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The Open Defecation Free Program Evaluation Using the Context, Input, Process, and Product Model in Jambi, Indonesia

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Abstract

The Open Defecation Free (ODF) program was initiated by the government to increase access to healthy latrines. This study aimed to evaluate the ODF program using the CIPP evaluation model. A qualitative and exploratory descriptive method was adopted to investigate informants' experiences regarding the program's implementation. Data was explored through semi-structured interviews with 17 informants and analyzed using content analysis. The results showed that the program was crucial as numerous people engaged in open defecation due to economic, geographical, cultural, and knowledge factors. The absence of ODF policy was due to lack of priority, limited government and private support, insufficient human resources, inadequate infrastructure, and budget constraints. The ODF program was considered unimportant and tended to follow stunting programs, reflecting the low commitment. The biggest opportunity was implementing an integrated ODF with a stunting reduction program by allocating a special budget. Thus, primary health care is expected to optimize activities further to trigger the ODF program within the environment.

Keywords: CIPP Evaluation, environmental monitoring, Jambi Province, Open Defecation Free, program evaluation

Introduction

Open defecation (OD) behavior is a world problem contributing to an unhealthy environment and death due to diarrhea.[1–3] According to estimates from the World Health Organization, in 2022, 1.7 billion of the global population had not received basic sanitation services, including healthy latrines. Among this number, 494 million still perform OD. Approximately 1.7 billion cases of diarrhea occur yearly, contributing to 370,000 deaths of children under the age of five (the under-five).[4] In Indonesia, the prevalence of the disease among the under-five was 37.8% in 2018 and increased to 40% in 2019.[5,6] In Jambi Province, it was 72.43% in 2019 and decreasing to 48.41% in 2020.[7]

The high number of cases is mostly attributed to OD, a problem associated with access to healthy toilets in the household. The Indonesian Ministry of Health data for 2023 shows that the percentage of households with OD behavior was 18.92%. In Jambi Province, it was 12.71%, while the highest was in the East Tanjung Jabung district, which was 25.39%.[8] Therefore, to encourage increased access to healthy latrines, the government, through a Regulation of the Minister of Health, initiated the Community-Led Total Sanitation (CLTS) program as an approach to community empowerment through a method of triggering behavioral change. The first pillar of CLTS was to stop OD.[9–11]

It is important to acknowledge that the Sustainable Development Goals target for 2030 is to have 100% of the population practicing the Open Defecation Free (ODF) program to improve the public health status. A previous study has proved that ODF and non-ODF villages differed in the incidence of diarrhea among toddlers.[12] Implementing the ODF program as a national strategy requires evaluation efforts to assess its achievements, which will determine future policies. Program evaluation can conducted using the Context, Input, Process, Product (CIPP) evaluation model,[13,14] which was widely adopted due to its comprehensiveness and flexibility.[15]

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This study aimed to evaluate the implementation of the ODF program in East Tanjung Jabung District using the CIPP evaluation model. This study produces scientific evidence that can be used as input to support decision-making or policies in implementing the ODF program for primary health care (PHC) or District Health Offices, as well as providing information for sanitarians to improve performance for triggering the ODF village program.

Method

This study was conducted in two focus location/*lokasi fokus* (lokus) villages within two PHC work areas in the East Tanjung Jabung District, Jambi Province, Indonesia, using a qualitative study with an exploratory descriptive method. This study's lokus village was the village with the highest percentage of households practicing OD in the PHC work areas. A total of 13 informants were selected purposively consisting of six heads of households who had OD as direct targets of the ODF program (A1-A6), two village heads as the policymakers supporting the implementation of the ODF program in the village (B1-B2), two cadres assisting in collecting data and promoting environmental health to the villagers (C1-C2), two sanitarian as implementers of environmental health programs especially the ODF program in PHC work areas (D1-D2), and one district health official managing the ODF program including policy, planning and budgeting, implementation and evaluation (E1).

Semi-structured interviews were conducted to explore the understanding and experience of informants about the ODF program. This was achieved through the CIPP evaluation model, which contains four aspects and 13 categories (Table 1). Documents from the PHC and District Health Office were reviewed to support this study, including data on environmental-based diseases, ownership and access to healthy latrines in households, and households with OD behavior. Data were analyzed using content analysis comprising three stages. These included data reduction, presentation, and conclusion or verification.[16]

Results

The results of this study identified four aspects of the CIPP model in evaluating the implementation of the ODF program: context, input, process, and product, which contain 13 categories, as shown in Table 1.

Table 1. Conceptual Framework for Evaluation of the Open Defecation Free Program

Evaluation aspect	Concept	Category/theme
Context	Conditions underlying the need for an ODF program	1. Toilet ownership and access 2. Public health conditions
Input	Available system capabilities as input for implementing the ODF program	3. Policies and rules 4. Government support 5. Private support 6. Human resources 7. Infrastructure facilities 8. Budget (funds)
Proces	Design of ODF program implementation procedures	9. Planning 10. Organizing and Implementing 11. Evaluation monitoring
Product	The output results are an indicator of the success of ODF implementation	12. ODF village achievements 13. Perceived impact

Note: ODF = Open Defecation Free

Context Aspect

Numerous households did not have access to healthy latrines. In general, informants showed that some residents defecated into the river, while others had latrines in their homes but did not use proper septic tanks. The feces were either channeled into the river or a hole in the ground covered with boards or piles of tree fronds. The public latrines and toilets in every village were unused due to their unkempt nature and dirtiness.

"There is no shelter, only holes covered with boards or tree leaves" (A-1)

"Every village has a public toilet, but it is not well maintained and lacks water" (B-1)

The document review results showed the percentage of households with healthy latrines. In the Muara Sabak Barat PHC work areas, the percentage of households with healthy toilets was 93.2%. The lowest was in Kampung Singkep Village (73.8%), followed by Rano Village (76.8%) and Teluk Dawan Village (93.5%). At the same time, at the Mendahara Ulu PHC work areas, the percentage of households with healthy toilets was 87.9%. The lowest was in Sungai Beras Village (78.1%), followed by Sinar Wajo Village (80.2%) and Pematang Rahim Village (88.2%) (Table 2).

Several factors contribute to the lack of access to and use of healthy latrines. These include 1) economic factors related to financial difficulties in building a healthy latrine, 2) geographical factors where households living on the riverbanks found it difficult and constrained to build healthy latrines, 3) long-standing practice passed down through generations, makes people comfortable defecating on the river, and 4) low public understanding of the dangerous impacts of a dirty environment due to OD behavior.

"Some residents lack accessibility to toilets and resort to OD due to lack of money. Those living on the edge of a river do not have land to build a septic tank... Furthermore, habitual behavior leads to the comfort of defecating in the river... There is a lack of understanding regarding the detrimental impacts of OD… posing obstacle in achieving ODF." (D-1)

Table 2. The Ownership and Access to Healthy Latrines Data in Villages within Muara Sabak Barat and Mendahara Ulu PHC Working Areas[17]

PHC/Village	Number of Households	PHL		SPHL		Sharing		OD		HL	
		n	%	n	%	N	%	N	%	N	%
Muara Sabak Barat PHC											
Kampung Singkep	621	349	56.2	109	17.6	0	0.0	163	26.2	458	73.8
Nibung Putih	502	325	64.7	165	32.9	12	2.4	0	0.0	502	100.0
Parit Culum I	1328	798	60.1	520	39.2	3	0.2	7	0.5	1321	99.5
Parit Culum II	437	313	71.6	95	21.7	29	6.6	0	0.0	437	100.0
Rano	564	349	61.9	84	14.9	0	0.0	131	23.2	433	76.8
Talang Babat	983	642	65.3	330	33.6	11	1.1	0	0.0	983	100.0
Teluk Dawan	356	252	70.8	81	22.8	0	0.0	23	6.5	333	93.5
Total	4791	3028	63.2	1384	28.9	55	1.1	324	6.8	4467	93.2
Mendahara Ulu PHC											
Bukit Tempurung	238	138	58.0	100	42.0	0	0.0	0	0.0	238	100.0
Mencolok	329	91	27.7	186	56.5	19	5.8	33	10.0	296	90.0
Pematang Rahim	739	231	31.3	386	52.2	35	4.7	87	11.8	652	88.2
Simpang Tuan	495	158	31.9	256	51.7	27	5.5	54	10.9	441	89.1
Sinar Wajo	504	116	23.0	265	52.6	23	4.6	100	19.8	404	80.2
Sungai Beras	777	146	18.8	432	55.6	29	3.7	170	21.9	607	78.1
Sungai Toman	580	174	30.0	385	66.4	21	3.6	0	0.0	580	100.0
Total	3662	1054	28.8	2010	54.9	15	4.2	444	12.1	3218	87.9

Notes: PHC = PHC, PHL = permanent healthy latrines, SPHL = semi-permanent healthy latrines, OD = open defecation, HL = healthy latrines

The results of the interviews showed that residents, including toddlers, were often discovered suffering from diseases related to poor environmental sanitation, such as diarrhea, dysentery, itching, malaria, and coughs. According to informants, diseases caused by poor environmental sanitation were always included in the ten most common at PHC: diarrhea and gastroenteritis, acute respiratory infection (ARI), dermatitis, malaria, and influenza.

"Diarrhoea, itching, coughing, and fever often occur in children." (C-2)

"Diseases experienced by people due to poor environmental sanitation, such as diarrhea, dysentery, gastroenteritis, ISPA, fever, malaria, and dermatitis, are quite high and mostly in the top 10 diseases. Another consequence is the incidence of stunting." (D-2)

Input Aspect

In general, informants were not aware of any special policies and regulations regarding implementing the ODF program. It was stated that the ODF program was more of an appeal from villages or health workers to prevent stunting. The Village Head informant admitted the lack of specific policy from the government to deal with OD behavior. It was important to acknowledge that increasing latrine access was related to the Clean and Healthy Behavior Program, the Healthy Indonesia Program with a Family Approach at PHC, and the Increasing the Role of Women towards Healthy and Prosperous Families Program at the Family Welfare Empowerment activities.

"Families were urged to construct good latrines because it is forbidden to defecate in rivers..." (A-3)

"There are no ODF program policies or regulations yet; it is not a priority... Health policies or stunting programs were implemented to prevent OD." (B-1)

"Since ODF is less of a priority, no regulations have been put in place. However, efforts to stop defecation have long been implemented through the PHBS (Clean and Healthy Behavior Program)*, PIS-PK* (the Healthy Indonesia Program with a Family Approach)*, and P2WKSS* (the Increasing the Role of Women towards Healthy and Prosperous Families Program) programs*." (B-2)*

Informant interviews showed that there was support from the district and provincial governments in the form of assistance to build latrines for low-income families and those with stunting toddlers in 2020 and 2021. Other support was

in the form of providing clean water facilities from the Community-based Drinking Water and Sanitation Provision program and assistance for healthy latrines from the Community-based Sanitation program, but this was limited to budget availability. Latrine assistance was not for families living on riverbanks; it was in the form of materials such as toilets, bricks, cement, sand, stone, and drilled wells, which were achieved by the community working together.

"There is assistance for healthy latrines to get materials; this is done in cooperation." (B-1)

"Currently, the focus is on reducing stunting, so healthy toilet assistance is provided to families who have stunted and poor children. Houses on the riverbank did not receive assistance." (E-1).

"Government assistance includes healthy latrines, house renovations, the clean water program from Pamsimas and the Sanimas program for healthy latrines, but it is limited to the project budget" (D-2)

Support from the private sector towards increasing latrine access for the community remains low. Out of two lokus villages studied, only one was reported receiving assistance with toilets and public toilets from the company's corporate social Responsibility program. The villages had difficulty receiving help from the private sector because the proposal submission procedures were difficult to understand.

"Our village has never received latrine assistance from the private sector because the procedure is complicated." (B-2)

"Poor families at villages located in the company area received latrine assistance." (B-1)

Sanitarian personnel supporting the ODF program were limited, with only one person at each PHC, while expected to handle six to eight villages that were quite far away. This is considered a potential obstacle to triggering and monitoring. The village has Human Development Cadres (HDC) facilitating stunting prevention efforts. However, these workers did not assist with OD issues due to limited knowledge and feelings of embarrassment. According to the informant, to achieve ODF villages, it was necessary to add additional health center sanitarian staff or form special environmental health cadres in the villages as the ODF facilitators.

"The sanitarian staff in PHC is (only) *one person, so it is difficult to handle all villages far away. In my opinion, environmental health cadres should be formed as facilitators to stop defecation in villages." (D-2)*

"In the village, there are KPM (Human Development Cadres) *from residents who are tasked with helping handle the stunting program, but they do not want to talk about latrines due to feeling of embarrassment." (B-2)*

The PHC has environmental health equipment, such as water quality checks and Community-Based Total Sanitation Kits for triggering. These were not used due to the lack of an activity budget. The trigger for the ODF program was environmental health counseling or consultation services at the PHC. Several informants also complained about the minimal availability of clean water, specifically during the dry season, which facilitated defecation in rivers.

"There is complete water inspection equipment and an STBM (Community-Based Total Sanitation) trigger *prop, which has not been used for a long time" (A-6)*

"The trigger is only counseling and environmental health consultation service at the PHC." (D-1)

"Residents need drilled wells and clean water for latrine use. Sometimes clean water is difficult to obtain, specifically in the dry season." (C-2)

The village was not allocated funds specifically for building family latrines because the program was less prioritized and was private. It was important to acknowledge that village development funds could only be distributed for public purposes. At PHC, the budget to support the ODF program was allocated from Health Operational Assistance funds but only for the transportation costs of officers to the field to conduct counseling and monitoring. Triggering activities have never been budgeted for since 2020.

"The village does not budget for building family latrines because it should be self-supporting by the community." (B-1)

"The PHC budget for ODF uses BOK (Health Operational Assistance) *funds, including only transport for extension officers or monitoring. Meanwhile, trigger funds have not been available since 2020." (D-1)*

Process Aspect

The village and PHC had no plans for an ODF program due to a lack of priority and budget. This signified a lack of strategies and activities to achieve ODF. The efforts currently being made are part of the stunting prevention program. At the PHC, the triggering activity plan was also never discussed at the workshop meeting due to a lack of budget.

"In the village, there are no ODF program planning meetings... preventing defecation behavior is included in the stunting program which has funding." (B-2)

"At the PHC, since 2020, there has been no trigger funding, so it was not discussed during the workshop meeting. Most of the budget is for outreach and monitoring activities." (D-1)

Both the village and PHC had no ODF program organizational structure thus, the implementation was not optimal. The implementation of triggering activities of the ODF by PHC was also no longer achieved due to funding allocation. It was important to acknowledge that education was provided through counseling to increase public awareness of stopping OD.

"No specific ODF program has been implemented. Hence, there is a lack of organizational structure, Policy, and program planning was not implemented because the program was less prioritized in the village, leading to lack of budget allocation." (B-2)

"Activities to trigger stop OD are never budgeted, but education was conducted." (E-1)

Monitoring and evaluation of ownership and access to healthy latrines was conducted by PHC sanitarian staff alongside village health workers at least once every six months. The monitoring process included visiting the homes of residents who did not have toilets in order to provide education. The distance to the village, which was quite far and difficult, was an obstacle faced by officers.

"The PHC sanitarian conducted monitoring at least once every six months to examine family latrines, with long distance and difficult conditions being the encountered obstacles." (D-1)

"Data on access to healthy latrines is presented every month for stunting reporting." (B-2)

Figure 1. Condition of Family Latrines

Product Aspect

The results showed that most villages in the PHC working areas had not achieved ODF. Among the 14 villages of both PHCs working areas, only Talang Babat, Bukit Tempurung, and Sungai Toman were designated to have ODF status. This showed that there were still numerous residents with no access to a healthy toilet or practiced OD. Educational efforts to stop defecation are part of a massive stunting prevention program.

The understanding of the public towards the importance of preventing defecation to maintain a clean and healthy environment was enhanced. Another positive impact was that cross-sector synchronization and coordination for village development was increasing. In contrast, the negative impact of the implementation of the suboptimal ODF program was the presence of residents who still suffer from illness due to poor environmental sanitation, including the discovery of stunted toddlers.

"The community becomes aware and understands the impact of OD on health. Furthermore, the assistance program for building toilets is also very helpful for the poor." (A-6)

"Government officials from the department and office often visit together to village communities to provide education, thereby improving coordination and cooperation." (B-1)

"There are still people affected by diseases caused by an unhealthy environment such as diarrhea, dysentery, ISPA, as well as stunting." (D-1)

Discussion

Numerous people practice OD, which can cause high cases of disease due to an unhealthy environment in the East Tanjung Jabung District. This condition was the background to the need for an ODF program to ensure access to healthy latrines. It was important to pursue a program to implement a clean and healthy lifestyle to avoid various diseases caused by OD, specifically diarrhea.[2,3,18] Factors associated with access to healthy latrines include economic, geographical, cultural, and low understanding. Based on data from the District Health Office, it is known that the prevalences of diseases related to the environment include ARI at 29.5%, influenza and pneumonia at 6.9%, dermatitis and eczema at 5.9%, diarrhea and gastroenteritis at 1.75%.[17] Not having a latrine was related to low income.[19] Geographical conditions were also an obstacle to building healthy latrines for people living on rivers or sea banks.[20] The practice of OD in rivers, a

hereditary habit, has hindered the success of the ODF program. Addressing this issue requires both knowledge and a positive attitude. A significant relationship exists between education, knowledge, and attitudes, as well as household ownership of a healthy latrine.[21]

The absence of a policy showed that there were no company rules for OD behavior. Furthermore, there was a lack of law enforcement and commitment to community empowerment efforts, including the construction of communal latrines. The construction process was considered the best solution to increase access to healthy latrines in riverbank settlements.[18] Therefore, it was necessary to make regulations for effective program management to create an ODF Village.[22] Support from various sectors, both government and private, was needed to stimulate community awareness and empowerment, thereby increasing access to healthy toilets. This is because the essential goal of the ODF program is to stop OD by the community independently. The government is an important factor in triggering the realization of ODF.[2] The private sector was also expected to engage in increasing public awareness to actively protect the environment, specifically in preventing OD behavior.[23]

The limited number and capacity of human resources to support the ODF program in this study was an obstacle in changing the OD behavior of people; a culture passed down from generation to generation. The role of health workers was significantly related to community participation in stopping the triggering activities.[24] While the success of the program could be hampered when facilitators at the village level by sanitarian officers.[25] All parties are expected to educate the community regarding the need for latrines that meet health requirements.[26] The sustainability of stopping OD behavior will be doubtful when there is reduced participation from the actors who motivate society.[27,28] Infrastructure, including tools, materials, transportation, and space, need to be provided to ensure the success of the ODF program.[29,30]

The main facilities needed for the program were healthy latrines, clean water, and waste processing in households. However, the availability based on the results of this study was not optimal. Equipment for triggering the ODF program at PHC was not put in place due to a lack of activity budget. Previous studies proved that healthy latrine programs fail to stop OD when the facilities are of low quality and not durable.[31–33] Economically, weak families do not prioritize healthy latrines but expect assistance from the government and others. This study explained that one of the causes of low awareness of the behavior of stopping defecation was poverty. Therefore, the financing concept needs to be integrated into the triggering method through stimulant funds for latrine construction. The success of implementing the CLTS program to stop OD behavior was influenced by the availability of government funds.[34–36] The construction of healthy latrines can be conducted in collaboration with community self-help by collecting monthly contributions as a form of empowerment.[37]

This study showed that the ODF program has not been implemented optimally, starting with planning, organizing, implementing, and monitoring evaluation. The reason is that it has not been a priority and has not been supported by an activity budget. Planning for the ODF program was necessary to understand the problems, causes, solutions, and required resources. With a well-structured framework of roles, functions, and tasks, the implementation of the program, as well as its monitoring and evaluation, can be effectively guided and facilitated. The program will be under control when conducted with appropriate policies and management as well as human resources.[22] Optimizing the performance of the healthy latrine construction program will be maximum when the ODF program is prioritized in the village.[38] It was important to pursue a program that implemented a clean and healthy lifestyle for the population in order to avoid diseases caused by a dirty environment. Hygienic behavior to improve the environment was associated with reduced disease incidence.[39,40] This study adopted perceptions of the informants' understanding and experience as a measure, which tended to be subjective and required further investigation into the actual problem. However, a strong understanding of factors limiting the successful implementation of the ODF program in East Tanjung Jabung District, Jambi Province, was provided.

Conclusion

Numerous people in East Tanjung Jabung District engage in OD due to the lack of toilets, which is attributed to economic, geographical, cultural, and knowledge factors. Both villages and PHCs had no policies and regulations for implementing the ODF program. Additionally, insufficient human resources, infrastructure, and budget are due to these issues not being prioritized and government and private support remaining limited. The village should implement the ODF in an integrated manner with the stunting reduction program, which is the government's current priority. Furthermore, the PHC was expected to optimize the ODF triggering activities further to increase public awareness about the necessity of maintaining a healthy environment.

Abbreviations

OD: open defecation; CLTS: Community-Led Total Sanitation; ODF: open defecation free; CIPP: Context, Input, Process, Product; PHC: primary health care; lokus: *lokasi fokus/*focus location; HDC: Human Development Cadres.

Ethical Approval and Consent to Participate

This study was conducted with ethical approval from the Health Research Ethics Commission of Jambi Health Polytechnic of Ministry of Health Number: LB.02.06/2/0230/2023.

Competing Interest

The authors declare the absence of significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

Availability of Data and Materials

The datasets used are available from the corresponding author upon reasonable request.

Authors' Contribution

G and RW performed the data collection and designed and drafted the initial manuscript. G, S, and H conceptualized the study and interpreted the results. G and WNER performed the statistical analysis and finalized the manuscript.

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