RESEARCH NOTE

Constraints Perceived in Adoption of Indigenous Water Harvesting Practices

H.R. Pannu[1], J.P. Lakhera[2], J.P. Yadav[3] and K.C. Jeengar[4]

1. Ph.D Scholar, 2. Prof. (Ext. Edu.), S.K.R.A.U., Bikaner, 3. Prof. (Ext. Edu.), S.K.N. College of Agriculture, Jobner-Jaipur (Rajasthan)

Corresponding author e-mail: arniajp@rediffmail.com

ABSTRACT

Water is a major natural resource which is limiting factor in the development of agriculture. Therefore, it is necessary to adopt water management technologies for utilizing the available water resource. Water is the most precious commodity in the arid region due to prevalence of unfavourable hydro meteorological condition. In north western Rajasthan particularly in Bikaner district the quantity of water available from various sources such as surface water and ground water are not sufficient even for drinking purpose. People have been depending on rain water harvesting structure (RWH) in the form of small ponds (nadis) reservoirs under ground tank (tanka), khadins etc. It was observed that socio-psychological (70.16 MPS) and technical constraints (64.33 MPS) were found as the most important constraints which hinder the adoption of indigenous water harvesting practices. Among socio-psychological constraints "deterioration of water quality in Indigenous Water harvesting structure expressed by 81.94 per cent farmers as a major problems. The least important socio- psychological constraints as perceived by respondents was "Negative approaches of the local leaders regarding IWHP" (63.05%).

***Key words:** Water; Water management technologies; IWHP;*

Water is the most precious commodity in the arid region due to prevalence of unfavourable hydro meteorological condition. In north western Rajasthan particularly in Bikaner district the quantity of water available from various sources such as surface water and ground water is not sufficient even for drinking purpose. Over and above the insufficient quantity, the ground water is moderately to high saline over a large area. People have been depending on rain water harvesting structure (RWH) in the form of small ponds (nadis) reservoirs under ground tank (tanka), khadins etc. either for drinking purpose or for agriculture, since time immemorial.

In Rajasthan, the traditional method of rain water harvesting can be one of the answers of the problems of perennial water scarcity for drinking water. To overcome the shortage of drinking water, a traditional method of water harvesting called *Tanka* is a useful alternative source. Tanka is a local name given to a covered underground tank generally made of masonry or concrete for collection and storage of surface run-off. The constraints mean all those barriers or barricades

which came in the way of respondents in receiving the benefits of water harvesting practices. It is needless to mention that the extent of benefits to the respondents can be augmented by overcoming the perceived constraints. Therefore, one of the objectives of the study was to find out the constraints being faced by the respondents in adoption of indigenous water harvesting practices

METHODOLOGY

The present study was conducted purposively in selected Bikaner and Kolayat panchayat samities of district Bikaner. Five villages where maximum numbers of indigenous water harvesting practices in operation were selected from each identified panchayat samiti. A list of total Indigenous water harvesting structure (tanka) from each selected village was prepared with the help of Gram Sevak and Patwari and a sample of 120 people and 12 Tanka owners were drawn randomly from each village. Data were collected by the investigator through personal interview technique with the help of structured schedule and so collected data were tabulated

and inferences were drawn by using appropriate statistical measures.

RESULTS AND DISCUSSION

The constraints perceived in adoption of Indigenous Water Harvesting Practices by the respondents have been presented under different headings as under.

Economic constraints: The perusal of data given in Table 1 reveals that the respondents with 74.44 MPS perceived "Heavy initial investment for the construction of tanka" as the most important constraints. This was followed by "maintenance cost of tanka in high" with 68.11 MPS. The third important constraint was "fewer subsidies as compared to investment" with 63.33 M.P.S. The constraints that were perceived with less intensity were "rate of interest for loans in high" (M.P.S. 60.00) and "difficulties of getting loan" (M.P.S. 55.00) with fourth and fifth rank, respectively. The finding is in line with the findings of *Dadheech B.S. and Sisodia, S.S. (2007).*

Technical constraints: Table 1 reveals that "the problem of maintenance requires technical skill hence it is difficult", expressed as major problem by the farmers with 71.38 MPS. This was followed by "unavailability of technical guidance at the time of construction of Tanka" and ranked second with 65.00 M.P.S. The third important constraint faced by the respondents were "lack of experience among local artisans in construction of the tanka". The problems, which were given less importance by the farmers, were "no facility for transport of raw material in remote area" and "difficulty in making large catchment area for the Tanka" as these problems were not serious in the study area. The problems relating to unavailability of technical guidance and lack of experience among local artisans might have been due to lack of education and training

Table 1. Economic constraints as perceived by the respondents

Constraints	M.P.S.	Rank
Economic constraints		
Heavy initial investment for the construction of tanka	74.44	I
Difficulties of getting loan	55.00	V
Less subsidy as compared to investment	63.33	III
Maintenance cost of tanka is high	68.11	II
Rate of interest for loans is high	60.00	IV
Technical constraints		
Maintenance requires technical skill hence it is difficult	71.38	I
Lack of experience among local artisans for construction of the tanka	64.72	III
Difficulty in making large catchment area for the tanka	57.50	V
Unavailability of technical guidance at the time of construction of Tanka	65.00	II
No facility for transport of raw material in remote area	63.05	IV
Socio-psychological constraints		
Deteriorate of water quality in Indigenous Water Harvesting Structure	81.94	I
There is no cooperation among community in this system of IWHP	64.72	IV
Negative approaches of the local leaders regarding IWHP	63.05	V
Joint family hinder for maintenance of tanka	73.61	II
Lack of awareness and motivation of the respondents	67.50	III
Climatic constraints		
More water loss in IWHS due to high temperature	78.61	I
Lack of rain in the rainy season	65.83	III
Availability of very fine texture soil results in high water leaching	65.00	IV
Maximum water run-off	75.55	II
General constraints		
Lack of motivating agencies in the area to adopt Tanka scheme/ IWHP	80.55	I
Inadequate publicity of the benefits of improved Tanka technology/ IWHP	65.27	II
Apathy towards govt. programme	57.77	IV
Lack of provision of field visit by the farmers to see benefits of IWHP	59.16	III

about the indigenous water harvesting practices. The findings are in conformity with the findings of *Daipuria, et al. (2004).*

Socio-psychological constraints: The data reported in Table 1 shows that problem of "deterioration of water quality in indigenous water harvesting structure" as a major problem expressed by the farmers with 81.94 M.P.S. This was followed by the "joint family hindrance maintenance of tanka" which is basic hurdle for using indigenous water harvesting practices and ranked second with 73.61 M.P.S. Third important socio-psychological constraint was "lack of awareness and motivation of the respondents". The findings are in line with *Sharma and Sisodia (2006).*

Climatic constraints: Table 1 reveals that water loss is more in Indigenous water harvesting structures due to high temperature (MPS 78.61) and was expressed as a major constraint by the respondents and was considered first in order of the climatic constraints hierarchy. The realization of the problems relating to the more water losses in indigenous water harvesting structures due to high temp had become more serious in the area because this area had faced continuous drought condition and available ground water was not sufficient to raise crops. Whereas, "maximum water run-off" (MPS 75.55) and "lack of rain in the rainy season" (MPS 65.83) were the next important constraints faced by the respondents were ranked second and third, respectively. The findings are similar to the findings of *Sharma and Sisodia, (2006).*

General constraints : The data given in Table 5 divulges that "lack of motivating agencies in the area to adopt tanka scheme/ indigenous water harvesting practices" was expressed as one of the most prominent constraints and ranked first by the respondents with 80.55 MPS. This was followed by "inadequate publicity of the benefits of improve tanka technology/ IWHP" and "lack of provision of field visit by the farmers to see benefits of IWHP" with MPS 65.27 and 59.16, respectively. Whereas, farmers response was the least observed regarding "apathy toward government programme" (MPS 57.77) and ranked fourth.

The reason behind, this ranking might be due to the fact that govt. functionaries were not popularizing the benefits of adopting improved water harvesting practices/ structures and motivating agencies are not working in this area. It is also clear that farmers are not taken for a visit to see worth of improved Water Harvesting Practices. Therefore, it is recommended that govt. functionaries should organize camps in the villages and shows the benefits of IWHP with the help of documentary films so that the villagers could be motivated to adopt improved water harvesting structures.

CONCLUSION

The finding of the study shows that socio-psychological (70.16 MPS) and technical constraints (64.33 MPS) were the most important constraints which hinder the adoption of indigenous water harvesting practices. Among the socio-psychological constraints "deterioration of water quality in indigenous water harvesting structure as a major problem expressed by the farmers. Out of the technical constraints the requirement of technical skill for maintenance of IWHS is the most important constraint with 71.38 MPS. The heavy initial investment required for the construction of tanka is perceived as the most important economic constraint by the respondents in adoption of IWHP. The lack of motivating agency in area for adoption of IWHP was important constraint as per respondents view.

REFERENCES

Dadheech B.S. and Sisodia, S.S. (2007). Constraints in effective implementation of watershed development activities. *Raj. J. Extn. Edu.* **15** : 150-151.

Daipuria, O.P., Karan, M.S. and Sharma, S.P. (2004). Constraints in adoption of watershed management technology. *Indian Res. J. of Extn. Edu.,* **4**(1&2) : 43-45.

Sharma, C. and Sisodia, S.S. (2006). Constraints in adoption of watershed development technologies in Rajsamand district of Rajasthan. *Raj. J. Extn. Edu.* **14** : 97-98.

● ● ● ● ●