

SDC

Swiss Agency for Development and Cooperation

External Review of Motorable Local Roads Bridge Programme (LRBP) – Phase 3

FINAL REPORT

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1 Introduction

It is recognised that, in rural areas of Nepal, there is a strong correlation between a lack of motorable access and observed levels of poverty. The provision of all-weather motorable access leads to reductions in poverty levels and to improved overall social and economic conditions.

In consultation with the Government of Nepal (GoN), SDC embarked in 2011 on a programme of bridge construction on local roads in order to enhance the extent of all-weather road access into remote areas – as well as to strengthen the institutional capacity of local agencies engaged in the sector. The programme also seeks to target Disadvantaged Groups (DAGs) living in the vicinity of the bridges through skill development and the creation of job opportunities in bridge construction.

This Review has been undertaken towards the end of the third phase of the programme, specifically covering the period from March 2017 to July 2019, but with reference also to the earlier phases of the programme from its inception in 2011. The overall programme is anticipated to have four phases and a total duration of 12 to 15 years. The initial phase (2011-16) focused on overall programme design and development, bridge planning, selection and prioritisation, together with capacity building in both the public and private sectors. The second phase covered a brief transition period (June 2016 – February 2017) prior to the start of Phase III.

It is calculated that, as of June 2019, almost 4000 km of local roads have been brought up to all-weather standards through the construction, over the past 9 years, of 358 bridges in all Provinces across the country. Based on the Outcome Monitoring Summaries (OMS), it is estimated that approaching 3 million people have benefitted from these improvements in accessibility. Increased numbers of trucks, buses, jeeps and motor-cycles are now operating, new shops and services have been established and significant increases in the use of services recorded. Over 2 million person-days of employment have been created across the country, with significant numbers of people (including over 50% women) receiving skill enhancement training.

This Review has been undertaken to assess the impact and effectiveness of the programme to date and to make recommendations regarding the direction and content of future phases. Particular attention has been paid to the administrative structure of the programme in the context of the recent adoption of a federalised government system which has resulted in the programme now being 'anchored' in the seven newly established autonomous Provinces.

A separate study of the Gender and Social Inclusion (GESI) aspects of the programme has been undertaken with the objective of identifying the role of - and impact on - women and members of disadvantaged groups in both the construction and subsequent operation of the bridges. The GESI Study examined four bridge sites in detail and the remaining analysis has been based primarily on a series of surveys undertaken at a sample of 14 completed bridges – and four incomplete bridge sites – selected to represent typical conditions throughout the country.

2 Objectives and Structure of the Review

2.1 Terms of Reference

The Terms of Reference (ToR) provided to the Review Mission clearly define the scope of work and outputs required. The overall objectives of the Review are to examine the major achievements of the programme, in regard to both physical bridge building and additionally the impact on local accessibility and mobility, plus specifically to examine the recent changes in the institutional aspects of the programme resulting from the adoption of the federalised government structure. The Review was also tasked with examining the validity of the existing Outcome Monitoring Summaries (OMS) and conducting a study of the gender and social inclusion (GESI) aspects of both bridge construction and subsequent operation. Based on the overall findings and experience gained to date, the Review is also required to recommend a strategy and approach for a further follow-on phase of the programme, which had initially (in 2011) been conceived as a 'consolidation and exit' phase.

The Review is requested to examine the socio-economic impacts of the programme and to quantify – where practical – the benefits that have accrued to users of the bridges and residents in the areas of influence. Other less quantifiable social and community benefits are also required to be assessed, including access to markets, jobs and social services.

The ToR required that the overall impact of the programme be measured, where possible, against the outcome indicators defined in the programme log-frame.

2.2 Objectives of Review

Five specific objectives for the Review were set down in the ToR:

- Review the impact of Local Road Bridges on the lives & livelihoods of local communities;
- Review the institutionalisation of LRBP within the new federal government structure;
- Validate the results of the OMS;
- Validate the results from a GESI perspective; and
- Provide recommendations for the development of the next phase.

The ToR posed a series of six 'questions' or issues to be explored in regard to the overall objectives. These were:

- Relevance: how has the programme evolved and is it still relevant?
- Effectiveness: have the main outcomes and outputs been achieved?
- Efficiency: has the programme been cost effective and achieved on time?
- Impact & sustainability: have the broader impacts of the programme been achieved?
- Coordination: has the programme been integrated with other initiatives? and
- GESI: how successful has the programme been in these broader cross-cutting issues?

These issues have been addressed through research undertaken by the Review Team, which included a comprehensive series of field surveys at bridge sites throughout the country, extensive interviews with Government officials at both National and Provincial Government

level, and reviews and analysis of all relevant available data held by the Local Road Bridge Support Unit (LRBSU). A separate, in-depth GESI Study was undertaken at settlements in the zone of influence of four selected bridge sites.

Responses to each of these six questions are presented in Chapter 9.

2.3 Methodology Adopted

Much of the data used for the impact evaluation have been collected through a series of surveys conducted at a sample of 18 bridges (14 complete and 4 incomplete) that were constructed under the programme over the past 8 years. These surveys were designed to assess the change in levels of socio-economic activity following the bridge construction by comparing the current (post-bridge) situation with that prior to construction. The surveys used the same sample of households within the zone-of-influence (Zoi) as were selected for the Baseline Surveys (BLS). 'Focus Group' and 'Key Informant' discussions were conducted within the Zoi, together with inventories of services and facilities provided in settlements close to the bridge, and daily classified counts of traffic using the bridge.

Outcome Monitoring Summaries (OMS) were available for all of the completed bridges and the results have been compared with the survey results in order to verify the validity of the OMS findings.

A series of meetings and discussions were held with government staff in five of the Provinces to ascertain how the transition and transfer of responsibility for the local bridge programme had been implemented.

The GESI Study was based on a series of in-depth immersive interviews conducted within households in the zone of influence of the selected bridges, with the objective of determining the extent of local impact – especially on women and disadvantaged groups – of the bridge, both during construction and subsequent operation.

2.4 Timing of the Review

The Review was commenced in August 2019, with initial briefings, meetings, planning and scheduling. Most of the fieldwork was undertaken in September, towards the end of the rainy season and prior to the main Dashain Holidays, with the analysis and presentation of the preliminary findings in October and early November.

3 Project Status & Achievements

3.1 Overall Project Progress

Overall progress of the Project is documented in a series of Annual Progress Reports and End of Phase Reports, plus individual bridge reports (BLS, OMS, etc). Additionally, details of all Motorable Local Road Bridges are recorded in the Bridge Information Management System (BIMS).

The LRBP had – as of July 2019 – completed the construction of 358 bridges, see Table 3.1 and Figures 3.1 and 3.2 below. A total of 122 bridges were completed in Phase I (up to May 2016), a further 35 in Phase II (June 2016 to February 2017) and 201 in Phase III (February 2017 to July 2019). The largest number of bridges are in Province 3, followed by Provinces 1, 4 & 5: there are fewer bridges in Province 2, 6 & 7, reflecting the lower lengths of motorable road in these provinces. The maximum number of bridge completions occurred in FY17/18, with consistent annual growth over the initial six years of the programme: the number of completions dropped in FY18/19, probably as a result of the administrative hiatus in the previous years.

In total, over the eight years of the programme from FY11/12 to FY18/19, Walk-over and Investigation Surveys have been undertaken at 1,168 locations, Design Verifications have been completed at 417 sites, and Preliminary or Detailed Design undertaken for 555 bridges. Support has been provided to DoLIDAR and/or the DDC for 500 bridges, plus an additional 251 constructed by other rural road or development projects. Overall 1.77 million work-days have been created, which included over 1 million work-days for disadvantaged groups and 235,000 for women.

Table 3.1: Distribution of 358 Completed Bridges (2012-2019)

	Phase I				Phase II	Phase III		
Financial Year	12-13	13-14	14-15	15-16	16-17	17-18	18-19	Total
Province 1	1	2	9	10	12	20	12	66
Province 2	2	1	7	4	8	9	7	18
Province 3	2	4	12	11	19	17	17	82
Gandaki	1	5	5	6	15	19	12	63
Province 5	2	8	14	13	10	14	3	64
Karnali	0	4	3	4	8	5	3	27
Sudur Paschim	0	1	2	4	3	4	4	18
Total	8	25	52	52	75	88	58	358

Source: LRBSU

3.2 Programme Structure

The overall programme structure envisaged four phases, with a total duration of 12 to 15 years, as summarised below:

- Phase I (2011-2015): programme design, planning, etc
- Phase II (2016-2017): transition phase
- Phase III (2017-2020): expansion & scale-up
- Phase IV (2020-2022): consolidation & exit

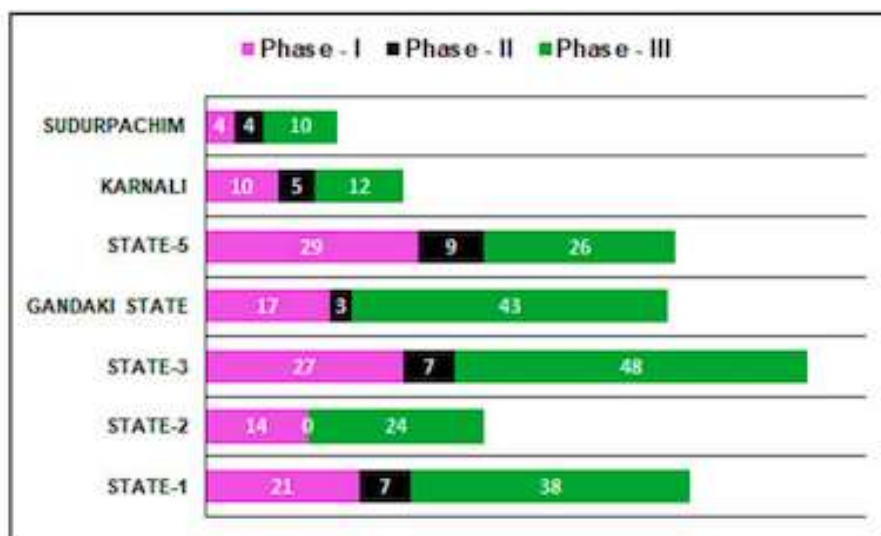


Figure 3.1: Bridge Completions by Phase and Province

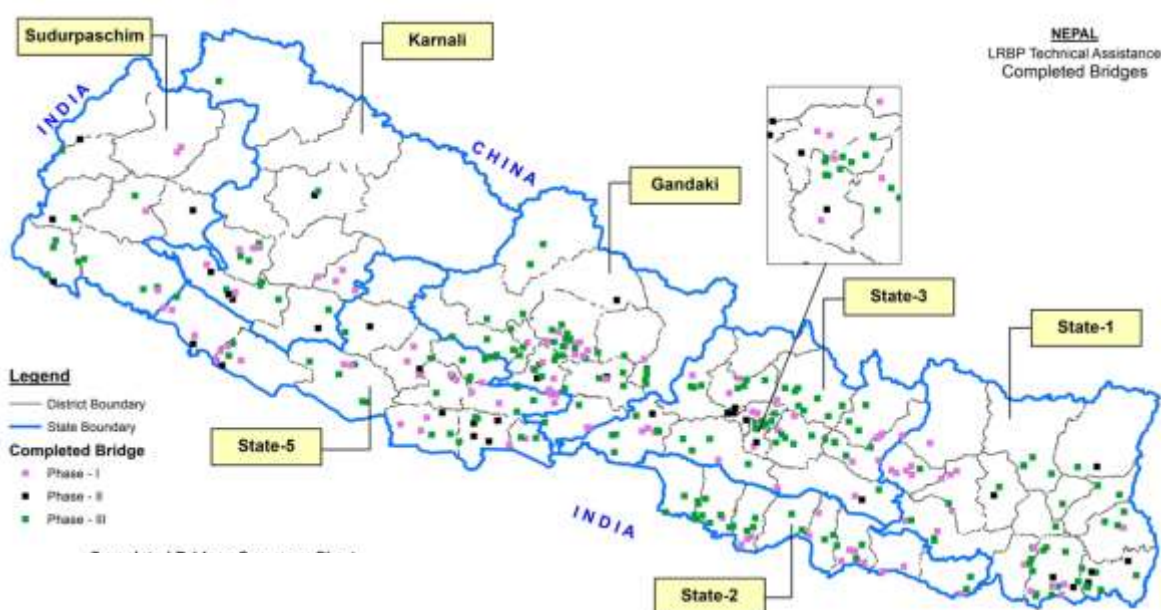


Figure 3.2: Location of 358 Completed Bridges (2012-2019)

The objectives of Phase I (2011-15) were related primarily to the establishment of the programme and the setting up of the associated procedures for the planning, selection and prioritisation of local road bridges, together with the strengthening of both public and private sector agencies involved in bridge design and construction. As reported in the earlier External

Review, these objectives were largely achieved. The second phase was limited (for administrative reasons) to a 9 month transition period.

The programme is now approaching the end of the third phase, which commenced in February 2017 and will continue until July 2020. The overall objectives of ‘expansion and scaling up’ have been broadly achieved with increasing numbers of annual completions. However, significant changes in the overall programme structure and administration were necessitated by the introduction of the Federalised Government structure and this has had a substantial impact on the programme during this Phase. As a result, the programme is now effectively anchored at the Provincial level – rather than at the centre and the Districts.

3.3 Budgets & Expenditure

The overall programme budget and expenditures for the period from FY2011/12 - FY2018/19 are shown in the following diagram (Figure 3.3). The budget can be seen to have increased annually from around Rs 500 million in FY11/12 to over Rs 4,000 million in FY18/19. Annual expenditures, as would be expected, have lagged behind the budget and amounted to over Rs 2,500 million in FY16/17 but have dropped back slightly over the past two years as a consequence of the changes in the project organisational structure.

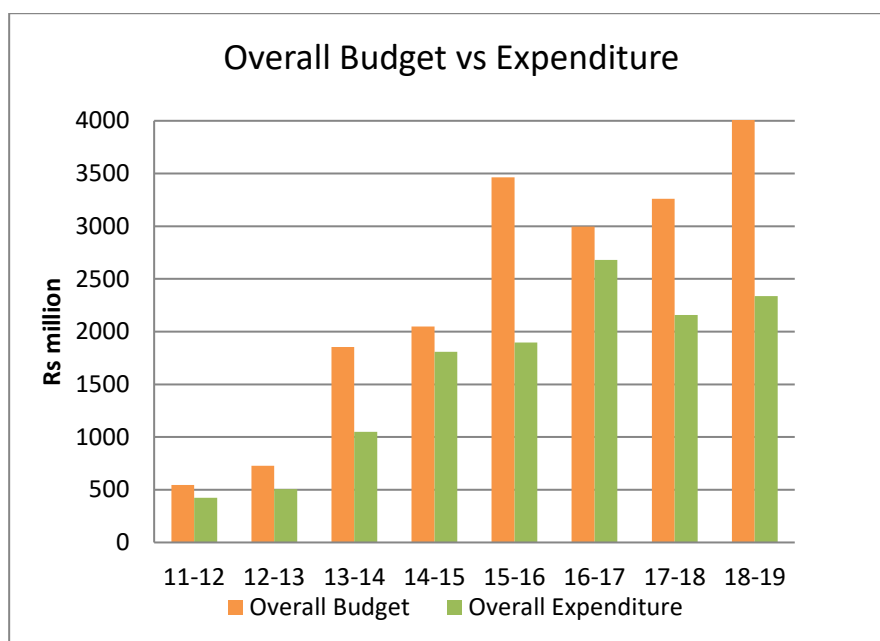


Figure 3.3: Overall Programme Budgets & Expenditure (FY 2011/12-FY 2018/19)

4 Survey Programme

4.1 Objectives

The Review Team was required, by the ToR, to conduct a series of surveys at selected bridge sites to determine the impact of the programme in regard to changes in the socio-economic characteristics of the populations within the catchment areas of the bridges, the extent of changes in trip making within the zones of influence (ZoI), and reductions in the costs of travel and goods. The surveys were also required to establish the current daily traffic volume (by vehicle type), as this – as identified in the previous Review – provides the single most effective indicator of the impact of the bridge construction, as well as the primary input to the evaluation of the economic benefits.

As detailed in the Inception Report, the Review conducted a series of detailed surveys at 14 of the 358 bridges that have been completed to date, plus 4 sites where construction was incomplete. The sites were selected to be representative of both Hill & Terai regions and included bridges in all seven Provinces. More detailed GESI surveys were undertaken at 4 of the 18 sites (see Chapter 8), using in-depth interview techniques to obtain information on gender issues and the impact on the disadvantaged groups in the local communities surrounding the bridges.

4.2 Details of bridges selected

As of July 2019, a total of 358 bridges had been completed under the LRBP, across all seven provinces as detailed below.

Table 4.1: LRBP Completed Bridges by State and Phase (2010-19)

State	Phase I (2012-16)	Phase II (2016-17)	Phase III (2017-19)	Total
State 1	21	7	38	66
State 2	14	0	24	38
State 3	27	7	48	82
State 4 Gandaki	17	3	43	63
State 5	29	9	26	64
State 6 Karnali	10	5	12	27
State 7 Sudur Paschim	4	4	10	18
All Nepal	122	35	201	358

Source: LRBP

The 18 bridge sites surveyed were selected from those for which BOTH Baseline Surveys AND Outcome Monitoring Surveys were available. They included 6 from among the 11 examined in the Phase I External Review, a further 4 from Phase I and 4 from those completed subsequently. Additionally, 4 uncompleted bridge sites, for which comparable baseline data exists, were included, as a 'Control Group'. The selected bridges are representative of ALL provinces and include a mix of locations in both the Hills and Terai. Details are provided in the following tables and plan.

Table 4.2: Distribution of 18 Selected Bridge Sites by State and Phase

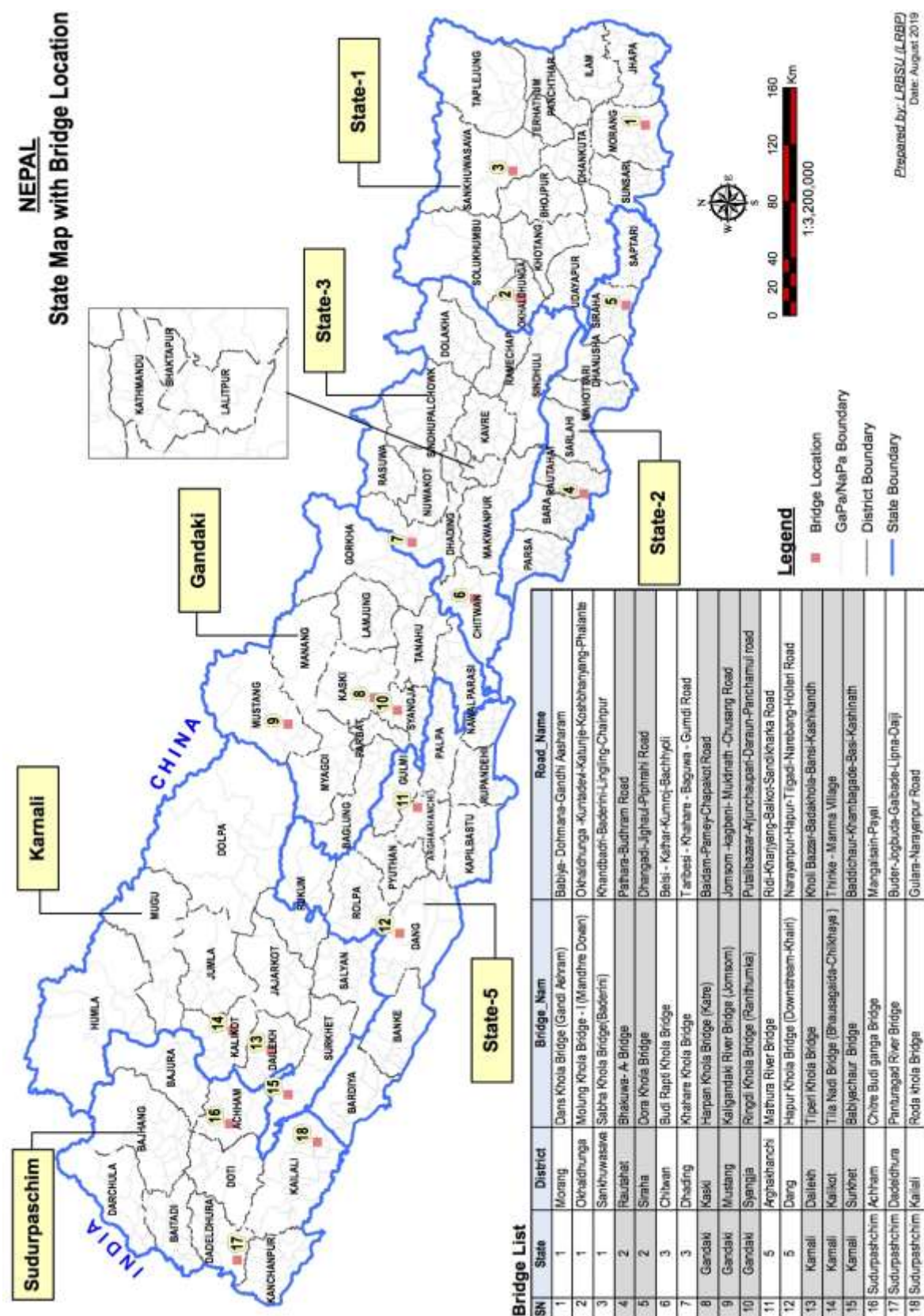
State	Repeated from Phase I Review	Others Completed in:		Control Group	Total
		Phase I	Phase II & III		
State 1	1		1	1	3
State 2		1		1	2
State 3	1	1			2
4 Gandaki	2		1		3
State 5	1	1			2
6 Karnali		1	1	1	3
7 Sudur Paschim	1		1	1	3
All Nepal	6	4	4	4	18

Source: External Review Team

Table 4.3: List of Bridge Sites selected for Detailed Survey & GESI Survey

		District	Bridge Name	Phase	Year Completed	GESI Survey
State 1						
	1	Morang	Daas Khola Bridge	Phase I Review	12/13	
	2	Sankuwasabha	Sabha-bardeni Khola Bridge	Phase III	17/18	YES
	3	Okhaldhunga	Molung Khola Bridge	Control Group	-	
State 2						
	4	Siraha	Dora Khola Bridge	Phase I	15/16	
	5	Rautahat	Bhakuwa Nadi Bridge A	Control Group	-	
State 3						
	6	Chitwan	Budi-rapti Khola Bridge	Phase I	15/16	YES
	7	Dhading	Kahare Khola Bridge	Phase I Review	12/13	
State 4 Gandaki						
	8	Kaski	Harpan Khola Bridge	Phase I Review	13/14	
	9	Syangja	Ringdi Khola Bridge	Phase I Review	13/14	
	10	Mustang	Kaligandaki Khola Bridge	Phase III	18/19	
State 5						
	11	Arghakhanchi	Mathura River Bridge	Phase I Review	12/13	
	12	Dang	Hapur Khola Bridge	Phase I	14/15	
State 6 Karnali						
	13	Dailekh	Lohore Bridge	Phase III	16/17	
	14	Surkhet	Babiyachaur Bridge	Phase I	15/16	
	15	Kalikot	Tila - Karnali nadi Bridge	Control Group	-	
State 7 Sudur Paschim						
	16	Kailali	Roda Khola Bridge	Phase I Review	13/14	
	17	Dadeldhura	Puntura Gad bridge	Phase II	15/16	YES
	18	Achham	Chitre Budiganga Bridge	Control Group	-	YES

Source: External Review Team



Note: Site 13 in Dailekh: Lohore Kh replaces Tiperi Kh shown on this Figure

Figure 4.1: 18 Bridge Sites selected for Detailed Survey & GESI Study

4.3 Surveys at Completed Bridges

The Main Survey Programme involved extensive household surveys undertaken in the Zone of Influence (Zoi) of each bridge site, using the same sampling framework as the earlier Base-Line Surveys (BLS). The intent was to ascertain the scale and extent of change in household travel patterns as a result of the bridge construction. Additionally, Settlement Surveys involving key informants and focus group meetings were held in local communities to assemble data on services and facilities available and the extent of change following the bridge construction. Transport Operators, providing bus and truck services using the bridge, were interviewed in order to obtain information on changes to service frequencies and costs resulting from the bridge construction.

Most importantly, a series of Classified Traffic Counts were undertaken for 12 hours on each of 3 days at each site, including counts of pedestrians and students. The earlier Phase I External Review had recommended that traffic counts provided the simplest and most reliable indicator of the 'worth' or validity of bridge construction, as any additional or new trip made was clear evidence of an additional demand being satisfied.

Copies of the Household Survey, Settlement and Key Informant Questionnaires and Traffic Count Forms were included in the Inception Report.

4.4 Household Survey

The household surveys revealed significant savings in both time and cost of trips made by households in the catchment area of the bridge – as a result of the improved accessibility and transport services available. The survey questionnaire requested information from each household regarding the situation both before and after the construction of the bridge.

Table 4.4: Duration and Cost of Trip to Regular Destination before & after bridge construction

	Bridge name	District	Time (mins)		Benefit	Cost (Rs)		Benefit
			before	after		before	after	
1	Daas Khola Bridge	Morang	55	48	11%	343	187	45%
2	Sabha-bardeni Khola	Sankuwa'bha	13	10	28%	34	31	8%
3	Dora Khola Bridge	Siraha	48	12	75%	69	28	59%
4	Budi-rapti Kh Bridge	Chitwan	14	8	44%	76	65	14%
5	Kahare Khola Bridge	Dhading	144	70	52%	289	170	41%
6	Harpan Khola Bridge	Kaski	60	46	24%	109	95	12%
7	Ringdi Khola Bridge	Syangja	73	68	7%	393	225	43%
8	Kaligandaki Kh Bridge	Mustang	305	303	1%	1082	1106	-2%
9	Mathura River Bridge	Arghakhanchi	30	24	21%	135	73	46%
10	Hapur Khola Bridge	Dang	17	13	22%	24	11	53%
11	Lohare Khola	Dailekh	95	41	57%	200	191	5%
12	Babiyachaur Bridge	Surkhet	23	22	6%	63	47	26%
13	Roda Khola Bridge	Kailali	18	12	36%	50	20	59%
14	Puntura Gad bridge	Dadeldhura	10	9	5%	30	23	22%
	Average of all Sites		65	49	24%	207	162	22%

Source: External Review Team

It can be seen (from Table 4.4) that typically, reductions of between 20-25% (and in some cases much more), in both time and cost, were recorded following the bridge construction for regular trips to work or market. The Kaligandaki Bridge in Jomosom is an exception as average trip lengths are substantial and were little effected by the bridge construction: the Dora Khola Bridge in Siraha, which was little used, shows substantial savings which cannot be readily explained.

Table 4.5 (below) shows the average time and cost savings – averaged for all the bridges – for travel to the nearest main road, regular destination and nearest main market. Similarly, time reductions of between 10 and 20% for trips to schools, markets, Palika offices, health centres and financial services were indicated.

Table 4.5: Average Savings (time & fare) from Bridge Construction (all sites)

	Before	After	Improvement
Time & Distance to Main Road:			
Distance (km) ¹	11.4	9.6	16%
Time (min)	79	47	41%
Time & Fare to Regular Destination:			
Time (min)	65	49	25%
Fare (Rs)	207	162	22%
Freight Cost to Market			
Freight Cost (Rs)	240	147	39%
Average Travel Time (mins) to:			
School	66	55	17%
Financial Inst	87	78	10%
Market	114	102	11%
Palika Office	73	69	5%
Health Facility	104	89	14%

Source: External Review Team

Most respondents indicated that public transport access had improved, reflecting an enhanced provision of bus services following the upgrading of the local road network and provision of all-weather access. Significantly also, transport costs were perceived to have reduced, again reflecting improved levels of access which permitted the operation of buses, mini-trucks and pick-ups in place of tractors and tractor-trailers.

4.5 Household Characteristics

Overall household expenditure in the vicinity of the bridges was reported to have increased by 58% in the years following construction, from around Rs 220,000 (USD 2,000) per year to Rs 350,000 (USD 3,000). However, increases in expenditure on essential basic items (eg foodstuffs, clothing, fuel, agricultural inputs, etc) was significantly lower – at around 42% –

¹ Distance savings occur when new route via bridge is shorter

whilst expenditure on 'optional' items (eg education, health, transport, alcohol, electricity, entertainment, etc) increased at a greater rate (60-70%). These changes can be interpreted as an indication of the availability of additional (surplus) disposable income and an overall improvement in the standard of living of those living within the vicinity of the bridges. It may be assumed that at least part of this improvement is as a result of the increased levels of accessibility.

An analysis of the reported price of agricultural land (both Khet & Bari: irrigated & upland) in the vicinity of the bridges revealed that the price approximately doubled following bridge construction. Again, part of this increase may be attributable to the improved accessibility, however many other factors may also be present, including an overall increase in the price of land in the intervening years. Similarly, the reported prices of agricultural produce (rice, maize, millet, wheat, mustard & pulses) in the vicinity of the bridges was found to have increased by around 40% on average following the completion of the bridges.

4.6 Traffic Surveys

A summary of the daily traffic counts undertaken at the 14 completed bridge sites is given in Table 4.6 below: the volumes are the average daily flow recorded over 3 days, from 0600 to 1800 hrs, in September 2019. The total number of Motorised Vehicles (MV) ranged from less than 50 to 1500 per day, with the highest volume recorded at the Kaligandaki Bridge in Jomosom, which is effectively part of the SRN accessing both upper Mustang and Muktinath, with significant associated tourist traffic. Motorcycles dominated the flow at many of the sites (especially in the Terai) and only five of the bridges had a daily volume in excess of 50 4-wheel vehicles per day.

Table 4.6: Classified Traffic Volumes recorded at 14 Bridge Sites (Sept 2019)

	Bridge name	District	Trucks	Buses	Cars, Jeeps, Utilities	M/cycles	Other	Total MV
1	Daas Khola Bridge	Morang	11	6	16	554	58	645
2	Sabha-bardeni Kh Bridge	Sankuwa'bha	0	0	48	63	9	120
3	Dora Khola Bridge	Siraha	2	4	7	44	17	74
4	Budi-rapti Khola Bridge	Chitwan	6	8	9	198	9	230
5	Kahare Khola Bridge	Dhading	14	3	11	77	9	114
6	Harpan Khola Bridge	Kaski	10	19	22	96	23	169
7	Ringdi Khola Bridge	Syangja	0	32	8	56	22	117
8	Kaligandaki Khola Bridge	Mustang	41	356	704	314	86	1500
9	Mathura River Bridge	Arghakhanchi	0	31	45	134	8	218
10	Hapur Khola Bridge	Dang	15	99	20	89	142	364
11	Lohare Khola	Dailekh	2	9	10	7	7	34
12	Babiyachaur Bridge	Surkhet	9	50	19	90	22	190
13	Roda Khola Bridge	Kailali	2	22	16	483	112	635
14	Puntura Gad bridge	Dadeldhura	22	83	38	118	96	357

Source: External Review Team

Apart from the Kaligandaki Bridge, the highest volumes were recorded in the Terai (or Inner Terai) at Daas Khola, Roda Khola, Budj-Rapti Khola, Hapur Khola and Puntara Gad Bridge: these sites also experienced substantial flows of motor-cycles and pedal-cycles. The lowest volumes (less than 20 4-wheel vehicles per day) were recorded at Dora Khola (Siraha), which is in a very undeveloped area of the Terai, and Lohare Khola (Dailekh) which is a recently completed bridge in a remote area.

The following table (Table 4.7) presents the comparable Base Line Survey (BLS) and previous External Review (2015) count data, together with the implied annual growth rates to 2019. The results (with two exceptions) show a consistent and substantial growth in traffic volumes over both the baseline figures and the 2015 count figures (where available). This is a clear indication of increased activity and mobility in the areas served by the bridges.

Table 4.7: Annual Traffic Growth Rates at Survey Sites from BLS and 2015 Review

	Bridge name	District	2019	Ext Review 2015		BLS (2012-15)	
			Total MV	MV	Growth %pa	MV	Growth %pa
1	Daas Khola Bridge	Morang	645	470	8.2%	20	64.3%
2	Sabha-bardeni Kh Bridge	Sankuwa'bha	120			25	36.8%
3	Dora Khola Bridge	Siraha	74			204	-15.6%
4	Budi-rapti Khola Bridge	Chitwan	230			12	80.5%
5	Kahare Khola Bridge	Dhading	114	44	26.9%	10	41.6%
6	Harpan Khola Bridge	Kaski	169	60	29.5%	15	41.3%
7	Ringdi Khola Bridge	Syangja	117	124	-1.4% ²	10	50.7%
8	Kaligandaki Khola Bridge	Mustang	1500			30	91.9%
9	Mathura River Bridge	Arghakhanchi	218	121	15.9%	15	46.6%
10	Hapur Khola Bridge	Dang	364			116	25.7%
11	Lohare Khola	Dailekh	34			18	11.3%
12	Babiyachaur Bridge	Surkhet	190			42	45.9%
13	Roda Khola Bridge	Kailali	635	298	20.8%	8	86.8%
14	Puntura Gad bridge	Dadeldhura	357			53	46.4%

Source: External Review Team

The previous External Review recommended that recorded traffic volumes provided the best 'proxy' for the overall impact of the bridge programme: of the 14 bridges surveyed, 12 recorded annual traffic growth in the range 20-80% pa above the Baseline Surveys and 5 of the 6 sites resurveyed from 2015 showed growth of between 10 and 30% pa in the past 4 years. These results provide a strong justification of the success of the programme.

The exceptionally high annual growth rates – especially from the BLS – are a reflection of the low and unreliable initial (pre-opening) volumes and should be treated with caution.

² Ringdi Khola showed a decline due to an alternative route being opened

5 Outcome Monitoring Summaries

The ToR require that the Review ‘validates’ the results of the Outcome Monitoring Summaries (OMS) that have been undertaken. All of the bridges selected for survey have been subject of both Baseline Studies (BLS) and OMS.

5.1 Methodology

The OMS surveys examined the access to all weather roads, accessibility to health services and physical facilities, and changes in freight cost, traffic and freight volume as compared to the baseline data. These issues relate to Outcome 1 and data are measured against Indicators 1.2 to 1.6 as follows:

- **Outcome 1:** People in the programme districts will have improved access to services and opportunities:
 - **Indicator 1.2** Increase in the number of people having access to all weather road within 2 – 4 hrs walk;
 - **Indicator 1.3** Utilization of health services in local health facilities increased by 20%;
 - **Indicator 1.4** Average freight cost decreased by 25% as compared to the baseline data;
 - **Indicator 1.5** Traffic and freight volumes (Import & Export) increased by 50% as compared to baseline data;
 - **Indicator 1.6** Increase in number of public utilities.

It is clear from the survey evidence described in the previous sections that each of these indicators have in general been achieved at all of the bridge sites. The more detailed surveys undertaken as part of this Review have confirmed that the responses recorded during the OMS process accurately reflect the changes in each of the above indicators.

Specifically – and as recorded elsewhere – the observed growth in traffic volumes (Indicator 1.5) has significantly exceeded the target value and is considered to be the key indicator of the social and economic transformation brought about by the expansion of the all-weather road network.

5.2 Conclusions

The fourteen OMS examined have each concluded that the bridges concerned have had a positive impact in line with expectations and as measured by the five Indicators defined to assess Outcome 1: “that people in the programme districts will have improved access to services and opportunities”.

Unsurprisingly, a large percentage of those interviewed expressed a positive reaction to the bridges, with high levels of usage reported. Overall the positive results and responses to bridge construction as reported in the OMS are borne out in the surveys conducted in this Review.

Surprisingly the OMS does not include a direct measure of the traffic using the bridges, although Indicator 1.5 refers to traffic and freight volumes. The volume of traffic using the bridge on completion is probably the single most readily identifiable and quantifiable indicator of the overall impact and should be explicitly included in the outcome assessment. The project is concerned with the construction of local motorable bridges and the enhancement of all-weather access: thus a measure of the increase in motorised traffic – throughout the year – is a key parameter.

6 Institutional Assessment

6.1 Previous Situation

Historically, the responsibility for the design, construction and maintenance of Local Road Bridges had been unclear, with conflicting involvements of both local and central agencies and funding from various sources. The Department of Roads (DoR) had, de facto, assumed the primary role, based on their historic involvement and capacity (relative to DoLIDAR & the DDCs) to undertake the work. However, the expansion of the Local Road Network (LRN) over the previous decade had led to the demand for – and construction of – a large number of local road bridges and the consequent involvement of other agencies, including specifically the local Districts and various rural access and transport development projects.

However, a decision was taken, in 2015, between the then MoFALD and MoPIT, that the responsibility for ALL local roads and bridges would be transferred to DoLIDAR and the respective DDC. In this context 'local roads' included all roads (except municipal roads) that did NOT form part of the designated and approved Strategic Road Network (SRN). Any bridges then under construction, or for which contracts had been signed, would remain with the DoR and would be transferred to the respective DDC on completion.

This situation has subsequently been overtaken by the changes associated with the adoption of a Federal system of Government and the establishment of seven autonomous Provinces, which have each been clearly assigned with the authority to own, implement and manage all non-Strategic Roads within their area.

6.2 Context & Current Status

Lack of all weather roads has been a serious constraint for economic and social development of Nepal. It leads to huge economic costs which include the cost of travel, access to health and educational facilities, and of commodities. In order to address this problem, the Government of Nepal (GoN) has attached priority to improving the local roads by building bridges. In this context, upon the request of the GoN, the Government of Switzerland has agreed to provide a Technical Assistance (TA) through SDC to support the implementation of Local Roads Bridge Program (LRBP). In this context, three bilateral agreements have been signed in March 2011, May 2013 and January 2017 for different phases of the Program between the Governments of Switzerland and Nepal. The present phase (Third Phase) has the duration of 3 years and 6 months and will end on 31st July 2020. This external review is being conducted to assess progress and performance of the institutions and stakeholders involved in the Programme.

When the bilateral agreement for the present phase was signed in January 2017, the previously constituted DDCs and DTOs were still functional, even though the new federal constitution had been promulgated in 2015. Since no elections had been held – and no administrations had been established – at the Federal, Provincial or Palika levels, the Programme continued to be implemented through DDC/DTOs. When the elections at all three levels were held and democratically elected governments were in place, the restructuring of federal, provincial and local levels was carried out.

The DTOs were restructured and re-designated as Infrastructure Development Offices (IDOs) and brought under the provincial governments. Thus, the Programme, through the decision of the Joint Steering Committee dated 3rd August 2018, was anchored at Provincial level. It is noted also that the Constitution has clearly divided and allocated the functions regarding the road networks to the three different governments through the exclusive and concurrent functions laid down in the constitution. The function of National Highways and Feeder Roads is the responsibility of Federal Government, Provincial Roads are the responsibility of Provincial Government and local roads are the responsibility of local Palikas.

Thus, the current implementation modality of the Programme is as follows: the executive agency at the federal level is Ministry of Federal Affairs and General Administration, Department of Local Infrastructure (MoFAGA/DoLI) and implementing agencies at provincial level are the seven provinces through their Ministry of Physical Infrastructure Development (MoPID) and their Transport Infrastructure Directorate (TID) and Infrastructure Development Offices (IDOs). The Steering Committee (SC), headed by the Secretary of MoFAGA at the federal level, is responsible for making decisions related to policy issues.

6.3 Review of Government Agencies

The Review Team held a number of meetings with the relevant government agencies, including MoFAGA/DoLI at the federal level and MoPID/TID in five selected provinces. The provinces were selected to identify their role and involvement – and level of preparedness – in regard to local road bridges, as well as assessing the respective capabilities of each agency.

At the Federal Level two meetings were held with MoFAGA/DoLI: at both the meetings, the review team raised a number of issues, including those related with Outcome 2 and the associated Outputs of the Log Frame. It was noted that stipulated Outcome and Outputs had not been met. The reason given by DoLI was that, since their roles and responsibilities had been restructured, it was very difficult for DoLI to achieve the expected outputs. Further, the issue of bridges directly implemented by DoLI at the federal level was raised as these bridges now fall on roads under the jurisdiction of Provinces and Palikas. The Review Team also raised the issue of the 'conditional grant' for bridges constructed by the Provinces being channelled through DoLI. On the issue of centrally implemented bridges, DoLI was of the view that, after completing backlog bridges, it would build only 'signature' bridges - ie those bridges with technical challenges. On the issue of conditional grant, DoLI clearly indicated that it was in favour of the conditional grant being directly passed to provinces. Overall, DoLI expressed satisfaction in regard to the physical progress achieved by the Programme.

At the Provincial Level, meetings were held with the the Secretary MoPID and other key representatives in five Provinces: Province 1 (Biratnagar), Province 2 (Janakpur), Province 5 (Butwal), Gandaki Province (Pokhara) and Sudur Pashchim Province (Dhangadhi). Site visits to selected bridges were also undertaken.

A broad range of issues were discussed relating to the implementation of the LRBP, including the development of the Provincial Transport Master Plan (PTMP) and the designation of the Provincial Road Network (PRN), which should form the basis for the selection of bridges to be included in the programme, with the objective of providing all-weather road access to all major settlements within each Province. The Provinces were all aware of the requirement to produce a PTMP – and to define a PRN – and were in the process of enacting the necessary legislation and Roads Act to implement this.

A number of the Provinces highlighted the issue of delays experienced in obtaining approval and verification from the LRBP TA Team of bridge designs prepared by private sector

consultants appointed by the IDOs. An associated issue was the poor quality of the designs prepared by the consultants and it was suggested that this problem could be resolved by placing the consultants under the direction of the TA Team from the outset – as was successfully practiced in Province 5.

The potential benefits from the introduction of new design techniques was also explored with the objective of simplifying and accelerating the overall process. Similarly, the adoption of a 'design-and-build' approach to contracting was suggested as a means to strengthen the contracting industry and speed construction.

Overall most Provinces expressed satisfaction with the progress of the programme and were keen to select and prioritise local road bridges for implementation as part of their overall development programme and business plan. However, Sudur Pashchim Province expressed dissatisfaction in that the TA support was only provided remotely from Nepalgunj.

Based on the meetings with stakeholders, the following conclusions and recommendations can be made:

- Provincial Road Sector needs to be further legalized and formalized uniformly throughout the country;
- The TA team is short staffed and considering the volume of work and priority of the Provinces, it needs to be addressed accordingly;
- Regarding the quality control in the survey, design, construction/supervision of the bridges, the private sector consultants need to be brought under the direct supervision of LRBSU and provision of labs be provided at different locations;
- The new 'Limit State' design method needs to be further encouraged; and
- The concept of "Design and Build" needs to be further strengthened.

This will eventually address the short staffing of LRBSU and at the same time it will enhance the transfer of technical know-how.

6.4 Overall Institutional Conclusions

The adoption of a Federal Government Structure has necessitated revisions to the project administration. At the start of Phase III, LRBP was administered through DoLIDAR and the respective DDCs/DTOs. However, following the Steering Committee decision, the project is now 'anchored' at the Provincial level within each of the seven Provincial Ministries of Physical Infrastructure Development (MoPID) and is administered through the Infrastructure Development Offices (IDOs) of their Transport Infrastructure Directorate (TID). Technical support to the Provincial IDO/TID is provided through a series of State Bridge Coordination Units (SBCU) established by LRBSU in each Province. The Review concluded that the transfer of responsibilities had been satisfactorily accomplished and that, with minor adjustments, the new structure well positioned to implement the programme.

The project was previously administered 'nationally' through DoLIDAR and MoFALD. The role of DoLIDAR (DoLI) is now reduced with the Provinces assuming primary responsibility for the execution of the programme. DoLI however retains a function in regard to establishing norms and standards and overall technical oversight of the programme.

The new government structures have resulted in significant changes to the overall responsibility for – and organisation of – the road network. The Strategic Road Network (National Highways & Feeder Roads) remains the responsibility of Federal Government and the Department of Roads (DoR) but all other roads become the responsibility of either the

Provinces or Palikas (the latter for roads of local significance only). Each Province is required to define a PRN (Provincial Road Network) comprising the key roads linking all areas and settlements, including both major and minor road categories. Selection and prioritisation of bridges should be determined by the Province – with the objective of creating an all-weather road network – and not on the basis of individual bridges considered in isolation: the function and location of the bridge within the overall Provincial Road Network should be the primary consideration in bridge selection.

In summary, it is recommended that LRBP is administered at the Province level with the establishment, in each Province, of a Provincial Steering Committee under the Minister of Physical Infrastructure Development. The Steering Committee would be responsible for the preparation of the overall plan and budget for the programme - including planning, bridge selection and prioritisation - which would be executed through the provincial MoPID, TID and IDO. Conditional Grants from Federal Government should go to Provinces directly.

7 Economic Evaluation

7.1 Introduction

The objective of this evaluation is to assess the economic impact of the transport cost and value of travel time savings, based on a comparison of the costs and benefits in the 'without project situation' (before construction) with the 'with project situation' (after construction). This Chapter summarises the methodology and results of the evaluation: further details are provided in the Annex.

The costs include the construction and maintenance costs and the benefits are the savings to road users – ie savings in vehicle operating costs (VOCs) and value of travel time saved. The Roads Economic Decision model (RED) was used to estimate Vehicle Operating Costs (VOCs) and travel time of vehicles: RED is a derivative of the Highway Design and Maintenance Model (HDM4) and was developed for use on lower volume roads. It has been calibrated to Nepali conditions.

The economic analyses were carried out with a twenty year timeframe. Annual costs and benefit streams were converted to represent 2019 values using a social discount rate of 9% per annum. Three indicators of economic viability have been calculated and used to test the viability of the bridge construction, namely: Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR).

7.2 Methodology

The methodology used for the economic analysis is the conventional appraisal methodology used for estimating economic returns of construction of roads and bridges. The road user costs in 'without project situation' are compared with the road user costs together bridge constructions and maintenance costs in 'with project situation'. The net cost savings are the benefits of the bridge construction used for the Economic Analysis.

The transport costs are represented by the vehicle operating costs (VOCs) of the motorised vehicles used for transportation of goods and people in the 'without project situation' and 'with project situation'. The value of travel time of people is represented by the value of travel time of passenger vehicles according to their passenger carrying capacity in the 'without project situation' and 'with project situation'. Reductions in the prices of consumer goods are not considered to avoid double counting. Reductions in the prices are considered to be a consequence of reduced VOCs.

Costs and values are expressed in economic terms. The economic costs are the financial costs net of all duties, taxes and subsidies. A Standard Conversion Factor (SCF) of 0.9 is applied on financial costs to eliminate all the duties, taxes and subsidies for deriving economic costs from financial costs. All costs are valued as of October 2019, and expressed in economic prices. The projects are evaluated over a 20-year life and with a discount rate of 9 percent. A construction period of 2 years is assumed. Two indicators of economic viability are calculated: Net Present Value (NPV) and Internal Rate of Return (IRR).

7.3 Traffic

Forecast traffic volumes were based on the classified vehicle counts were carried out during the survey programme. The recorded volumes were adjusted by an annual correction factor of 1.14 to obtain annual average daily traffic (AADT). Separate estimates were made of base, generated and diverted traffic. The 'base' traffic comprises that proportion of the current traffic accounted for by the natural growth of the previous (pre-bridge construction) traffic: the additional traffic above this level is comprised of either diverted or generated traffic. The diverted traffic is that which now uses the bridge in preference to an alternative route (presumably as it is shorter or quicker) and the generated traffic results from 'new' trips that are now made as a result of the bridge being built and providing increased or improved travel options.

It is clear that construction of the bridges has had a significant impact on traffic levels, with substantially increased traffic volumes. The increases are comprised of either diverted or generated traffic. In the case of Daas Khola and Roda Khola, in the Terai, vehicles were using alternative routes before construction but, after the bridge was built, traffic (between the same origins and destinations) was found to divert to use the bridges. In the case of Mathura, Babiychaur, Kahare, Ringdi, and Harpur Bridges, traffic was previously able to cross during the dry season and was only disrupted intermittently during the rainy season, when traffic was delayed until the water level dropped, which could be a matter of hours or days. Following construction of the bridges, traffic was no longer delayed and additional trips were also generated.

In the remaining seven bridges motorised vehicles were generally crossing the rivers only during the dry season before the bridge was built and were unable to cross due to high water levels during the rainy season, although pedestrians could use alternative suspension bridges or temporary wooden bridges. The bridge construction allowed all-season travel and eliminated waiting times for vehicles, transshipment costs and delays, and reduced travel times of pedestrians. Hence, differences between the traffic levels before and after the constructions of the bridges were assumed to be diverted traffic in two cases and generated traffic in the remaining cases.

7.4 Project Costs

The following table (Table 7.1) presents the calculated economic construction costs of the 14 selected bridges. To account for the value of the project remaining at the end of the evaluation period, a negative cost was included equivalent to the remaining unused portion of the project's life (i.e. its residual value). A weighted life of 50 years has been used for the project as a whole.

The vehicle operating costs (VOCs) were calculated using the RED model, which is based on HDM-4 and calibrated to Nepali conditions. The RED model calculates VOCs based on input data comprising the price of vehicles, tyres, fuel and oil, costs of crew members and maintenance labour, and characteristics of the project road.

Additional benefits were calculated based on time savings to road users and the associated value of travel time (VoT). Details are provided in the Annex.

Table 7.!: Financial and Economic Costs of Selected Bridges

	Name of Bridge	Financial Cost	Economic Cost
		(NRs. million)	(NRs. million)
1	Daas Khola Bridge	97.67	87.90
2	Sabha-bardeni Khola Bridge	40.63	36.57
3	Dora Khola Bridge	19.88	17.89
4	Budi-rapti Khola Bridge	103.21	92.89
5	Kahare Khola Bridge	16.78	15.10
6	Harpan Khola Bridge	14.54	13.09
7	Ringdi Khola Bridge	36.96	33.27
8	Kaligandaki Khola Bridge	56.65	50.98
9	Mathura River Bridge	30.91	27.82
10	Hapur Khola Bridge	27.02	24.32
11	Lohore Bridge	34.71	31.24
12	Babiyachaur Bridge	32.03	28.83
13	Roda Khola Bridge	16.31	14.68
14	Puntura Gad bridge	110.52	99.46

Source: LRBSU & Review Team Calculations

7.5 Project Benefits

Benefits from construction of the project bridges are realised from the savings in users' costs. These savings are either in the form of reductions in VOCs and travel time through the diversion of traffic from previously longer routes or savings in waiting times for crossing the river during periods of high flow which are eliminated after construction of the bridge. To calculate the user costs savings, the Annual Average Daily Traffic (AADTs) before and after the project were estimated from vehicle counts undertaken for this Review.

The comparisons show a clear picture of the impact of bridge construction on traffic levels. In general, significant increases in traffic volumes have been observed: these comprise both diverted and generated traffic as a result of the bridge construction. In the case of the Terai bridges traffic has generally diverted from other alternative routes, whereas in those locations which were closed throughout the rainy season, traffic was suppressed and alternative means of travel (eg foot, mule or porter) adopted. In the remaining locations, traffic was assumed to wait during periods of high water levels until the river became passable – which could have been a matter of hours or days. As a result, the differences in traffic levels between the 'before' and 'after' situations were assumed to have resulted from either diverted traffic (in the case of Terai bridges) or generated traffic in respect of the others.

7.6 Economic Evaluation

The results of economic evaluation are set out in the following table (Table 7.2). The results show economic internal rates of return (EIRR) of constructions of each of the 14 bridges to be substantially above the 9 percent threshold rate that is currently used by development banks to justify investments. The net present values (NPV) obtained using the 9 percent discount rate are positive. These results show that implementation of the project bridges are highly feasible, whilst being extremely sensitive to both passenger traffic volumes and levels of generated traffic.

Table 7.2: Economic Evaluation Results (NPV & EIRR)

	Name of Bridge	NPV (NRs million)	EIRR %
1	Daas Khola Bridge	173.26	24.4
2	Sabha-bardeni Khola Bridge	519.61	66.1
3	Dora Khola Bridge	122.75	49.1
4	Budi-rapti Khola Bridge	355.14	35.8
5	Kahare Khola Bridge	300.18	88.7
6	Harpan Khola Bridge	341.60	97.2
7	Ringdi Khola Bridge	418.17	62.4
8	Kaligandaki Khola Bridge	210.41	32.6
9	Mathura River Bridge	43.30	20.6
10	Hapur Khola Bridge	469.05	81.8
11	Lohore Khola Bridge	112.70	30.9
12	Babiyachaur Khola Bridge	119.88	33.9
13	Roda Khola Bridge	205.75	86.6
14	Puntura Gad bridge	745.30	45.8

Source: External Review Team

The economic evaluations are based on a comparison of the situation before the intervention ('without project') and after the investment ('with project') with costs and benefits projected into future years. The bridges have been considered together with the full length of the associated access road for the purposes of the economic evaluation.

In many cases, the rivers or streams crossed by the bridges used to become impassable for vehicles due to rise in water levels during the rainy season. The waiting time until the water levels reduced to enable vehicles to cross varied from hours to days. The total days of such closures in a year for individual rivers were obtained from the Settlement Surveys and ranged between 25 and 90 days. For economic evaluations, the vehicle waiting time in all cases of closure were assumed to be an average of 8 hours per day.

For the Terai bridges (Daas Khola, Budi-Rapti and Roda Khola), the economic benefits from the bridge construction were derived from the values of savings of VOCs and travel times of vehicles diverting from longer routes to shorter routes using the new bridges. In remaining bridges, benefits were derived from the savings in waiting time of the traffic on the approach roads during closures, which were eliminated after the construction of the bridges, plus additional benefits from generated traffic resulting from the improved accessibility and connectivity.

The results of economic evaluation are set out in Table 7.2 and show that the economic internal rates of return (EIRR) of construction of six of the bridges are above the 9 percent threshold rate that is often used by development banks to justify investments. The net present values (NPV) obtained using the 9 percent discount rate are positive and the Benefit Cost Ratios (BCR) are also above 1. The rates of return of the remaining 5 bridges are below the 12 percent threshold rate: their NPVs are negative and the BCRs are below 1. These results indicate that implementation of the project bridges is highly sensitive to traffic levels and to the extent of generated traffic.

7.7 Conclusion

Economic benefits resulting from the bridge construction at the 14 surveyed sites have been calculated based on reduced travel times or reduced delays – plus generated traffic. Different locations have required different approaches depending on the nature of the increased traffic flows and whether the increased traffic was due to either diversion or generation. Significant economic returns have been calculated with EIRRs in the range from 20% to 80%+. These high rates are due to the relatively large benefits (from substantial lengths of newly all-weather road) being attributed to relatively small investment cost (at a single location - ie the bridge). Thus a well-selected investment in bridge construction can 'leverage' substantial benefits over a wide area.

In conclusion, credible benefits are achievable – even with basic traffic volumes – given a key location on the Provincial Road Network. Construction of a strategically located bridge can potentially 'unlock' very substantial benefits. Resultant traffic volumes provide a very effective proxy for the economic benefit .. or good indicator of the worth of the project.

8 Gender Equality & Social Inclusion (GESI) Analysis

8.1 Approach

A separate and independent in-depth study to assess the Gender Equality and Social Inclusion (GESI) aspects of the project was undertaken at four of the bridge sites. The study focussed specifically on both workforce diversity (WFD), in terms of the participation of women in the workforce, and issues relating to equal-pay-for-equal-work. Specific issues addressed included: pay rates; job opportunities; hours of work; and cultural practices.

A series of in-depth studies were undertaken in settlements within the zone of influence of the four selected bridge sites (including one under-construction site) to assess the overall impact of the bridges both during the construction phase and subsequently when 'in use'. Specific emphasis was placed on gender issues and on the impact on disadvantaged groups among the local populations. Interviewers were 'embedded' within the community to ensure fully representative information was obtained. During the immersion process within the local community, group discussion sessions were held to address community issues relating to the bridge and to the changes brought about by the increased mobility and accessibility.

A specific, more detailed, report on the GESI Study has been prepared and is submitted separately.

8.2 Findings

From the studies conducted at the four sites it was concluded that little (or no) SKILLED work was offered to the local population: only unskilled labouring work was offered. There was no evidence of any training or skill transfer offered to the workforce and the Public Hearings and Audit proceedings were ineffective. Similarly, where a Local Users Committee was established (1 site only), the local leadership was ineffective in influencing decision making, although it was observed that local politicians were able to exert influence in regard to decisions relating to the bridge construction. Safety and security standards at the work sites were inconsistent.

In relation to pay rates and gender equality, the study concluded that equal pay rates for equal work were applied to both men and women at two of the sites studied but differed at the other two. However, women were generally paid less with differences reflecting the shorter hours worked (resulting from domestic obligations), cultural practice and norms, and reduced work opportunities deemed appropriate for women. Many activities (especially skilled jobs) are not considered to be available to women – eg drivers, excavator operator, trades-people, Mistri, supervisors, etc. As a result, women's work was generally restricted to unskilled manual labour – portering, stone-breaking, etc.

In regard to the overall community Impact from the GESI perspective, the increased connectivity brought about by the expansion of the all-weather road network has benefitted ALL sectors of society, through improved access to schools, health services and other social services. The expansion of bus and other public transport services has especially benefitted the poor, women and children. However, it is generally men - and the better off members of society who have access to motorcycles – that are better able to benefit from the expanded road network. Growth in travel and trip making was greatest where no alternative route

previously existed. The overall benefit from the bridge construction is however restricted by overall condition of remainder of the road due to perceived accident risk, especially in rainy season.

The GESI Study concluded that, whilst there are many changes taking place in rural Nepal, the expansion of the rural road network has specifically increased mobility and improved access to goods and services for all sectors of society. Furthermore, it has contributed towards reducing vulnerability - especially for the young and old - but problem of safer roads still exists, especially in the rainy season.

The opportunity for the local population to gain employment and participate in construction work in the programme had an insignificant impact and few economic benefits were identified: most work on the project - both skilled and unskilled - went to non-locals. Unsurprisingly, men were over-represented in workforce - all skilled jobs went to men and women were restricted to unskilled manual labour.

9 Findings & Recommendations

This section summarises the key findings of the Phase III External Review (2017-2019) of the Motorable Local Road Bridge Programme (MLRBP). The success and performance of the Programme can be measured against the achievement of the two Outcomes and their associated Outputs, which may – in turn – be assessed against a series of Verifiable Targets. The Main Goal and Outcomes remain unchanged from project inception in 2011, although the associated Outputs and Targets were revised at the outset of Phase III³.

9.1 Main Goal and Outcomes

The Main Goal of the MLRBP was established that ‘People in the districts have improved livelihoods’. It was proposed that this goal be achieved through Two Outcomes, the first related to “access” issues and the second to “institutional capacity”.

- Outcome 1: People have improved access to services & opportunities; and
- Outcome 2: National & local institutions adopt appropriate local road bridge strategy

There are three Outputs associated with Outcome 1 (ACCESS). These are:

- (i) that people have more all-weather roads;
- (ii) that disadvantaged groups get employment in bridge works; and
- (iii) that disadvantaged groups are involved in decision making.

In regard to (i) all the Verifiable Targets were achieved in terms of the numbers of bridges built, lengths of additional all-weather road, and numbers of people having improved access. In regard to (ii) the target for number of days work created was met BUT there was no evidence that locals were employed and the target percentage of women in the workforce was not achieved. There was insufficient evidence to conclude whether Output (iii) – involvement in decision making – was achieved.

Similarly, there are three Outputs associated with Outcome 2 (INSTITUTIONAL CAPACITY). These relate to the strengthening of

- (i) the Local Bridge Section in DoLIDAR (DoLI)⁴;
- (ii) the Local Bridge Sections in the DDCs/DTOs (IDO/TID); and
- (iii) the Private Sector (contractors, consultants & educational institutes).

Output (i) is related to the ‘higher level’ institutions and whilst there has been limited success in achieving the verifiable targets there is good cause for optimism in relation to the opportunity to develop the bridge building skills and activities at the Provincial level. Output (ii) is concerned with strengthening at the grass-roots level: the training targets were met and there is considerable potential to develop skills in a decentralised environment. The private sector - Output (iii) – offers potential but significant improvements are required, especially in the area of contracting.

³ Programme Document, MLRBP Phase III (2017-2020), 26th January 2017

⁴ Following the Government restructuring, the functions of DoLIDAR are taken over by DoLI – and those of DDC/DTO by the Provincial MoPID and TID/IDO

The reorganisation of government on Federal lines has resulted in a significant realignment of local road bridge programme. The centre (previously DoLIDAR, now DoLI) has a reduced role and the programme will now be administered through the seven Provincial Ministries of Physical Infrastructure Development (MoPID), with their IDO/TID⁵ replacing the previous role of the DDC/DTO.

It is recognised that considerable further training and strengthening will be required at the Provincial (MoPID) and IDO/TID levels, as many of the provincial bodies are having to build their capacity and capability from a low level.

Overall, the physical bridge building and network expansion targets have been mostly met, whilst there has been a mixed response in regard to the institutional capacity and social objectives.

9.2 Key Issues

The ToR has defined six key issues in regard to the overall assessment of the programme:

- Relevance;
- Effectiveness;
- Efficiency;
- Impact & Sustainability;
- Coordination; and
- Gender & Social Inclusion.

These are considered and summarised below:

Relevance:	(i) the Programme has successfully transitioned from a 'Centre & District' structure to a provincially-based system; and (ii) the provision of additional all-weather roads has allowed increased mobility and accessibility among the local populations, coupled with greater access to health and education
Effectiveness:	(i) all major outcome targets have been achieved; (ii) significant growth in traffic volumes is evidence of improved accessibility and mobility; and (iii) the construction of motorable bridges on the local road network has resulted in sustained traffic growth - and expanded public transport operations
Efficiency:	(i) significant economic benefits can be demonstrated with relatively low-cost interventions; (ii) targeted interventions (bridges) provide wider 'network' benefits; and (iii) journey times & costs to school, market, health centres, etc are all substantially reduced.
Impact & Sustainability:	(i) road network improvements (& associated bus services) provide greater accessibility to health, education, markets, etc; and (ii) increased accessibility stimulates growth in the local economy to the benefit of all.

⁵ Infrastructure Development Office/Transport Infrastructure Directorate

Coordination	(i) programme restructuring at a Provincial level supports the government federalisation initiatives; and (ii) clarity of road & bridge 'ownership' at Provincial level removes duplication and interference.
Gender & Social Inclusion	(i) limited opportunities for locals to work on project; (ii) women offered only unskilled manual work in a male dominated workforce; and (iii) improved accessibility (& bus services) benefitted all sectors of community – but men gained most.

9.3 Lessons Learned & Implications for Next Phase

During Phase III the organization and management of the Local Roads Bridge Programme has been 'transitioned' from a 'Centre & District' programme to a provincially-based structure. This process has been achieved relatively smoothly and successfully, although additional training and strengthening will be required at the Provincial level. Decision making is now concentrated at the Provincial level – rather than being divided between the centre and the Districts – and this should ensure that better and more rational decisions are made, with the opportunity specifically to select and prioritise bridges on the Provincial Road Network that will improve overall all-weather accessibility throughout each Province.

It is a measure of the successful establishment of the LRBP that the on-going programme of bridge construction was maintained throughout the administrative changes, with continuing benefits being obtained from the associated extensions to the all-weather road network. It is clear however that there will be a requirement for additional staff and training to maintain and to expand the programme.

It is considered that the focus in the earlier Phases of the programme on the provision of employment for disadvantaged members of the local community - and of women in the workforce - may no longer be relevant, due primarily to the use of contractors for construction (rather than Users Committees). Alternative means of involving the local communities should be considered: it is however not disputed that ALL sectors of the local communities benefit from the improved accessibility and mobility afforded by the bridge construction.

Any subsequent phase should focus on - and continue to support and strengthen - the federal system through interventions and strengthening at the Provincial level. There is an opportunity to ensure that the bridge selection process is soundly based on technical evaluations and within provincial priorities. Additionally, technical support and the potential adoption of new innovative design approaches can be introduced within the Provinces.