

Research Article

Practice of Joint Venture in Local Road Bridge Construction in Nepal

Smita Sharma Singh¹, Resham Jung Singh², Tulika Jha³

¹Engineer, Government of Nepal, Second Class Officer, Nepal.

²Director, Nepal Water for Health, Nepal.

³Law Manager, Dejure Law Firm, Kathmandu, Nepal.

I N F O

Corresponding Author:

Tulika Jha, Law Manager, Dejure Law Firm, Kathmandu, Nepal.

E-mail Id:

tulika.97@gmail.com

How to cite this article:

Singh SS, Singh RJ, Jha T. Practice of Joint Venture in Local Road Bridge Construction in Nepal. *J Adv Res Busi Law Tech Mgmt* 2022; 5(1): 16-25.

Date of Submission: 2022-04-08

Date of Acceptance: 2021-05-01

A B S T R A C T

The trend of forming Joint Venture (JV) to enter into the bidding procedure is high in local road bridge construction (LRBC) in Nepal. As we know that the construction industry is a complex industry, firms are facing new type of problem in every next project. In such unpredictable working environment to work jointly with different firms is a challenge. So, this study was carried out to analyze the practice and prospects of JV in LRBC in Nepal. The study covers the bridges which are built by DoLIDAR under different projects. Various data collection tools were used for the study. Primary data were collected from questionnaire survey, sample bridges of DoLIDAR, field observations and focus group discussion. Secondary data were collected from reports, journals of previous studies and trends of JV formation in international constructions.

It was found that contractors having experience of more than 10 years were involved in the construction of bridges. Major motivating factor for forming JV was experience, equipment and turnover required for the project. Most contractors understood that JV as something which is done only to fulfill the bidding requirements, while most of the clients defined JV as increasing capability by being liable jointly and severally. Joint Venturers do not contribute as per the agreement. Authorized partner pay a certain percentage to other partners of JV to get the authority for implementation. It was also found that JV partners do not make any detail agreement regarding the implementation and management of the project. In most cases bridges were constructed by the partner having least percentage share. The result of the sample bridges also concluded that the performance of the JV in which the authority was given to the lowest percentage share was found worse than those of lead partners. The limitation of number of partners' upto 3 by PPMO and minimum percentage as 25% and lead partner as 40% seems to be beneficial for construction of Local Road Bridges as well as all other construction sectors. Database system of active contractors was felt necessary.

Keywords: Motivating, Partners, Implementation, Liability, Bridges

Introduction

Performance of projects in Nepal is great concern of professionals in Nepal (Mishra AK, Bhandari S, Jha T, 2018). Despite of requirement of more than 6000 bridge (LRBP, 2010) there are only 1839 bridges in the country out of which 1709 are built by DoR (DoR, 2014) and 130 are built by DoLIDAR (LRBP, 2014). As DoR was the only responsible authority for the construction of bridges, the bridges of national importance and the bridges which lie on the strategic was the obvious priority of DoR. Construction of bridges of local importance was although felt important by the government but due to lack of responsible local authority, need of bridges in the local roads were not properly addressed. But now, when local bodies are made authorized for prioritization and selection of bridges, the request for bridge construction has evolved by multi folds and so is the budget for its construction. But due to limited number of bridges built in the country, it very difficult to get experienced contractors for the construction of bridges. On one hand, it is difficult to get experienced contractors for construction of bridges and on the other hand those who have experience for constructing bridges are also reluctant to construct bridges in the local roads because most of the local roads constitute small and low cost bridges. As the development activities is rising tremendously and the implementing agencies for bridge construction are also increasing (Mishra AK, 2018: Mishra, 2020: Ghimire, S. & Mishra, A. K, 2019: Yadav, S. K., & Mishra, A. K, 2019). In this case, contractors those who have little or no experience, less turnover, human resource and equipment make a JV with those meeting the criteria for bidding in the bidding procedure of bridge construction. Construction of bridge is a very technical matter, the design and construction of every individual bridge is different from the next bridge so, even if the contractor has experience in construction of one type of the bridge may not have experience construct another type of bridge. Beside this, the bridges built in local roads are of local importance so contractors of higher class hardly show interest in constructing low cost local bridges. So, JV plays an important role in the construction of bridges as well as improving the capability of the contractors and ultimately in the economic development of the country.

Objectives

The overall objective of the study was to assess the current practices of joint venture in Local Road bridge construction.

Literature Review

Joint Ventures in Local Road Bridge Construction in Nepal

Quality of bridge construction is always a big question in Nepal (Mishra AK, 2018). Contracts are full of conflicts and impact of JV in the same has not been assessed yet which

needs special care of researches (Mishra A. K, Mandal L, Pant R. R., 2018: Mishra, A.K., 2020: Mishra, A.K., 2022) Local bridges are constructed with local technology using local people. Per kilometer (km) cost of local road is lower in comparison to the cost of strategic roads. The width of the road also lies within the limit of 5.5m (LRBP, 2010). Therefore, the width of local bridge is also limited to 5m. So, per meter (m) cost of bridge is less as compared to the strategic road bridges. Beside this, the bridges built through DoLIDAR are smaller in length, it doesn't lie on the highways, and bridges are of local importance and not of national importance. There are few countable bridges which is around 100m. So, the length of the bridge is also less and the cost of bridge is low. The bridges are built in the local area so the construction of bridges is generally done by the small contractors as high class contractor hardly show interest in the construction of low cost bridges. As, we know that DoLIDAR is emerging newly in motorable bridge construction, earlier the bridges were built by DoR only and the bridges built by DoR is costly than that of DoLIDAR for the reasons stated above. Since the project cost is not so high, the high class contractors hardly show interest in bidding for low cost DoLIDAR bridges. Also, lower class contractors hardly have experience in bridge building; have the lower financial capability, lower turnover and less experience. So, smaller contractors have to form JV with the higher class contractors to construct bridges. In Nepal, integrated type of JV is in practice in which each partners have certain percentage interest and members share profit and losses in their agreed upon matter. Beside this, as there are limited number of motorable bridges in Nepal so, there are lower number of contractors who have experience in Bridge construction. So, on one side the smaller contractors have to form JV for experience/turnover/equipment on the other side, DoLIDAR itself has to promote contractors for JV to have bridges constructed and among most of bridges are constructed/ under construction as shown in table 2.1. There are 293 bridge under DoLIDAR out of which 130 are completed and 163 are under construction.

Table 1. Status of Local Road Bridges

S.No.	Program	Number of Bridge		Total
		Completed	Under Construction	
1.	LRB Program (Centre and DDC)	39	119	158
2.	RTISWAp	33	36	69
3.	RAIDP	17		17
4.	RRRSDP	15		15
5.	DRILP	2		2
6.	CAIP	24	8	32
Total		130	163	293

Table 2. Sample Bridges

S.No.	District	Bridge Name	Length	Project	Completed year
1.	Morang	Dans khola Bridge	74.3	LRBP	2010/11
2.	Rukum	Sanibheri Bridge	45	LRBP	2013/14
3.	Manang	Chame Motorable Truss Bridge	35	RRRSDP	2013/14
4.	Panchthar	Siwa khola Bridge	25	RRRSDP	2013/14
5.	Banke	Jethi Nala Bridge	20	RAIDP	2012/13
6.	Arghakhachi	Ghoche Khola Bridge	20	RAIDP	2012/13
7.	Dailekh	Thado Khola Bridge	15	RTISWAp	2013/14
8.	Ilam	Jogmai Khola Bridge	18	RTISWAp	2012/13
9.	Ramechhap	Palati Bridge	30.8	CAIP	2012/13
10.	Sindhuli	Marin Bridge	142	CAIP	2013/14
11.	Gorkha	Stula Khola Bridge	25	DRILP	2012/13
12.	Lamjung	Risti Khola Bridge	32	DRILP	2012/13

Methodology

Study Area: DoLIDAR (Local Road) Bridges

DoLIDAR constructs bridges in DRCN roads in all the 75 districts of Nepal. LRBP and RTISWAp implies in all 75 districts while RRRSDP, RAIDP, DRILP and CAIP implies in 20,15,8 and 5 districts respectively. So, the study area covers only the LRN bridges built by DoLIDAR.

Sample Design

The sample was concentrated on the bridges constructed by DoLIDAR through LRBP, RRRSDP, RAIDP, DRILP, CAIP and RTISWAp. As, DoLIDAR has a very short history in the construction of Bridges, there are very few bridges in the completed state and most of them are in under-construction state. There are altogether 293 DoLIDAR Bridges, out of which 130 bridges are completed and 163 bridges are under-construction. Completed 130 bridges are taken as the population of the research so that experience of clients and contractors could be gained throughout the construction of the bridge.

Out of 130 completed bridges, 12 bridges were taken as sample bridges to study the real practice of JV in LRBC. Purposive and Quota sampling technique was used for sample design. First, total number of bridges completed were listed out. The bridges constructed by different DDCs/DTOs, different projects were separated. Two bridges from each project were selected. The bridges were selected in such a way that covers bridges from 5 development regions of Nepal. Length of bridge was also considered while selecting sample bridges so that it may be known how the length and cost of bridge effects the construction of bridges when it is awarded for the JV execution.

Data Collection

Data Collection was done by purposive sampling method. The stakeholders of the project are clients (donors, GoN, MoFALD, DoLIDAR, DDC, and DTO) and contractors. Both primary and secondary data were collected and used in the study.

Primary Data Collection

- Sampling of Respondents: The research includes questionnaire survey to the clients and contractors. Respondents were selected as per the sample bridges. Respondents were from both parties i.e. 18 clients and 24 contractors
- Questionnaire Survey: The literature review provided some information about the status of constructed/ under construction bridges through DoLIDAR. Questionnaire survey was done. Questionnaire was prepared for clients and contractors who are involved in the construction of motorable bridges. There were altogether 21 questions for client and 41 questions for contractors. 21 Questions are common to both the parties while 20 additional questions were asked to the contractors only. The questions were related specially to the involvement in the construction of motorable bridges, ease and difficulties that were experienced in the construction of motorable bridges along with JV Partnership. The questionnaire also involved the understanding of JV of different parties. Some questions were related to how the practice of JV can be made better. After the preparation of Questionnaire, validation of questions was done and some minor corrections was done after validation. After that, Questionnaire were taken to the respondents

to different parties. 18 clients and 24 contractors responded to the questionnaire

- Field Visit and Observation: 3 bridges among the selected were visited. The concerned Bridge engineers/sub-engineers and contractor's personnel were visited at the site. We went through the bid documents and work schedule were studied. Laggings were noted. It was found that most of the cases JV's did not even started at the stipulated time. Discussions regarding the performance of JV was done
- Interview: Interview and discussion method was also applied where possible. Direct interview was taken with the chief of different projects, Senior Divisional Engineers (SDE), Engineers and Sub-Engineer (SE), consultants, site incharges' and contractors. Contractors were mainly asked their main purpose of entering in JV, their experience with the JV partners and the improvements required in the construction JVs.

Table 3. Sample Bridges

S.No.	Distributed to	No. of Respondents
1.	Client	18
2.	Contractor	24
	Total	42

Secondary Data Collection

Secondary data are collected from the following sources:

- Study of Construction related manuals, books, brochures, guidelines, policies and Program document, NPC publications, DoLIDAR Bulletin, Project progress reports, Project leaflets were studied
- Bidding documents adopted by different Implementing agencies, Acts and Regulations were studied thoroughly.
- Interview and Discussion made with DoLIDAR Engineers and Senior Divisional Engineers
- Interview with Contractors, Contractors Engineer, Site incharge
- Discussion made with Local Road Bridge Support Unit (LRBSU)
- Study of Previous research on JV
- JV Policies of neighboring countries i.e., India and China were studied

Processing of Data

After the collection of data, it was edited for completeness, consistency, accuracy and homogeneity.

Data Compilation and Analysis

All the data and information collected from primary and secondary sources were analyzed by comparing and contrasting the situation. The collected data are presented on the basis of quality and nature of the data. Quantitative data are presented in table, Figures and percentages.

Responses are shown in chart. The chart shows percentage response of each party.

The results obtained after analysis are presented in graphical form as bar chart and pie chart diagram. Microsoft excel is used for the analysis and presentation of the data and preparation of the report.

Current Practice of JV in LRBC

Experience

Contractors were asked some questions regarding their involvement in the construction sector, their expertise and their experience as a JV firm. It was found that 67% contractors had experience of more than 10 years in construction business and out of that 72% of them have the construction experience in road and bridge sectors. 72% of the contractors are satisfied with the business opportunities of their firm. It was found that 72% client and 60% contractors had constructed less than 2 bridges. The study also showed that among the bridges built most of the bridges were built under JV, 72% client and 67% contractors had constructed less than 2 bridges, 24% client and 17% contractor had constructed 2 to 5 bridges, 4% client, 10% contractor had constructed 5 to 7 bridges and 7% contractor had constructed 7 to 10 bridges while 9% consultant had constructed more than 10 bridges under JV as shown in Figure 1.

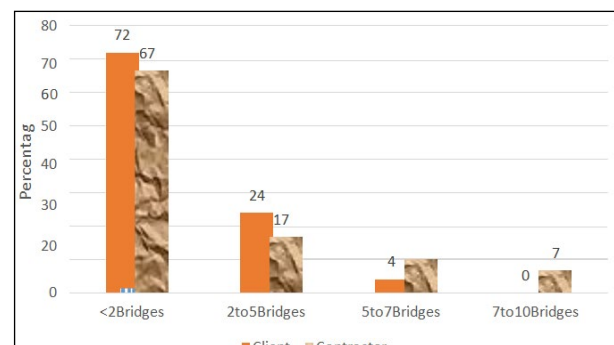


Figure 1. Number of Bridges built under JV

It was found that 68% client and 28% consultants were unsatisfied with the performance of JV and 32% clients and 72% contractors were satisfied with the performance of the JV partners. The response of clients and contractors contradicts here as clients are found to be more unsatisfied while contractors are found to be more satisfied with the performance of JV partners.

Concept of JV

It was also found that 73% contractors have the understanding that joint venture something which is done just to fulfill the bidding requirement while 53% client understand that JV is increasing liability by being responsible jointly and severally as shown in Figure 2, JV is increasing the capacity by being responsible jointly and severally is the

actual meaning of JV in the context of Nepalese contracts as specified in bidding documents. Most of the contractors have wrong understanding that JV is the formality to meet the bidding document. JV is obviously the privilege for the contractors to expand their business but actually JV is the requirement of the project which the construction team has to fulfill. So, the whole construction team should be jointly and severally liable towards the project.

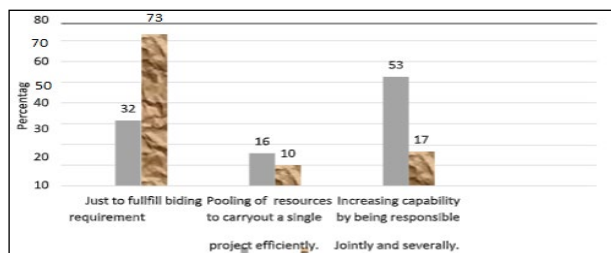


Figure 2. Concept of JV

Motives of JV formation

It has been stated earlier that although construction industries is the most unpredictable and risky environment to work. Each individual project is facing unique type of problem but also different individual firm working independently combine together because they are influenced by some motivational factors. There are many motives for formation of JV in order to execute the project. In the case of local road bridges the major motives of JV were contractors lagging in experience, contractors do not have the required equipment, financial and human resource were also found to be the motive for formation of JV. It was found that 50% of the contractors enter into JV to meet the criteria of experience, 8% for financial reasons, 4% for human resource and 38% for equipment. In case of LRBC, first major reason was found to be contractors lack in experience so they form JV in order to bid the contract and second was the requirement of equipment.

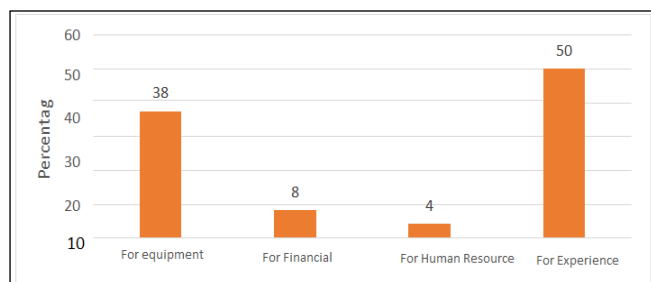


Figure 3. Motive for JV formation

It was realized that confining the answer of this question was not enough to get the actual motives of the contractors for JV formation. In the FGD one of the major topic was the contractor's main purpose of JV formation. The major purpose listed out were as specified in the questionnaire i.e., experience, equipment, financial deficit and human resource but beside this, to enhance competition, entry

in new market, technology sharing, change in scale and scope of business, access to new financial resource were also found to be the motivational factors of JV formation.

Differences in Motivational Factors of JV formation in LRBC and IJVs

The result from the questionnaire survey showed that the major motivational factors of JV formation was experience, equipment and turnover in case of local road bridge construction in Nepal. From the study of IJVs it was found that major motivational factors were getting the project in Japan while in China, most of the IJV is formed to avoid the policy of the country to expand the market, share the risk, access to cheaper markets, resource and technology transfer in the construction Industry. It was also found that experience and equipment were also found to be the motivational factors of forming JV.

Reason for Selecting Particular Partner

It was found that the main reason for selecting particular partner was again the experience of that partner. 50% respondents replied that they select particular partner because that partner has the experience in bridge construction, 25% replied that they select because of their relation with particular partner while 13% replied for plant and equipment and 13% for technical experts.

In FGD the main reason for selecting the particular partner was also asked. It was found that major reason was again the expertise and another important reason was relationship between the partners. Contractors select the particular partner because of their past experience with JV partners, as both the parties had already worked together and know about working pattern of each other. For the success of JV, both these attributes are necessary. Beside this, turnover, reputation, equipment, management skills, technology, mutual contribution of resources, key personnel, field staff, administration and materials.

Structure of JV

During formation of JV, it is very important to find the right partner, right number of partner and right percentage of share by each partner because it effects directly in the implementation of the project. It was found that the 67% make the JV with two partners and 33% make the JV with 3 partners. The study also showed that in case of 2 partners, 17% replied that most common percentage share is 51% and 49%, 50% replied that they mostly make the percentage share of 60% and 40% while 33% replied that they make the share of 70% and 30%. In case of 3 partners the most common percentage share was 40% 30% and 30%.

Regarding the project cost range for which the contractors enter into JV was asked to the contractors. It was also found 11% of respondents enter into JV for amount less than 30

million, 13% of respondents enter JV for amount ranging from 30 million to 60 million, 44 % of respondents get into JV for 60 million to 100 million and 33% of respondents get into JV for amount beyond 100 million as shown in Figure 3.

Number of JV partners effects in the functioning of the project, more the number of partners less is liability and vice versa. It was found that in 67% of cases Authorized partners form the organizational structure and 33% replied that all JV partners form the organizational structure. In case of IJVs, it was found that formation of organizational structure was also the major conflicting reason in most cases.

Projects bind clients and contractors. Main target of both parties is same i.e., to accomplish the project efficiently. But, both want different environments at the work. It was asked whether they prefer JV or single entity. 95% client and 37% contractors replied it is easy to work with/as a single entity while 5% client and 63% of contractors replied that it is easier to work with/as JV. Both had their own reasons to prefer JV and single entity. Clients choose single entity over JV because they find single firm easy to evaluate the bids and also uninterrupted smooth running of the projects free from conflicts of JV partners. Beside this, contractors select JV over single entity due to the benefits by JV such as increase in turn over, added experience etc.

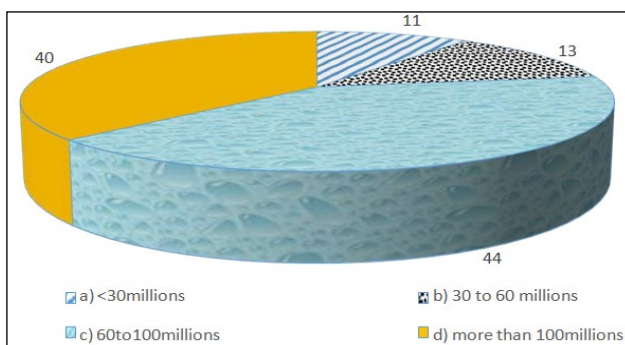


Figure 4. Cost range for JV formation

Understanding among JV Partners

In a JV, different individual entities combine together to work under the single roof so, it is very important that they have good understanding among themselves so that they can work together easily. In order to find whether JV partners work according to the agreement done while forming the venture, it was found that 80% client and 83% contractors replied that JV partners do not perform as per the agreement. Only the authorized partner works for the project and other partners do not contribute in a single activity. 60% contractors replied that do not perform as per the agreement because they have mutual understanding that only one partner would work and others remain silent.

To find the reason for not contributing as per the agreement was asked to the contractors. 45% replied that they receive

they receive fixed percentage from the authorized partner, 39% replied that they get the assurance from the JV that they will get the assurance of execution for next project and 16% replied their condition is no work but benefit sharing as shown in Figure 5.

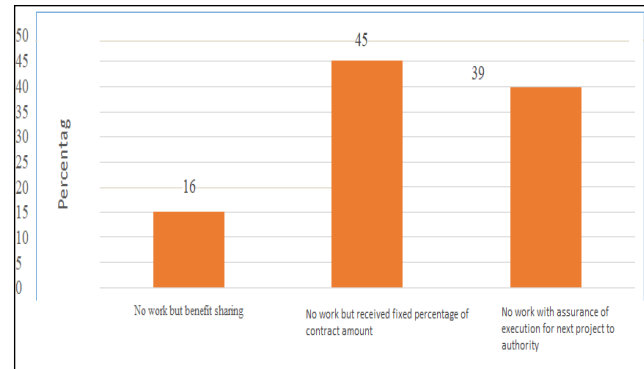


Figure 5. Condition of working as a Non-Working Partner

The main objective of client for setting the provision of JV is that they receive required size of contractor in terms of experience, equipment and human resource but it was found that although JV is done with two or more partners, only one partner takes the responsibility of the whole project. At the end, client receives the input of the authorized partner only unlike his intention. It looks like as if the bidding requirement is set only in favor of the contractors. Due to this, the other partners who do have zero input in the implementation of the project, will be evaluated as an experienced contractor for the further similar projects.

Benefits

JV is very important in any sector to change the scale and scope of the business. Each partner of JV gets benefitted. In order to find the area in which the contractors were benefitted due to JV was asked, 44% of contractors replied that they have experienced improvement in technical capability, 17% replied improvement in communication and team building and 11% replied improvement in each management and reporting skill as shown in Figure 6.

It was also found that 67% of respondents have experienced ease to carry out works, 22% have found improvement in the performance of their employees and 11% have found ease in financial cash flow. From the study, 78% of contractors replied that the business opportunities of their firm has increased due to JV.

One of the discussion topic in FGD was the resultant improvement area due to JV. Beside the above mentioned areas the acquisition of new contracts and enhancement of their business was the improved result of JV. Contractors were able to get new contract which ultimately improved their business image.

Table 4. Status of Projects Understudy

Name of bridge	Name of Contractors	% Composition if JV	Authorized partner contribution	Time overrun % (month)	Cost overrun %	Motive of forming JV	Detailed agreement between partners
Danskhola Bridge	Rautana/Karki Bandhu/ Arniko JV	40/30/30	30	58% (14)	10.31	Equipment	No
Sanibheri Bridge	Kankai Shailung and Diwa JV	40/30/30	30	140%(31)	9.97	Experience	No
Chame Motorabl Truss Bridge	Lumbini Builder Khani Nirman Sewa	75/25	25	43%, (6)	12.29	Turnover	No
Siwa khola Bridge	Yakthumhang /Phidim/ Panchayakanya JV	50/25/25	50	0	11.09	Experience	No
GhocheKhola Bridge	Rajendra Khani Nirman JV	60/40	40	33% (4)	-11.03	Equipment	No
Jethi Nala Bridge	Elte Construction	100	100	40% (6)	14.70		
Thado Khola Bridge	Hari Hari Nirman Sewa	100	100	27% (4)	8.75		
Jogmai Khola Bridge	Suruchi/ Phudung JV	60/40	60	45% (4)	-12.04	Experience	No
Palati Bridge	Amar/ Lok Bir & Betali J/V	60/40	40	45% (11)	No	Equipment	No
Marin Bridge	Jagat/Rautaha JV	60/40	40	66% (16)	No	Turnover	No
Stula Khola Bridge	OM NirmanSewa	100	100	40% (6)	No		
Risti Khola Bridge	Mukthinath Nirman Sewa/Suyan Builders JV	70/30	70	58% (7)	No	Experience	No

Relation

Either than the implementation part, another part of JV is relationship management. Contractors should form rules and follow it accordingly to maintain the relation. It was found that, 22% of the contractors share profit and loss equally as per contribution in JV agreement, 3% replied that authorized partner bear more proportion than other partners, 73% contractors replied all the profit and loss to be bear by the authorized partner and 10% share as authorized partner gives the lump sum to others and rest risk and benefit to authorized partner only as shown in Figure 7.

In case of international constructions, most of JV fail. The major reason behind it is the unclear responsibilities. Until and unless the responsibility of each party is defined in written form, conflict arises. The conflict may be related to any subject such as, division and consumption of capital,

sub-contracting, management team formation, rate of equipment provided by any partner. So, contractors should make detailed agreement among themselves regarding each and every activity of the project. As stated earlier, in IJVs, JV agreement is done in 3 phases i.e., MoU, Pre-JV agreement and detailed JV agreement so that the role and responsibility of each and every partner is defined clearly. In order to find whether JV partners make detail agreement among themselves regarding the implementation of the project, management of resources and formation of the implementation team, it was found that the 94% of respondents replied that they do not make any agreement between themselves and 6% replied that they make agreement. This clarifies that there is no any document either than the JV agreement document that the venturers submit along with the bidding document. The agreement contains general share and commitments of JV.

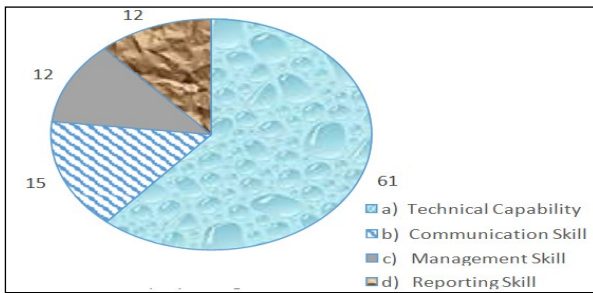


Figure 6. Benefits of Joint Venture

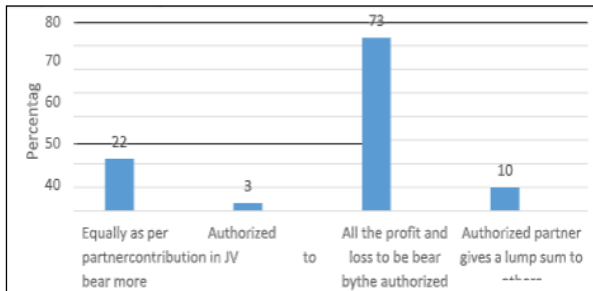


Figure 7. Profit and Loss sharing among the JV Partners

Status of Projects under Study

In order to find the practice of bridge construction, 12 bridges were selected. The selected bridges were constructed by single entity as well as JV by different projects of DoLIDAR.

Although it is difficult to find the exact impact of JV in the progress of project however, some parameters were related to JV that effects the performance of project were studied. Number of partners of JV, percentage composition of JV partners, authorization of the partners (Lead or least), cost overrun, time overrun, agreement between partners and whether the partners perform as per the actual JV sense were studied. It was found that the number of partners involved in the project effects the performance of the project. Out of 12 cases studied, 3 bridges were constructed by the single firms and 9 bridges were constructed under JV (6 bridges with 2 partners JV and 3 bridges with 3 JV partners). Thus, the trend of JV formation is normally 2 or 3 partners which also supported the result of the questionnaire survey. The study also supports that in case of 2 partners the common percentage share is 60% and 40%. In case of three partners the most common percentage share was 60%30% and 30% which is also supported by the result of the questionnaire survey.

Out of 9 bridges built under JV 6 bridges were built by the partner with least profit and loss sharing partner and 3 were built by lead partners thus it supports the result of the questionnaire survey that bridges are mostly constructed by the least profit and loss sharing partner. It was found that none of the firm had detailed agreement regarding the implementation of the project, distribution of responsibilities and management of resources. The bidding

document of all the bridge however specified that all the partners of JV will be jointly and severally responsible which was not found in the case of sample bridges. It was found that only the authorized partner was responsible for the implementation of the bridge, which supports the result of the questionnaire. The major motives of JV formation was studied. It was found that the major motives of JV formation was experience, equipment and turnover. This supports the result of the questionnaire as well as the FDG

Out of 12 bridges, 4 GoN funded bridges had cost variation, 4 donor funded bridges had cost variation and 4 bridges which did not have cost variation were donor funded. Negative variation was also found in case of 2 bridges. Beside this, time overrun was found very common in local road bridges. Out of 12 bridges, 11 bridges has time overrun. Out of 3 bridges constructed by 3 JV partners, 2 bridges had extreme time variation i.e., 13 month and 31 months respectively, both were GoN funded bridges. Both bridges were constructed by the least percentage sharing partners. It can be said that the number of JV partners effects the project performance. It was also found that one bridge with 3 JV partner had completed project on time which was constructed by the lead partner. In case of bridges built by 2 partners, two bridges had extreme time variation i.e., 11 month and 14 months and both were constructed by the least percentage sharing partners. Thus, it can be concluded that if the least percentage sharing partner is the authorized partner then it affects the construction activities. 3 bridge built by single firm had 4 to 6 months variations. The overall conclusion drawn from the study of bridges is that there is no significant difference the construction of bridge with JV or without JV but there is difference in bridges built by lead partner and least partner. Lead partners were found to perform better than the least partners.

Conclusion

Contractors having experience of more than 10 years were involved in the construction of motorable bridges. Majority of the contractors (72%) understood that JV was done only to fulfill the bidding requirements while most client (53%) understood that JV was done to increase capability by being responsible jointly and severally. Majority of the contractors (67%) formed JV of 2 partners with 60% & 40% which was good practice as both have nearly equal shares, which means all the contractors are nearly equally liable towards the project which is also supported by the result of sample bridges. While forming JV with 3 partners, the most common percentage share was 40%30%&30%. It can also be concluded that the motivating factor for JV formation were experience, equipment and turnover. It can also be concluded that the major reason of selecting particular partner was experience of the particular partner while from the FDG past relation with particular partner was

also the major reason for selecting the partner for JV. The study concluded that JV partners had good understanding among themselves as they did not face conflict among themselves. They also do not interfere the authorized partner during execution. It can also be concluded that when the authorized partner failed to execute the project other partners take over the project for completion so that the harmony is maintained between client and contractor and also to maintain the name and prestige of their firm. Being legally binding partners, the activity of one attaches other partners.

References

- Mishra AK, Bhandari S, Jha T. Factors Affecting Performance and Time Extension of ongoing Construction Projects under Town Development Fund, Nepal. *J Adv Res Const Urban Arch* 2018; 3(4): 7-25.
- Mishra AK. Implication of Theory of Constraints in Project Management. *International Journal of Advanced Trends in Engineering and Technology* 2020; 5(1): 1-13.
- Mishra AK. Dispute Resolution Practice of Project Management in Nepal. *J Adv Res Busi Law Tech Mgmt* 2018; 1(4): 1-11.
- Mishra AK, Aithal PS. Financial Impact Assessment of Time Overrun: A Case of Second Small Towns Water Supply and Sanitation Sector Project. *Nepal International Journal of Applied Engineering and Management Letters* 2020; 4(2): 159-173.
- Ghimire S, Mishra AK. Comparative Study of Prospective Delay Analysis Techniques (DATs). *Saudi J Civ Eng* 2019; 3(5): 84-95.
- Yadav SK, Mishra AK. Status of Time and Cost Overrun of Health Building Construction Projects in Nepal. *Sch J Eng Tech* 2019; 7(9): 262-270.
- Mishra AK. Project Management: Theory and Practice from Different Countries, Tamilnadu: DK International Research Foundation, 2020: 345.
- Mishra AK, Mandal L, Pant RR. Causes of Dispute in International Competitive Bidding Road Contracts Funded by Asian Development Bank in Nepal. *J Adv Res Busi Law Tech Mgmt* 2018; 1(3): 5-16.
- Mishra AK. GLOBAL CONTRACT ADMINISTRATION, DK International Research Foundation, 2020.
- Mishra AK. A Reference Book on Comparative Assessment from the Eastern Approach. Intellectual's Book Palace, 2022.
- Arikan AA. Development of a Risk Management Development Support System for International Construction Projects. Middle East Technical Industry, 2005.
- Bhattacharyya S, Slaughter MA. Legal Regimes Governing Foreign Direct Investment in Host Countries, Mumbai: A4ID, 2012.
- Cheung YKF. Joint Venture Behaviour in Construction Industry, An Australia Case Study. Malaysia, 2009.
- CIDB, Joint Venture Arrangements, Best Practice Guideline. 1 ed. Pretoria: CIDB, 2004.
- Construction Business Act GoN. Contractuation Profession Regulation (1999) GoN. Contractuation Profession Regulation (1998) GoN, 1999.
- Cowell JE, Hiss RA, Huebner GR et al. Critical issues for Joint venture success, Part 2, Setting up the venture, New york: Construction Executive, 2013.
- Craig JC. Joint Venture conflict. *Journal of Pacific Asia Business* 2008; 9(1): 6-27.
- Derco SV. The Benefits and Pitfalls of Joint Venture, Chicago: Maccy S, Fromm PC, 2008. DoLIDAR, 2013. DoLIDAR Bulletin. Gramin Sadak Abhilekh, Rural Transport Infrastructure Sector Wide Approach, 10(Gramin Sadak Abhilekh): 10.
- DoLIDAR, 2014. DoLIDAR Bulletin.
- DoR. Road Network data, Nepal: Department of Roads, 2013.
- DoR. DoR Bridge Management System, 2014. [Online] Available at: http://202.79.44.106/bms/guest_content_page/page/about_us# [Accessed 21 October 2014]. Farrell, P. E., 2013. Entrepreneur.com. [Online] Available at: <http://www.entrepreneur.com/article/236987> [Accessed 8 6 2015]. FCAN, 2014. Federation of Contractors Association Nepal. [Online] Available at: www.fcan.org.np/ [Accessed 14 July 2014].
- Farrell PE, 2013. Entrepreneur.com. [Online] Available at: <http://www.entrepreneur.com/article/236987> [Accessed 8 6 2015].
- FCAN, 2014. Federation of Contractors Association Nepal. [Online] Available at: www.fcan.org.np/ [Accessed 14 July 2014].
- Fey CF, Beamish PW. Joint Venture Conflict: The case of Russian Joint Ventures. *International Business Review* 2000; 9(4): 139-162.
- Financial Administration Regulation (1999) GoN. rank. Joint Venture Agreement Construction Project, 2011.
- Gale A, Luo J. Factors affecting construction joint ventures in China. *International Journal of Project Management*. 2004; 22: 33-42.
- GoN, 1992. Foreign Direct Investment and Technology Transfer Act. Kathmandu: Nepal law Commission.
- GoN. Bidding Document for the Procurement of Works, National Competitive Bidding. Kathmandu, Nepal: Public Procurement Monitoring Office.
- Goveepal. Construction Business Act. Kathmandu, Nepal: Nepal Law Commission, 1999.
- Hamimah A. An Assessment of Risk Management in Joint Venture Projects in Malaysia. *Asian Social Science* 2008; 4(6): 99.
- Hamimah A, Kassim AN, Chong HY. Success Factors on

- Joint Venture Projects For Indigenuous Bumiputera Contractors in china. *Journal of Applied Sciences* 2012; 8(8): 4113.
32. Kale VV, Patil SS, Hiravennavar AR et al. Joint Venture in Construction Industru. *Journal of Mechanical and Civil Engineering* 2010, 2778(1684): 60-65.
 33. Kamil S. Law of Joint Ventures in India, India: Vinod Kothari & Company, 2010.
 34. Kotelnikov V. 2010. 100 Joint ventures. [Online] Available at: http://www.1000ventures.com/business_guide/jv_failure_reasons.html [Accessed 14 7 2015].
 35. Kuang Z. Risk Management in Construction Projects, Application of Risk Management in Construction Projects, Denmark: VIA University College.
 36. Lama AD. Present Status of "A" class contractors in Nepal and Qualification Criteria for them, Kathmandu, Nepal: NEC, Pokhara Univerrisity 2002.
 37. LIDP. Local Infrastructure Development Policy. Local Infrastructure Development Policy, 2006.
 38. Likhitrungslip V. Construction Joint Venture contracts, Thailand: Chulalongkorn University, 2010.
 39. LRBP. Local Road Bridge Program Document Phase I, Kathmandu, Nepal: Government of Nepal and Government of Switzerland, 2010.
 40. LRBP. Comprehensive Bridge Manual, Lalitpur: Government of Nepal. LRBP, 2012. Walkover Survey Details, Kathmandu: DoLIDAR, 2011.
 41. LRBP. Annual Progress Report, Local Road Bridge Program, Lalitpur: DoLIDAR. Lynch, R. P., 1989. A Practical guide to Joint ventures and Corporate Alliances 2014.
 42. Miller RW. Joint Ventures in Construction. In: ThirdEdition ed. Kansas City, Missouri: National Association of Surety bond Producers, 1992.
 43. Minja SJ, Kikwasi GJ, Thwala WD. A Study of Joint Venture Formation between Construction Organization in Tanzania. Australia, Australian Journal of Construction Economocs and Building, 2012.
 44. MoPIT. Construction Business Promotion Section, 2014.
 45. Nepal Road Standard (1988) GoN.
 46. Norwood SR, Mansfield NR. Joint venture issues concerning European and Asian construction markets of 1990. *International journal of Project management* 1999: 17.
 47. Penker J. 10 Thesis on the successful Management of Joint Venture, An Emperical Study on Austria-Brazilian Joint Ventures, Australia: Wien, 2010.
 48. Public Procurement Act GoN, 2006.
 49. RAP3. Breifing Note 001, LRN Safety. Summary of Rural Roads. Rural Infrastructure Society of Engineers for Rural Infrastructure Development Nepal, 2013.
 50. Salem DI. The Joint venture law of the People's Republic of China: Business and Legal Perspective. *Maryland Journal of International law* 1981; 7(1): 73-114.
 51. Shridharan G. Determinants of Joint Venture performance in the construction Industry: Case from the mass rapid transport. London: University College London, 1995.
 52. Sillars DN. Joint Ventures in A/C/E Industry, Use and Success Factors, Corvallis, Oregon: Oregon State University, 2006.
 53. Sitaula TP. Infrastructure Development in Nepal, Challenges and Opportunities for Engineers, Kathmandu: Department of Roads, 2012.
 54. Society of Engineers for Rural Development, 2014.
 55. Rural Infrastructure 2010; 4(4): 32. TBSU. Trail Bridge Program in Nepal, Lalitpur: Helvetas.
 56. Thapa AJ. Nepal, Status paper on Road Safety in. Kathmandu, DoR, 2013.
 57. Zhang S. Risk Sharing in Joint Venture Projects, China: Business Information, 2006.
 58. Mishra AK, Singh SS, Aithal PS. Prospects of Joint Venture in Local Road Bridge Construction of Nepal. *International Journal of Case Studies in Business* 2022; 6(1): 177-193.