

CURRENT SITUATION AND FACTORS RELATED TO HYGIENIC LATRINE OF RURAL HOUSEHOLDS IN HOA BINH PROVINCE 2014

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SUMMARY

Objectives: To determine the proportion of households having access to latrines and the proportion of households having ownprivate latrines, the amount of hygienic latrine and the social and economic factors related to the situation of latrine coverage. Subjects and methods: Analytical cross-sectional study, method with analysis, sample size according to 1-ratio reference formula, 801 households in 9 communes of 2 districts Kim Boi and Mai Chau in Hoabinh province in 2014, data collection applied were observed in the checklist and interview household representatives. Results: 87.5% of households had their own latrines, 12.5% of households had no toilet; overall rate of hygienic latrines in the community was 21.8% among households with latrines. Barriers to access and use of hygienic latrines were economic conditions and ethnicity and local characteristics. Conclusion: The percentage of hygienic latrine coverage in the community was low, septic latrines predominated, jobs, economic and ethnicity factors were barriers to access and use own latrines.

** Keywords: Household latrine; Hygienic latrine; Hoabinh province; 2014.*

INTRODUCTION

According to the 2007 National Survey, the coverage of latrines in rural communities was low, the hygienic quality of latrines was not good, the proportion of rural households with hygienic latrines meeting the standards of the Ministry of Health only accounted for 18%, criteria of construction achieved 22.5% and criteria of use and preservation was 22.2%. Results from this survey also showed that

up to 40.9% of households in the North Central region still used human feces for agricultural production, of which 1.8% of households used unprocessed human feces and 64.5% of them used compost less than 6 months.

A report by the Ministry of Health in 2013 showed that the proportion of rural households without latrines was 10%, while households with latrines, the percentage of hygienic latrines was still very low.

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It was estimated that about 20 million rural people did not have access to hygienic latrines. The proportion of households with private hygienic latrines nationwide was 60%. This percentage was not evenly distributed among ecological regions. In this report, Hoabinh was one of 10 provinces where the proportion of households having hygienic latrines was lower than 50%.

Hoabinh is a mountainous province with many ethnic groups and the coverage of hygienic latrines is still low compared to the whole country. According to a report by the Ministry of Health at the end of 2013, an estimation of the proportion of households owning hygienic latrines in Hoabinh was nearly 50%. In order to have a practical basis for applying interventions to improve the coverage of hygienic latrines for rural households, it is necessary to assess the status of hygienic latrine coverage and related factors in the rural community of Hoabinh province in 2014, as a basis for selecting and applying interventions.

SUBJECTS AND METHODS

1. Subjects.

- Households, the representative of the households live in the communes of Mai Chau and Kim Boi districts of Hoabinh province, these two districts are purely rural communities with ethnic minorities and not affected by urbanization.

- Commune health workers, heads of commune health stations, staff in charge of environmental sanitation, provincial health officials, directors and heads of environmental health departments of the Preventive Medicine Center of Hoabinh province.

2. Methods.

* *Study design:* A cross-sectional study on the current situation of household latrines and the factors affecting this situation. The study was conducted from December 2013 to February 2014 in Hoabinh province.

Descriptive research method was applied, with analysis based on household interviews and direct observation by latrine checklists at studied households.

The sample size of the study was based on the 1-ratio reference formula where p is the proportion of households having private hygienic latrines in Hoabinh province according to Ministry of Health's survey report in 2013 [1].

Sample size:

$$n = \frac{Z_{1-\alpha/2}^2 \cdot p(1-p)}{d^2} \times DE \quad (1)$$

of which: n : Sample size; $Z_{1-\alpha/2}$: Reliability coefficient of 95%, $Z_{(1-\alpha/2)} = 1.96$; p : The proportion of households having private hygienic latrines in Hoabinh province, $p = 50\%$; d : Desired error = 0.05; $DE = 2$.

- The sample size according to the calculation $n = 768$, in fact, we conducted a survey of 801 households.

- Study subjects were selected from households of 4 communes of Chieng Chau, Dong Bang, Bao La and Tan Mai out of 23 communes of Mai Chau district and 5 communes of Binh Son, Sao Bay, Nam Thuong, Thuong Bi and Vinh Tien out of 28 communes in Kim Boi district.

- The contents of the survey included the proportion of households with or without

own separate latrines; structure of existing latrines at households; proportion of hygienic latrines; hygienic quality of latrines, factors of economics and ethnic minority related to the situation of owning latrines at households.

- Researchers were trained on household interviews and observation skills to evaluate the quality of latrines according to Circular No.27/2011/TT-BYT [2].

- Excel and SPSS software were used for data processing.

RESULTS

1. Reality of getting access to using latrines in the community.

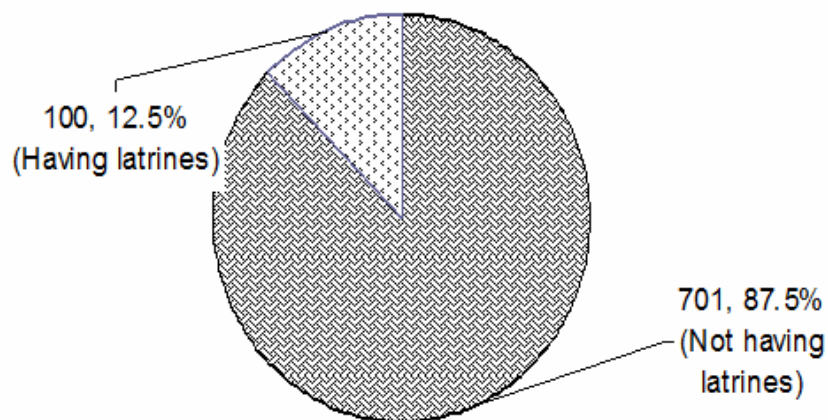


Figure 1: The proportion of households having private latrines.

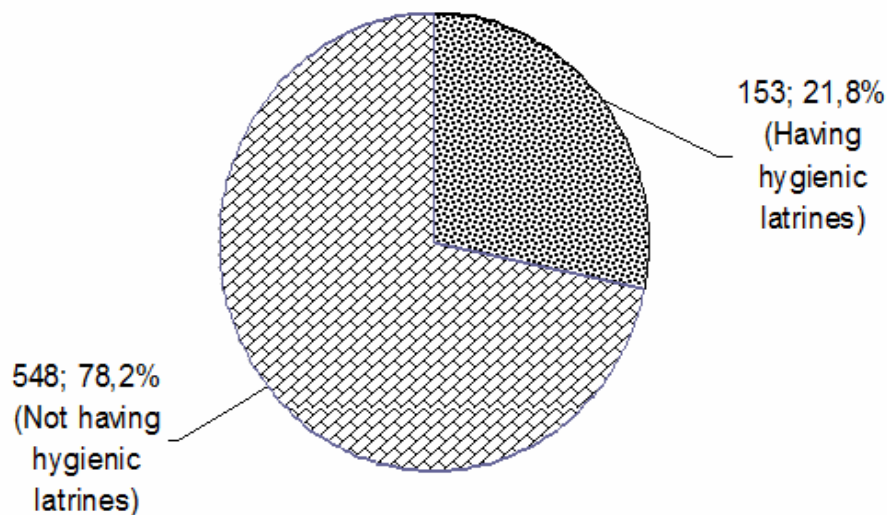


Figure 2: The proportion of households having their own hygienic latrines and meeting criteria for construction, use and preservation.

* *Types of own private latrines at households were being used in the 9 surveyed communes:*

Table 1: Types of own private latrines at households.

Type of latrines	Results	
	Quantity	%
Unhygienic latrine group	466	66.5
Bucket, bridge or hanging latrine	205	29.2
Unventilated pit latrine	60	8.6
Single vault latrine	201	28.7
Hygienic latrine group	235	33.5
Ventilated improved pit (VIP) latrine	8	1.1
Double-vault composting latrine	52	7.4
Soakage pits	32	4.6
Septic tank	139	19.8
Latrine connected with biogas system	4	0.6
Total	701	100

Unhygienic latrine accounted for a high proportion, including high coverage of bucket, hanging latrine and single vault latrine.

Hygienic latrine coverage was low (33.5%), of which septic tank latrine accounted for the highest proportion.

Table 2: The proportion of households having hygienic latrines according to construction, use and preservation standards.

Type of latrines	District				Total	
	Kim Boi		Mai Chau			
	Total of latrines	Number of hygienic latrines (%)	Total of latrines	Number of hygienic latrines (%)	Total of latrines	Number of hygienic latrines (%)
Ventilated improved pit latrine	5	4 (80.0)	3	0 (0.0)	8	4 (50.0)
Double-vault composting latrine	43	27 (62.8)	9	6 (66.7)	52	33 (63.5)
Soakage pits latrine	22	2 (9.1)	10	9 (90.0)	32	11 (34.4)
Septic tank latrine	76	55 (72.4)	63	47 (74.6)	139	102 (73.4)
Latrine connected with biogas system	4	3 (75.0)	0	0 (0.0)	4	3 (75.0)

Bucket, bridge or hanging latrine	105	-	100	-	205	-
Unventilated pit latrine	23	-	37	-	60	-
Single vault latrine	128	-	73	-	201	-
Total	406	91 (22.4)	295	62 (21.0)	701	153 (21.8)

According to the standards of construction, use and preservation, bucket, bridge or hanging latrine, unventilated pit latrine, single vault latrine do not meet the standards of a hygienic latrine. The proportion of other types of latrines meeting the standards was from 34.4 - 75.0%.

2. Factors related to access and utilization of latrines.

Table 3: The correlation between the occupation of the study subjects and the construction, use and preservation of hygienic latrines.

Occupation	Households have hygienic latrines				Total		χ^2 ; OR (95%CI)	p
	Without		With					
	n	%	n	%	n	%		
Farmer	461	82.5	98	17.5	559	79.7	$\chi^2 = 29.83$ OR = 2.97 95%CI = 1.99 - 4.45	< 0.001
Others	87	61.3	55	38.7	142	20.3		
Total	548	78.2	153	21.8	701	100		

There was a correlation between occupational factors and households having hygienic latrines. In particular, the proportion of farmers having unhygienic latrines was higher than other occupations, this difference was statistically significant.

Table 4: The correlation between the ethnicity of the study subjects and the construction, use and preservation of hygienic latrines.

Ethnicity	Households have hygienic latrines				Total		χ^2 ; OR (95%CI)	p
	Without		With					
	n	%	n	%	n	%		
Ethnic minorities	485	82.3	104	17.7	589	84.0	$\chi^2 = 37.5$ OR = 3.63 95%CI = 2.36 - 5.57	< 0.001
Kinh people	63	56.3	49	43.8	112	16.0		
Total	548	78.2	153	21.8	701	100		

There was a correlation between ethnic factors and households having hygienic latrines. In particular, the proportion of ethnic minorities having unhygienic latrines was higher than other ethnic groups, this difference was statistically significant.

Table 5: The correlation between economic conditions and the construction, use and preservation of hygienic latrines.

Economic conditions	Households have hygienic latrines				Total		χ^2 ; OR (95%CI)	p
	Without		With					
	n	%	n	%	n	%		
Poor, near poor	261	81.8	58	18.2	319	45.5	$\chi^2 = 4.56$ OR = 1.49 95%CI = 1.03 - 2.15	< 0.05
Others	287	75.1	95	24.9	382	54.5		
Total	548	78.2	153	21.8	701	100		

There was a correlation between economic conditions and households having hygienic latrines. In particular, the proportion of of poor households, nearly poor households having unhygienic latrines was higher than other households, this difference was statistically significant.

Table 6: The correlation between information, communication and the construction, use and preservation of hygienic latrines.

Information, communication	Households have hygienic latrines				Total		χ^2 ; OR (95%CI)	p
	Without		With					
	n	%	n	%	n	%		
Not accessed information, communication	340	82.7	71	17.3	411	58.6	$\chi^2 = 12.06$ OR = 1.89 95%CI = 1.32 - 2.71	< 0.001
Accessed information, communication	208	71.7	82	28.3	290	41.4		
Total	548	78.2	153	21.8	701	100		

There was a correlation between households who had access to information and communication activities on hygienic latrine construction, use and preservation and those having hygienic latrines. Among them, coverage of unhygienic latrines among households who did not get access to information was higher than those accessed information, this difference was statistically significant.

DISCUSSION

The objective of this study is to clarify the picture of sanitation in rural communities in households in two studied districts. What type of latrine do households use? Answering this question will suggest interventions appropriate to the study area in order to increase the proportion of households with hygienic latrines, contributing to better manure management.

Our results showed that 87.5% of households had latrines, 12.5% of households still did not have latrines. This result was similar to study by Nguyen Thanh Ha et al (January 2014) with the proportion of households having latrines at 90% in 6 provinces of Vietnam [3]. The reasons for not having latrines of the households may be that the households did not have enough money to build, not necessary, or did not like to use due to the habit of working on the fields...

According to the regulations of the Ministry of Health, hygienic latrine group is composed of septic tank, soakage pits, biogas, double-vault composting latrine and ventilated improved pit latrine. If these types of latrines are properly constructed, used and preserved, they can be isolated from human faeces, prevent untreated faeces from contact with animals and insects, eliminate pathogens in their faeces, not cause unpleasant odors and pollute the surroundings. However, in our study, more than a half of households in the two surveyed districts had latrines but these were unhygienic (66.5%), of which bucket, coverages of bridge or hanging latrine was 29.2%, single vault latrine was

28.7%, pit latrine was 8.6%. This showed that it should pay more attention to the situation of environmental sanitation in the communes of the two studied districts, because there may be a risk of outbreaks and spread of diseases due to the poor human feces treatment.

Among hygienic latrines, septic tanks were most often used by households (59.2%). This rate was lower than that by Tran Dac Phu's study (2011) on the proportion of household latrines in 5 northern provinces, of which the proportion of households using septic tanks was 78.5% in Haiphong and 64.6% in Hanam [4]. In our opinion, this difference may be due to Haiphong and Hanam near Hanoi capital, whose economic growth is higher than the two districts of Hoabinh province where many ethnic minorities predominantly live (80.1% of whom are Muong and Thai people). By each type of latrine, our results showed that 73.4% of septic tank latrine, 75% latrine connected with biogas system met construction, use and preservation standards. In our opinion, this could be explained by the fact that these types of latrines are often newly built, with clear and popular construction technical procedures. Besides, this types of latrines are also very easy and convenient to use and preserve.

CONCLUSION

The coverage of latrines in the community was 87.5%, but the proportion of households having hygienic latrines in rural communities in Hoabinh was low (21.8%), septic tank latrines was found at the highest rate, in which, factors on

ethnic minority, household economic conditions, occupation, and information and communication method were barriers to access hygienic latrines in rural communities in Hoa Binh.

REFERENCES

1. *Ministry of Health*. Report on sanitation surveillance and assessment of the results in 2013 of the National Target Program on Rural Water Supply and Sanitation in the period of 2012 - 2015. 2013.

2. *Ministry of Health*. Circular No.27/2011/TT-BYT dated 24/6/2011 promulgated the National technical regulation on Hygienic conditions for Latrines (QCVN 01: 2011/BYT). 2011.

3. *Nguyen Thanh Ha, Duong Chi Nam*. Situation of construction, use and preservation of household latrines in 6 provinces of Vietnam in 2014. *Journal of Military Pharmaco-medicine*. 2017, 1, pp.40-46.

4. *Tran Dac Phu*. Proportion of household latrines in 5 northern provinces. *Journal of Practical Medicine*. 2011, 12 (798), pp.57-59.