalities, has two markets – one at each end of the pilot stretch. The expectation is that the value of land will increase in future owing to market expansion. This has led to more land changing hands here. At Site-1 on the other hand falls under rural municipality with less land price increases.

Even though the economic assets are higher for Site-1, Site-2 fares better in terms of human assets. Both the literacy rate as well as number of children being educated in private school is higher at Site-2.

The ethnic composition at Site-2 is relatively heterogenous (91% Magar and Newar and the rest comprising of Dalit and Brahmin households), while the ethnic composition of RUG members in Site-1 is more homogenous (all Rai hills ethnic group). Compared with Site-2, the RUG members of Site-1 are more active in a variety of community groups indicating considerable experience in group organisation and decision making.

The baseline study helps to establish the socio-economic status of the target population prior to the project interventions, therefore, it is an integral part of the research study. It guides the types of interventions that need to be designed such as, training, coaching, financial management, productive utilisation of remittance, improved cultivation practice, etc. to attain the overall objectives of the project. In the last year of its implementation, the project will conduct an impact assessment using a similar methodology to ensure that there is reliable comparison between the two data sets.

Annex 1: Summary of Baseline Information for Site-1

Demographic	Unit	Women	Men	Total
Beneficiary households	Number	-	-	**17**
Beneficiary population	Number	**64**	**70**	**134**
Population of children with age less than 16 years	Number	**22**	**19**	**41**

Physical Assets	Quantity	
	In number	**In per cent**
Households with toilets	**17**	**100%**
Households with electricity connection	**17**	**100%**
House in stone-mud wall and CGI roof	**16**	**94%**
House in wooden wall and thatch roof	**1**	**6%**
Households with access to drinking water from community tap stand	**13**	**76%**
Household drinking water from unprotected source	**4**	**24%**
Household with Television	**10**	**59%**
Households with motorbike	**4**	**24%**
Household with its member/s holding mobile phone	**12**	**71%**

Economic Assets	Quantity	
	In Percent	**In Number**
Households with ownership of own land	100%	**17**
Average area of registered land (median value, mean value) and standard deviation from mean)	-	**1.12, 1.35, 0.69 hectare**
Minimum landholding	Hectare	**0.1**
Maximum landholding	Hectare	**2.6**
Households with food sufficiency less than 3 months	0%	**-**
Households with food sufficiency for 3-6 months	18%	**3**
Households with food sufficiency for 6-9 months	76%	**13**
Households with food sufficiency for whole year	6%	**1**
Households making income from remittance	59%	**10**
Households making income from livestock	65%	**11**
Average annual income from remittance (1 USD = 100 Nepali Rupees) and standard deviation	USD	**2'500, 1523**
Average annual income from all sources (agriculture, livestock, remittance, labour, and service)- median value, mean value and standard deviation	USD	**4'665, 5'853, 5'072**
Minimum annual income of a household	USD	**245**
Maximum annual income of a household	USD	**16'560**
Agriculture labour	Number	**15**
Non-agriculture labour	Number	**4**
Average price of land per hectare	USD	**24'331**

Average price hike of the land adjacent to road after road construction	Fold	**4.73**
Households loosing land due to road opening	Percent	**94%**

Social Asset	Percent	Number
Ethnic composition		**All Rai**
Households as a member of local Forest User Group	82%	**14**
Households as a member of School Management Committee	18%	**3**
Households as a member of local Cooperative	6%	**1**
Households as a member of Community Groups	82%	**14**
Households as a member of such entities mentioned above	-	-
Households as a member of three such entities mentioned above	24%	4
Households as a member of two such entities mentioned above	47%	8
Households as a member of one of such entities mentioned above	24%	4
Households as a member of none of such entities	6%	1

Human Assets	Unit	Women	Men	Total
Literate population	Percent	**78%**	**81%**	**80%**
School going children	Number	**21**	**18**	**39**
Households practicing compost preparation	Percent			82%
Households having knowledge on farm yard manure	Percent	-	-	**0**
Households in which major decisions are taken by both men and women in family	Percent	-	-	**82%**
Households in which major decisions are taken by men in family	Percent	-	-	**12%**
Households in which major decisions are taken by women in family	Percent	-	-	**6%**

Annex 2: Summary of Baseline Information for Site-2

Demographic	Unit	Women	Men	Total
Beneficiary households	Number	-	-	**35**
Beneficiary population	Number	**74**	**97**	**171**
Population of children with age less than 16 years	Number			**46**

Physical Assets	Quantity	
	In Number	**In Percent**
Households with toilets	**35**	**100%**
Households with electricity connection	**35**	**100%**
House in stone-mud wall and CGI roof	**30**	**86%**
House in wooden wall and thatch roof	**0**	**0%**
House in brick-cement masonry	**5**	**14%**
Households with access to drinking water exclusively from community tap stand	**26**	**74%**
Household drinking water exclusively from unprotected source	**4**	**11%**
Household drinking water from both community tap stand and unprotected source	**5**	**14%**
Household with Television	**29**	**83%**
Households with motorbike	**10**	**29%**
Household with its member/s holding mobile phone	**34**	**97%**

Economic assets		
	In Number	**In Number**
Households with ownership of own land	35	**35**
Average area of registered land (median value, mean value) and standard deviation from mean in hectare	0.5, 0.77, 0.72	**0.5, 0.77, 0.72**
Minimum landholding in hectare	0.05	**0.05**
Maximum landholding in hectare	3	**3**
Households with food sufficiency less than 3 months	**12**	34%
Households with food sufficiency for 3-6 months	**8**	23%
Households with food sufficiency for 6-9 months	**3**	9%
Households with food sufficiency for whole year	**12**	34%
Households making income from remittance	**12**	34%
Households making income from livestock	**30**	86%
Households raising livestock	**33**	94%
Households raising poultry	**30**	86%
Average annual income from remittance (1 USD = 110 Nepali Rupees) and standard deviation in USD	867.5, 1,487.8	
Average annual income from all sources (agriculture, livestock, remittance, labour, and service)- median value, mean value and standard deviation in USD	2,854, 3,399, 3,189	
Minimum annual income of a household in USD	145.5	
Maximum annual income of a household in USD	13,836	
Agriculture labour	31	

Non-agriculture labour	5	
Average price in USD of land per hectare	58,258	
Average price hike in 'folds' of the land adjacent to road after road construction	38.29	**38.29**
Average price in USD of land adjacent to road before road construction	1,522	
Households losing land due to road opening	No compensation	100%

Social Asset	**In Number**	**In Percent**
Ethnic composition (Janajati, Brahmin, Dalit)	**232, 1, 2**	91%, 3%, 6%
Households as a member of local Forest User Group	**22**	63%
Households as a member of School Management Committee	**0**	0%
Households as a member of local Cooperative	**0**	0%
Households as a member of Community Groups	**27**	77%

Human Assets	**Unit**	**Women**	**Men**	**Total**
Literate population	Percent	**82%**	**94%**	**89%**
School going children	Number	**13**	**29**	**42**
Children going to Govt. schools	Number	**8**	**18**	**26**
Children going to Pvt. Schools	Number	**11**	**5**	**16**
College going	Number	**3**	**3**	**6**
School going population (by age)	Number			**35**
Households practicing compost preparation	Percent			97%
Households having knowledge on farm yard manure	Percent			**91%**
Households in which major decisions are taken by both men and women in family	Percent			**100%**
Households in which major decisions are taken by men in family	Percent			**0%**
Households in which major decisions are taken by women in family	Percent			**6%**