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Assessment of sustainability of nirmal gram panchayats in Gondia district

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Abstract

The study is undertaken to access socioeconomic, institutional, technical and environmental factors to determine the state of sustainability of NGP scheme in all 8 talukas of Gondia District of Vidarbha region in Maharashtra state. Total 40 NGP villages are included in the study. Data was collected from total 400 villagers and 80 Gram Panchayat representatives. The data was collected by using household interview schedule, inspection checklist, focus group discussion and bacteriological water testing (H₂S strip method). It is evident from the result that sustainability of Nirmal Gram Puraskar scheme in Gondia district is low and requires very high concern of implementing machinery and bodies to retain sustainability of scheme in Gondia District. It is also observed that moderate concern is needed for sustainability of technical factor, however greater concern is required for the sustainability of socioeconomic, institutional and environmental factors related to NGP.

Keywords: Nirmal gram puraskar, sustainability, socioeconomic, environmental, institutional, technical factor.

Introduction

The total sanitation campaign (TSC) was initiated by Indian Government during year 1999. It is implemented in rural areas with objective to eradicate open defecation practices. (Ministry of Rural Development, 2006) [8] TSC was implemented in India with multifold principles which include- less to no subsidy, emphasis on generation of awareness, community centered and demand responsive approach, reliable supply chain, school sanitation and hygiene education and involvement of Panchayat Raj Institutions (PRIs) and Non-Governmental Organizations. (Ministry of Drinking Water and Sanitation, 2016) [6] The Nirmal Gram Puraskar (NGP) Scheme was initiated by Government of India to support the TSC in June 2003. The scheme is limited to Gram Panchayats only. Total 28590 Gram Panchayat were awarded with Nirmal Gram Puraskar till 2013 out of which, Maharashtra stand first among all states with 9523 awards. (Ministry of Drinking Water and Sanitation, 2013) [7] In the state of Maharashtra, Gondia district is selected for the structure district consist of eight talukas ie. Gondia, Tirora, Goregaon, Sadak Arjuni, Arjuni Morgaon, Amgaon, Salekasa and Deori. There are 556 villages or village in Gondia district. There are 327 Gram Panchayat awarded by Nirmal Gram Puraskar in Gondia District.

Review of literature

Rajendran *et al.*, (2013) [10] analyzed micro level information of NGP. He concluded that the people don't know the importance of toilets and not have adequate awareness. Kuberan *et al.*, (2015) [3] emphasis a need for intervention to educate individuals about drinking water treatment methods, sanitation, and hand washing practices. Pink (2016) [9] argued that global population stands at approximately 7.1 billion and is projected to reach 9.7 billion by 2050. The current level of water insecurity that affects nearly 800 million people will be exacerbated in future decades by growing population, pollution, and climate change. Udmale *et al.*, (2016) [12] examined rural drinking water availability issues. They point to an immediate need to investigate the problem of contaminated drinking water sources while designing relief measures for drought-prone areas of India. Han *et al.*, (2018) [2] examined the factors influencing domestic waste in rural areas of developing countries. They found that there is relationship existed between domestic waste generation and people's income in rural areas.

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The waste characteristics were also influenced by the mixing of agricultural and aqua cultural waste into domestic waste in the harvesting season. The domestic waste sampled in households indicated a lower rate of generation and lower ash content than when the waste was sampled at transfer stations or dumping sites. Based on the above analysis, the factors influencing domestic waste must be considered in order to optimize the design of waste management strategies. Geetha and Sampath Kumar (2014) [1] revealed that open defecation and its attendant medical problems were rampant in the community with nobody even bothering to do anything to overcome it. While open defecation was in practice, many women specially mothers (98%) did not know how to dispose of their children's faeces safely. Kumar (2017) [4] evident that there is an urgent need to pace up the developmental efforts for rural sanitation to achieve the SDGs, along with complementary measures to focus on backward regions, weaker sections and socio-spatial position of households in rural India. Ramani *et al.*, (2017) [11] suggested that to eliminate open defecation: toilets installation, behavioural change, and sustainable mechanisms to maintain school toilets seem necessary. The literature survey reveals that the sustainability of Government sanitation schemes was affected by certain factors which includes socioeconomic, institutional, technical and environmental factors. Hence it is necessary to evaluate these factors for determining sustainability of Government sanitation schemes. Thus, in the backdrop of above information, the research has been undertaken to access these factors to determine the state of sustainability of NGP scheme in all 8 talukas of Gondia District of Vidarbha region in Maharashtra state.

Research methodology

The sustainability of NGP was determined by using method adopted by Mendiratta *et al.*, (2018) [18]. Four interrelated factors for sustainability which includes socioeconomic factor, environmental factor, institutional factor and technical factor. Each factor comprises of five parameters; the details are as follows-

- Socioeconomic Factor: The socioeconomic factor includes parameters at household level, which are- i) use of toilet by family members, ii) storage and handling of water, iii) cleanliness of family member at critical times (use of hand wash or ash after defecation to wash hand), iv) Collection and disposal of solid waste and v) disposal of waste water.
- Environmental Factor: Environmental factor includes parameters at Gram Panchayat level, which are- i) condition and functionality of community or institutional toilets, ii) condition and functionality of Anganvadi and Schools, iii) surrounding premises and arrangement of collection and disposal as well as potability of community water sources, iv) arrangement for collection and disposal of solid waste and v) arrangement for collection and disposal of waste water.
- Institutional Factor: Institutional factor includes parameters at Gram Panchayat level, which are- i) availability of functional and active water and sanitation committee as well as community participation in planning and monitoring water sanitation facility, ii) availability of adequate funds for operation and maintenance of community/institutional, water and sanitation facilities, iii) availability of plans and funds for solid waste and waste water management systems, iv) availability of technical and financial support from

external support agencies in planning, implementation and v) operation and maintenance of water and sanitation facilities

- Technical Factor: The technical factor includes parameters at household level, which are- i) structure of toilet (condition and functionality), ii) distance of toilet pit from water source, iii) availability of hand washing facility, iv) location and distance of water source and v) potability of water (potability tested by H₂S strip method).

For collection of data 5 NGP villages were selected from each taluka of Gondia district. Hence, total 40 NGP villages are included in the study. 10 villagers and 2 Gram Panchayat representatives in each selected village from all eight talukas of Gondia District were selected for getting responses. Thus, data was collected from total 400 villagers and 80 Gram Panchayat representatives. The data was collected by following means-

- Household interview schedule
- Inspection Checklist
- Focus Group Discussion
- Bacteriological water testing (H₂S strip method)

Each parameter under particular factor has provided 20 marks, hence each parameter assigned with maximum score of 20 if it fully met the requirements. The actual score is assigned to each parameter after assessment. The average score of all the five parameters under each factor is worked out as percentage of total maximum score of 100. The taluka sustainability index was prepared out as percentage of total scores of the four factors of sustainability assessed in the Nirmal Gram Panchayat in that taluka.

Keeping in view the significance and utility of District Sustainability Index (DSI) it has been categorized in four categories as follows:

- SSI<50 Low- with High Concern
- SSI >50 and < 75 Moderate- with moderate concern
- SSI>75 and <100 High-with low concern
- SSI= 100 Highest- with no concern

Result and discussion

The taluka wise score of all four factors of sustainability in eight talukas of Gondia district derived from assessment of 40 Nirmal Gram Panchayat are given in Table 1.

Table 1: Taluka wise score of four factors of sustainability and taluka sustainability index of Gondia District

Taluka	SEF (%)	EF (%)	IF (%)	TF (%)	TSI (%)	Category
Gondia	61.6	68.5	41.8	72.2	61.0	Moderate
Tirora	31.5	34.3	26.8	68.1	40.2	Low
Goregaon	46.6	41.2	21.9	70.4	45.0	Low
Sadak Arjuni	39.8	41.6	24.4	66.4	43.1	Low
Arjuni Morgaon	42.3	36.5	30.2	69.7	44.7	Low
Amgaon	32.9	37.2	28.5	62.1	40.2	Low
Salekasa	28.6	32.1	25.2	65.5	37.9	Low
Deori	34.7	31.2	20.7	62.3	37.2	Low
DSI (%)	39.8	40.3	27.4	67.1	43.7	Low

SEF- Socioeconomic Factor; EF- Environmental Factor; IF- Institutional Factor; TF- Technical Factor; TSI- Taluka Sustainability Index; DSI- District Sustainability Index

Above Table 1 illustrate information regarding taluka wise score of four factors of sustainability and taluka sustainability index of Gondia District. It is apparent from the table that

taluka wise sustainability index of Gondia taluka was 61.0% which represented moderate category of sustainability with moderate concern for NGP in Taluka. The score of socioeconomic, environmental, institutional and technical sustainability factors was 61.6%, 68.5%, 41.8% and 72.2% respectively for Gondia Taluka. Taluka wise sustainability index of Tirora taluka was 40.2% which represented low category of sustainability with high concern for NGP in Taluka the score of socioeconomic, environmental, institutional and technical sustainability factors was 31.5%, 34.3%, 26.8% and 68.1% respectively for Tirora Taluka. Above Table 1 illustrate information regarding taluka wise score of four factors of sustainability and taluka sustainability index of Gondia District. It is apparent from the table that taluka wise sustainability index of Gondia taluka was 61.0% which represented moderate category of sustainability with

moderate concern for NGP in Taluka. The score of socioeconomic, environmental, institutional and technical sustainability factors was 61.6%, 68.5%, 41.8% and 72.2% respectively for Gondia Taluka. Taluka wise sustainability index of Tirora taluka was 40.2% which represented low category of sustainability with high concern for NGP in Taluka the score of socioeconomic, environmental, institutional and technical sustainability factors was 31.5%, 34.3%, 26.8% and 68.1% respectively for Tirora Taluka. The NGP sustainability index of Gondia District was 43.7% which represented low category of sustainability with high concern for NGP in District. The score of socioeconomic, environmental, institutional and technical sustainability factors was 39.8%, 40.3%, 27.4% and 67.1% respectively for Gondia District.

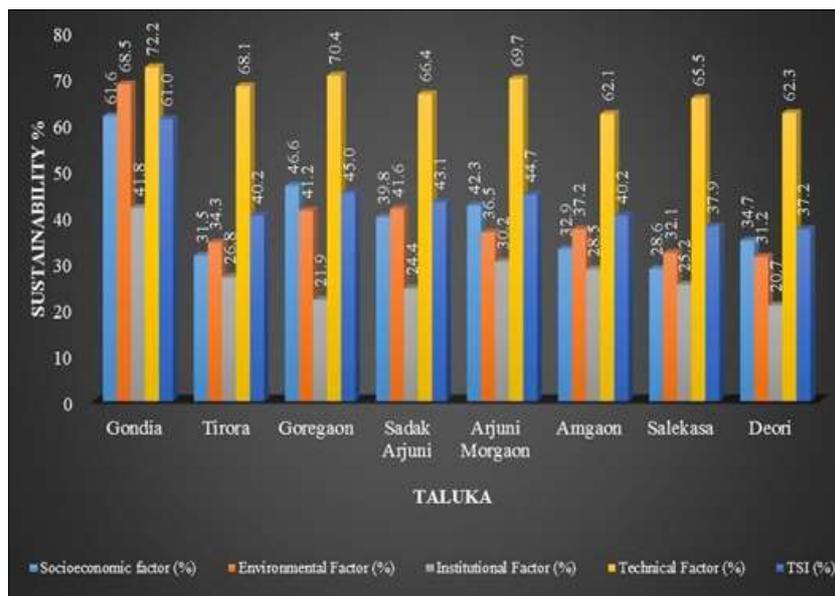


Fig 1: Taluka wise score of four factors of NGP sustainability

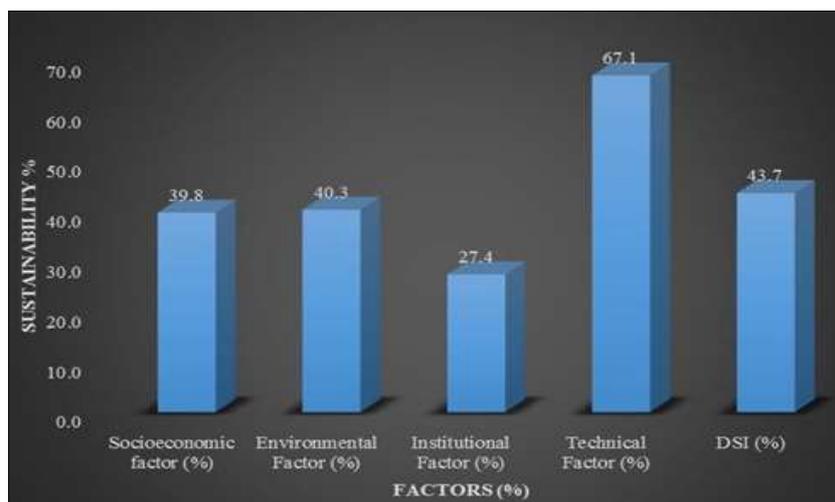


Fig 2: Overall score of four factors of NGP sustainability of Gondia District

Conclusion

It is evident from the result that sustainability of Nirmal Gram Puraskar scheme in Gondia district is low and requires very high concern of implementing machinery and bodies to retain sustainability of scheme in Gondia District. It is also observed that moderate concern is needed for sustainability of technical factor, however greater concern is required for the sustainability of socioeconomic, institutional and environmental factors related to NGP. The sustainability of

NGP in all Talukas of Gondia district is low except for Gondia taluka where it is moderate. It is suggested that local bodies should be strengthened by providing funds and adequate machinery to maintain the sustainability of NGP in NGP villages of Gondia District. Furthermore, socioeconomic, environmental, institutional and technical factors related to sustainability of NGP should be addressed on priority basis by authorities.

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