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## A Study on Public Participation in Environmental Management in Melamchi Valley of Nepal

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### **Abstract:**

*Democratic country use to practice the public participation approach in planning, implementation, monitoring and evaluation of program. This is called 'bottom up approach' also; in this approach, last will be first. In this connection, the study aim was to explore the public participation in environmental management Melamchi Valley of Sindhupalchowak district of Nepal. The data was collected from the 404 people of surrounding 8 village development committee of Melamchi Water Supply Project (MWSP). MWSP is the mega project designed to supply the drinking water to Kathmandu valley and surrounding areas. The project is working since 1998. Melamchi River Water Diversion Subproject is doing different activities like; Land Acquisition & Infrastructure Development Program, Social Uplift program, Environmental Management Program, Water Treatment Plant and Melamchi Water Diversion Scheme. The study was based on the descriptive analysis. The result showed that around 55% community people had knowledge of environment management activities of MWSP. Around 39% physically visited the project office of MWSP. There was direct involvement of 16% - 20% community people in identification and evaluation of environment management problem and status of those particular areas. Public participation had contributed to enhance the communication and presentation capacity of community people also. People were aware about the proper management of their surrounding environment. They were also conscious about the prevention of communicable diseases. It was necessary to provide the skill based training to community people to manage their environment by using their indigenous knowledge.*

**Keywords:** Environment management, Public Participation, Sindhupalchowak, Nepal

### **1. Introduction**

Public participation is the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. Public participation is two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions. Public participation prevents or minimizes disputes by creating a process for resolving issues before they become polarized. Other terms sometimes used are “public involvement,” “community involvement,” or “stakeholder involvement” (Bonnemann, 2008).

#### *1.1. The International Association for Public Participation's Core Values*

1. Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
2. Public participation includes the promise that the public's contribution will influence the decision.
3. Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.
4. Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
5. Public participation seeks input from participants in designing how they participate.
6. Public participation provides participants with the information they need to participate in a meaningful way.
7. Public participation communicates to participants how their input affected the decision.

Public participation plays the supportive role in the development work. There are two types of approaches; top down approach and bottom up approach. Traditionally, top down approach was popular, policy maker use to adopt such approach. Now a day, most of the organization, planner and policy makers did not like to adopt the top down approach because it is driven by the top level management which cannot properly address the real problem of community. So, democratic practitioners like to adopt the bottom up approach. This

approach collects the opinion of general public and makes the significant participation of general people and real beneficiaries to develop the plan and policy.

Environmental management is a process that industries, companies, and individuals undertake to regulate and protect the health of the natural world. In most cases, it does not actually involve managing the environment itself, but rather is the process of taking steps and promoting behaviours that will have a positive impact on how environmental resources are used and protected. Most management plans roughly follow a “plan, do, check” model (WiseGEEK, 2015). (The objective of environmental management is improved human life quality. It involves the mobilization of resources and the use of government to administer the use of both natural and economic goods and services. It is based on the principles of ecology. It uses systems analysis and conflict resolution to distribute the costs and benefits of development activities throughout the affected populations and seeks to protect the activities of development from natural hazards. Conflict identification is one of the more important tasks in environmental management planning and the resolution of conflicts is a fundamental part of what makes up "environmentally sound developments"(Saunier, 1987).

Sindhupalchowak district is located in the mountainous areas of Nepal which is highly affected from the mega earthquake of April 25, 2015 (Baisakh 12 2072 BS). The study was done before that earthquake. The Melamchi Water Supply Project (MWSP) is established in Sindhupalchowak district and working in the different types of program like; Land Acquisition & Infrastructure Development Program, Social Uplift program, Environmental Management Program, Water Treatment Plant and Melamchi Water Diversion Scheme and water distribution activities in Kathmandu Valley since 1998. MWSP has contributed in the socio-economic change of community people also by providing the skill based training of income generating activities. the project has not done so fast work in providing the drinking water to Kathmandu valley though it has done contribution in small scale social uplift activities.

The main purpose of this study was to identify the practice of public participation in environment management of the areas of Melamchi Water Supply Project of Sindhupalchowak district of Nepal.

## 2. Method

The study was based on the descriptive analysis to know the public participation in environmental management in the areas of Melamchi Water Supply Project. The study had covered the 8 VDCs: Duwachaur, Helambu, Ichok, Kiula, Mahankal, Melamchi, Palchok and Tamaranga of Sindhupalchowak district of Nepal. In total 404 community people were participated in the study. Simple random sampling technique was adopted to select the participants and structured survey questionnaire was administered. The study was based on the quantitative data. Cross tab was done to describe the status and Pearson Chi-square test was done to explore the relationship between the two variables.

## 3. Result and Discussion

The study had analysed the data which explored the nature of public participation in MWSP and result was discussed with the findings of related study.

### 3.1. Knowledge of Melamchi WSP

The beneficiaries of MWSP were asked about the knowledge of activities done of MWSP. In total, 54.9% respondents reported that they were aware about the MWSP followed by 45.1% had no good ideas about its activities.

The VDCs wise data presented in table no. 1 showed that in total 62.8% of Duwachaur, 90.5% of Helambu, 17.3% of Ichok, 69.4% of Kiula, 13.6% of Mahankal, 61.1% of Melamchi, 100% of Palchok and 21.6% of Tamaranga had knowledge of MWSP. It was interesting that within the total VDCs, Helambu VDC (26.8%) followed by Melamchi's (20.7%) respondents had more knowledge of MWSP than the other VDCs. But, within the individual VDC, participant of Palchok VDC (100%) followed by Helambu (90.5%) had more knowledge than the other VDCs.

Crosstab										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Tamaranga	
Yes	Count	27	57	9	34	6	44	28	8	213
	% in total	12.7%	26.8%	4.2%	16.0%	2.8%	20.7%	13.1%	3.8%	100.0%
	% within VDC	62.8%	90.5%	17.3%	69.4%	13.6%	61.1%	100.0%	21.6%	54.9%
No	Count	16	6	43	15	38	28	0	29	175
	% in total	9.1%	3.4%	24.6%	8.6%	21.7%	16.0%	0.0%	16.6%	100.0%
	% within VDC	37.2%	9.5%	82.7%	30.6%	86.4%	38.9%	0.0%	78.4%	45.1%
Total	Count	43	63	52	49	44	72	28	37	388
	% in total	11.1%	16.2%	13.4%	12.6%	11.3%	18.6%	7.2%	9.5%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Chi-Square Tests										
		Value		df		Asymp. Sig. (2-sided)				
Pearson Chi-Square		138.047 <sup>a</sup>		7		.000				

Table 1: Knowledge of Melamchi WSP

Source: Field Study, 2014

There was a significant association ( $P = .000$ ) at 95% confidence interval between the respondents on level of knowledge of MWSP. Knowledge is facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. In the study of MWSP, community people got the knowledge through their experiences and practical understanding of the work activities of MWSP. Knowledge empowers the people by building their confidence and encourage to do the something new in life. Philosophically, knowledge is defined as the 'epistemology'. *Paul Pradi* has defined the knowledge that 'Studying knowledge is something philosophers have been doing for as long as philosophy has been around. It's one of those perennial topics—like the nature of matter in the hard sciences—that philosophy has been refining since before the time of Plato. The discipline is known as *epistemology* which comes from two Greek words *episteme* (episthmh) which means knowledge and *logos* (logoV) which means a word or reason. Epistemology literally means to reason about knowledge. Epistemologists study what makes up knowledge, what kinds of things can we know, what are the limits to what we can know, and even if it's possible to actually know anything at all' (Pardi, 2011).

### 3.2. Visit of Local People in Project Office

The study had asked the participants about their visit in Project office of MWSP. The data presented in table no. 2 showed that only 38.8% respondents of total selected for study had visited at least one time in the project office.

The VDCs wise data presented in table no. 22 showed that in total 21.4% of Duwachaur, 63.9% of Helambu, 18.9% of Ichok, 63% of Kiula, 11.6% of Mahankal, 50% of Melamchi, 63% of Palchok and 10.5% of Tamararanga had visited MWSP.

Crosstab										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Talararanga	
Yes	Count	9	39	10	29	5	33	17	4	146
	% in total	6.2%	26.7%	6.8%	19.9%	3.4%	22.6%	11.6%	2.7%	100.0%
	% within VDC	21.4%	63.9%	18.9%	63.0%	11.6%	50.0%	63.0%	10.5%	38.8%
No	Count	33	22	43	17	38	33	10	34	230
	% in total	14.3%	9.6%	18.7%	7.4%	16.5%	14.3%	4.3%	14.8%	100.0%
	% within VDC	78.6%	36.1%	81.1%	37.0%	88.4%	50.0%	37.0%	89.5%	61.2%
Total	Count	42	61	53	46	43	66	27	38	376
	% in total	11.2%	16.2%	14.1%	12.2%	11.4%	17.6%	7.2%	10.1%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Chi-Square Tests										
		Value		df		Asymp. Sig. (2-sided)				
Pearson Chi-Square		78.085 <sup>a</sup>		7		.000				

Table 2: Visit of local people in Project office

Source: Field Study, 2014

There was significant association ( $P = .000$ ) at 95% confidence interval between the respondents on the response of visit in MWSP. With the face to face discussion with the respondents, they said that basically they visit the MWSP with two purposes; either they will visit to participate in any program or they will visit to ask to organize any activities in their community.

### 3.3. Direct Involvement of Local People in the Project

Direct Involvement of community people in MWSP as an employee, volunteers or members of different users groups was found 7.7% in total. MWSP had supported the community people by giving the employment and other types of opportunity to enhance the knowledge and skill which finally helped to increase the income of people.

The VDCs wise data presented in table no. 3 showed that in total 7% of Duwachaur, 3.3% of Helambu, 5.9% of Ichok, 10.2% of Kiula, 18.2% of Mahankal, 8.2% of Melamchi, 3.6% of Palchok and 5.3% of Talararanga had involved in MWSP.

Crosstab										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Talararanga	
Yes	Count	3	2	3	5	8	5	1	2	29
	% in total	10.3%	6.9%	10.3%	17.2%	27.6%	17.2%	3.4%	6.9%	100.0%
	% within VDC	7.0%	3.3%	5.9%	10.2%	18.2%	8.2%	3.6%	5.3%	7.7%
No	Count	40	59	48	44	36	56	27	36	346
	% in total	11.6%	17.1%	13.9%	12.7%	10.4%	16.2%	7.8%	10.4%	100.0%
	% within VDC	93.0%	96.7%	94.1%	89.8%	81.8%	91.8%	96.4%	94.7%	92.3%
Total	Count	43	61	51	49	44	61	28	38	375
	% in total	11.5%	16.3%	13.6%	13.1%	11.7%	16.3%	7.5%	10.1%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.150 <sup>a</sup>	7	.180

Table 3: Involvement of local people in the Project  
Source: Field Study, 2014

There was no significant association ( $P = .180$ ) at 95% confidence interval between the respondents on involvement of local people in the project or activities of MWSP.

Effective community participation is, however, a major challenge. The urban planning practices of governments around the world, while highlighting the needs and benefits of community participation, provide little solid information on the question of whether and how planning practice can engage with communities in such a way that it enhances the “representation of communities”, the “accountability of government agencies to the communities” and “community empowerment” in the process of future making (Mahjabeen, March, 2013, p. 4). Public participation can be more effective if their involvement will be continued in whole project cycle; planning, implementation, monitoring and evaluation and reporting.

### 3.4. Informed for Participation to the Program as Concerned Stakeholders

The post-modern development approach has changed the traditional approach. Traditionally, 'Top down Approach' was in use, but now 'Bottom-up Approach' is being practiced by many organizations. People participation in planning, implementation, monitoring and evaluation, social audit of program, formation of users groups in community level are the some example of bottom-up approach. During the study, respondents were asked about the working nature of MWSP. They were asked whether MWSP used to inform the community people or not to discuss on the issue of community development.

The data presented in table no. 4 showed that in total 20.6% people were informed to participate in program. Basically, any program only informed those people only who are more potential and informative for the implementation of program because there is also limitation of number of participation. Any project cannot include all the people in the same time. Mostly, community leaders, users groups, program's volunteers and staffs are informed to participate in program so in the basis of nature of program in total around 20% people participation may be good numbers.

The VDCs wise data presented in table no. 4 showed that in total 14% of Duwachaur, 30.6% of Helambu, 5.7% of Ichok, 27.1% of Kiula, 6.7% of Mahankal, 47.2% of Melamchi, 0% of Palchok and 5.4% of Tamararanga were informed for participation in MWSP.

Crosstab										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Tamararanga	
Yes	Count	6	19	3	13	3	34	0	2	80
	% in total	7.5%	23.8%	3.8%	16.2%	3.8%	42.5%	0.0%	2.5%	100.0%
	% within VDC	14.0%	30.6%	5.7%	27.1%	6.7%	47.2%	0.0%	5.4%	20.6%
No	Count	37	43	50	35	42	38	28	35	308
	% in total	12.0%	14.0%	16.2%	11.4%	13.6%	12.3%	9.1%	11.4%	100.0%
	% within VDC	86.0%	69.4%	94.3%	72.9%	93.3%	52.8%	100.0%	94.6%	79.4%
Total	Count	43	62	53	48	45	72	28	37	388
	% in total	11.1%	16.0%	13.7%	12.4%	11.6%	18.6%	7.2%	9.5%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	62.437 <sup>a</sup>	7	.000

Table 4: Informed for participation to the program as concerned stakeholders  
Source: Field Study, 2014

There was significant association between respondents on information given by MWSP for participation in program in  $P = .000$  at 95% confidence interval.

From the social inclusion perspective also, active involvement of all concerned stakeholders are mandatory in planning and implementation of any project. Concerned stakeholders can provide the support from the theoretically and practically on the real ground of community.

Participatory planning requires the involvement of concerned *stakeholders*. This includes identifying public concerns and values and developing a broad consensus on planned initiatives. It is also about utilising the vast amount of information and knowledge that *stakeholders* hold to find workable, efficient and *sustainable* solutions (CAP-NET, 2008). The *stakeholder analysis* is the process of identifying and analysing *stakeholders*, and plan for their *participation* (Rietbergen-McCracken & Narayan, 1998). There are a great number of methodologies concerning *stakeholder analysis* with a wide range of complexity (Rietbergen-McCracken & Narayan, 1998; CAP-NET, 2005; NETSSAF, 2008))

### 3.5. Involvement in Identification of Problem of EM

Local people participation is equally important to assess on the problem or issue of local community in comparison of other external experts because local people had gained much better experiences of local environment as well as they had indigenous knowledge to manage the local problem. In this connection, the data presented in table no. 5 reported that in total 22.2% reported that they had involved in identification of problem of environmental management. The data clearly indicated that there was practice of making involvement of local people to identify the environmental problem.

Cross tabulation of involvement in identification of problem of EM & VDC name										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Talamaranga	
Yes	Count	21	6	6	10	4	21	12	6	86
	% in total	24.4%	7.0%	7.0%	11.6%	4.7%	24.4%	14.0%	7.0%	100.0%
	% within VDC	48.8%	9.7%	11.1%	20.8%	8.9%	30.4%	42.9%	15.8%	22.2%
No	Count	22	56	48	38	41	48	16	32	301
	% in total	7.3%	18.6%	15.9%	12.6%	13.6%	15.9%	5.3%	10.6%	100.0%
	% within VDC	51.2%	90.3%	88.9%	79.2%	91.1%	69.6%	57.1%	84.2%	77.8%
Total	Count	43	62	54	48	45	69	28	38	387
	% in total	11.1%	16.0%	14.0%	12.4%	11.6%	17.8%	7.2%	9.8%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Chi-Square Tests										
		Value			df			Asymp. Sig. (2-sided)		
Pearson Chi-Square		42.308 <sup>a</sup>			7			.000		

Table 5: Involvement in identification of problem of EM

Source: Field Study, 2014

The VDCs wise data showed that in total 48.8% of Duwachaur, 9.7% of Helambu, 11.1% of Ichok, 20.8% of Kiula, 8.9% of Mahankal, 30.4% of Melamchi, 42.9% of Palchok and 15.8% of Talamaranga had involved in identification of problem of environment management. Comparatively, higher number of people from Duwachaur (48.8%) participated whereas only 11.1% of Ichok participated in identification of environment management.

The statistical analysis of Pearson Chi-square test showed that there was significant association ( $P = .000$  at 95% confidence interval) between the respondents involvement of local people in identification of problem of environmental management.

### 3.6. Involvement in Evaluation of EM

Environmental impact assessment is one process to identify the opportunity and challenges of environment management. Participatory approach is the best approach to evaluate the impact of environment and its management. Now, many organizations are doing practices of people participation in planning, implementation, monitoring and evaluation of on-going activities. So, the same practices of discussed among the respondents of areas of MWSP. As the data presented in table no. 6 showed that in total 16.8% people reported that they had involved in evaluation of environment management.

The VDCs wise data showed that in total 46.5% of Duwachaur, 3.2% of Helambu, 1.9% of Ichok, 10.6% of Kiula, 9.5% of Mahankal, 26.5% of Melamchi, 32.1% of Palchok and 13.2% of Talamaranga had involved in evaluation of environment management. Comparatively, higher number of people from Duwachaur (46.5%) participated whereas only 1.9% of Ichok participated in evaluation of environment management.

Crosstab										
		VDC name								Total
		Duwachaur	Helambu	Ichok	Kiula	Mahankal	Melamchi	Palchok	Talamaranga	
Yes	Count	20	2	1	5	4	18	9	5	64
	% in total	31.2%	3.1%	1.6%	7.8%	6.2%	28.1%	14.1%	7.8%	100.0%
	% within VDC	46.5%	3.2%	1.9%	10.6%	9.5%	26.5%	32.1%	13.2%	16.8%
No	Count	23	60	52	42	38	50	19	33	317
	% in total	7.3%	18.9%	16.4%	13.2%	12.0%	15.8%	6.0%	10.4%	100.0%
	% within VDC	53.5%	96.8%	98.1%	89.4%	90.5%	73.5%	67.9%	86.8%	83.2%
Total	Count	43	62	53	47	42	68	28	38	381
	% in total	11.3%	16.3%	13.9%	12.3%	11.0%	17.8%	7.3%	10.0%	100.0%
	% within VDC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Chi-Square Tests										
		Value			df			Asymp. Sig. (2-sided)		
Pearson Chi-Square		56.263 <sup>a</sup>			7			.000		

Table 6: Involvement in evaluation of EM

Source: Field Study, 2014

Statistically, there was significant association between the respondents of different VDCs regarding their involvement in evaluation of environment management at  $P = .000$ .

Community participation as one of the central themes in planning practice is embraced for a number of crucial reasons—philosophical, political and practical. From a philosophical point of view, community participation is essential because it develops the highest human capacities (Warner, 2001) and promotes moral character which ultimately helps to achieve virtues and to realise one's potential (Hart, 1972; Stivers, 1990). Politically, it legitimises the plan by engaging communities as well as meeting the requirements of national and international legislations and treaties. The practical advantage of community participation is to achieve more sustainable and acceptable urban and environmental management outcomes. It is now recognised that the engagement of different segments of communities in the planning and implementation processes will lead to more sustainable solutions (Gray, Enzer, & Kusel, 2001; Shrestha & McManus, 2008).

#### 4. Conclusion

The study found that the public participation in every activity gives the meaningful result. People feels the ownership if they get the direct involvement in planning, implementation, monitoring and evaluation of any project or activities. This is the democratic practice also that voice of last should be in first. In the Nepalese context also, time to time marginalize people raised their voice through public media to get their rights of participation in each level of Government in the name of social inclusion. Public participation approach supports to strengthen the capacity of marginalized people and make the feeling of community ownership. It is also one approach to use the indigenous knowledge from the systemic and scientific method. It will reduce the gap between the project and community people. The Melamchi Water Supply Project has also practiced to make the public participation in environment management program. Around 16-20% people reported that they were involved in the identification and evaluation of environment management activities organize by the MWSP. There is limitation in every project or organization that they cannot cover 100% community people in each activity so around 20% people could represent the voice of 8 selected village development committee of Sindhupalchowak district. MWSP had launched the other social uplift program also to enhance the socio-economic status of community people. It was found that MWSP had provided the skill based training of income generating activities also which supported to boost up the social position of people. But, it was also reported that MWSP should increase the numbers of people participation and should provide the skill based training of environment management also focusing on the indigenous knowledge of community people. Indigenous knowledge should be used scientifically so that on the one hand, community people can be aware on the new innovation of science and on the other hand, indigenous knowledge will be enhanced to encourage the rest people.

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