Global Green Growth Institute

Custom Tax Reduction on Fecal Sludge Management Equipment in Nepal

Summary of proposed intervention

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Version 1.0

1. Context and Rationale:

In view of the existing financing gap in the sanitation sector, the limited public budget available to the government of Nepal, and many competing government priorities, an increase in private investment in the sanitation sector is crucial to achieve the national sanitation targets as per The Fifteenth Plan (Fiscal Year 2019/20 – 2023/24), which is guided by the targets set forth by the UN Sustainable Development goals (SDG). At present, the engagement of the private sector in the sanitation sector is limited to the user interface[1] and the desludging of fecal sludge.[2] However, as provided for water treatment and sewerage, incentives should be also provided for private investors interested in engaging in fecal sludge management (FSM) in Nepal.

Together with MOWS (Ministry of Water Supply)/DWSSM (Department of Water Supply and Sewerage Management, in 2019/2020 GGGI conducted a series of consultations to identify the key current barriers to private investment in the sector. An initial GGGI assessment had identified several policy interventions that could stimulate private investment in sanitation services in Nepal. In particular, the assessment identified a reduction in the custom tax duties for the equipment used in FSM services as a priority.

This note summarizes the cost-benefit analysis (CBA) and the proposed implementation plan for this specific policy intervention.

2. Proposed Policy Intervention: Custom/Import Tax Reduction on FSM related equipment

Import duty and VAT are currently levied on FSM services and products in accordance with the financial act "*Arthik Ain*-2077 and the Budget of Nepal 2077[3]". At the same time households have limited budget for sanitation services. Therefore, to attract private investment, it is advised that the government provides tax incentives by adjusting the tax rate.[4]

Box 1: Provision in GON Financial Act

In Nepal, for the sanitation sector, the *Arthik Ain 2077-78* contains a provision for the custom tax eligibility of 1% to equipment imported under harmonic code 8421.21.00. This harmonic code identifies equipment used for filtering or purifying water and the *ain* mentions that equipment used in sewerage treatment is subjected to the approval from concerned municipality. However, only 30% of Nepal is covered by sewer networks while 70% is serviced by on-site sanitation system. Hence, it has become essential to extend the custom tax reduction provision to equipment used in FSM.

Discussions with the private sector indicate that the additional costs incurred by FSM business, notably importing equipment such as vacuum trucks and treatment plants, cost millions. Nevertheless, private sector investments would

[3] As per Arthik ain-2077 import duty on carbonization furnace, dryer, bricket machine, mixer machine, wood plate burner, biomas gasifier has been reduced to 1%.

[4] Candela, Lumen. (2020, 12 29). *The Impact of Policy on Growth.* Retrieved from courses.lumenlearning.com: https://courses.lumenlearning.com/boundless-economics/chapter/the-impact-of-policy-on-growth/

likely increase if a tax concession is provided at the initial stage. The government can also benefit substantially in those cases. GGGI and MoWS carried out a cost benefit analysis (CBA) to assess expected net economic benefits.

Summary of Cost Benefit Analysis (CBA)

The CBA includes expected benefits in terms of economic impact, revenue impact, and environmental and health impacts. Economic benefits take increment in capital investment and private consumption into consideration, while revenue benefits include direct and indirect tax contributions to the government. Environmental and health benefits capture other benefits including total reduction in diarrheal cases and reductions in the negative effects from greenhouse gas emissions and air pollutants.

These are the key points/assumptions for the CBA:

i. Time frame and relative populations until 2030 have been taken into consideration to align with the SDG time frame; and

ii. To complement the fiscal incentives, a minimum subsidy of 40% will be provided to set-up fecal sludge treatment facilities.

The assessment results are as follows:

I. The list of the eligible FSM products and equipment for the tax reduction was identified through a rigorous consultation including government officials, private companies, and key FSM experts in Nepal.

II. An estimate of the FSM market by 2030 was made along with tax reductions for 13 product categories that would benefit from tax reductions (see Table 1). MOWS backed the idea for FSM equipment extended the list to incorporate equipment used on wastewater treatment. Though these wastewater elements are not included in the CBA the final list to be forwarded to Ministry of Finance (MOF) will include this additional equipment (including the Omni Processor). The extended list is presented in Annex I.

Table 1: Product categories for FSM with current and proposed tax reduction (%)

	List of products	Current tax rate [5]	Proposed reduction	Revised tax rate
1	Prefab plastic/ other materials septic tanks	30	5	25
2	Vacuum pumps	7.25	5	2.5
3	Vacuum truck	15	5	10
4	Tube Settlers	5	2	3
5	Up flow Anaerobic Bioreactors	5	2	3
6	Belt Filter Press	5	2	3
7	Chamber Filter Press	5	2	3
8	Screw Press	5	2	3

[5] The given tax rate is applied if products and equipment is imported from the SAARC countries. Different set of tax rate could be applied if the products are imported from countries other than SAARC.

9	Sludge pump	6	2	4
10	Disinfecting equipment: UV (Ultraviolet) radiation. chlorinators	5	2	3
11	Dosing systems (For Chlorination)	6	2	4
12	Aerators	9.5	5	4.5
13	Island grease trap (Used in Treatment Plants)	5	2	3

The reductions proposed in Table 1 and the following estimates for FSM elements were used as a basis for the CBA:

- 70 desludging companies required by 2030
- 61 fecal sludge treatment companies required by 2030. 21 high tech companies capable of producing biogas and fertilizer; 40 companies only produce fertilizer.
- 705,600 septic tanks required by 2030.

The government will incur a cost due to the provision of 40% subsidy for the investment in new fecal sludge treatment Plants (FSTP).

<table>
<tr><td colspan="2">Benefits to the Government

Economic benefit to the government has been calculated by considering two broad scenarios—benefits from desludging and collection companies and benefits from FSTP-biogas and fertilizer. Besides, the benefit also includes increment in collection of taxes due to increasing import of FSM products with the reduction in tax.</td><td colspan="2">Cost to the government

Cost to the government involves 40% cash subsidy on the purchase of FSTP.</td></tr>
<tr><td>Economic benefits from desludging business (investment contribution of the private firms and tax contribution in form of profit and salary tax)</td><td>NPR 212 million</td><td rowspan="3">Total cost to the government</td><td rowspan="3">NPR 2.78 billion</td></tr>
<tr><td>Tax gain due to reduction in tax braket</td><td>NPR 5.64 billion</td></tr>
<tr><td>Economic benefit from FSTP-biogas and fertiliser.</td><td>NPR 4.21 billion</td></tr>
<tr><td colspan="4">Total Net Benefit: 7.28 (Benefits minus cost)</td></tr>
</table>

Economic benefit includes investment contribution of the private firms to the Gross Domestic Product (GDP), indirect tax contribution (salary tax of an employee) and direct tax contribution (profit tax of the institution). Also, with the decrement in tax bracket, the import of FSM products will increase contributing to the increasing collection of the tax revenue. Likewise, cost to the government is expected to incur while disbursing the cash subsidy (while setting up FSTP) to the private sector.

III. Environment and health benefits from the enhanced fecal sludge management assessed in terms of economic value, is calculated to be around NPR 14.48 billion. The basis for this calculation is there are three kinds of health-related

benefits resulting from the fecal sludge management – reduction in diarrheal cases, days lost from work avoided, and savings due to reduction in emission of different types of harmful chemicals. In the case of diarrheal incidences studies indicate that diarrheal cases can be reduced by 60% with the proper management of sanitation[6]. Likewise, as the diarrheal patients need to spend NPR 569 per episode to sure the diarrhea, this is a considerable burden for some households[7]. Furthermore, good health will reduce absenteeism. As estimated by WHO, a diarrheal patient will need to take 2 days of leave each time[8]. Finally, the treatment of fecal sludge will reduce the emission of harmful gases like carbon dioxide, methane, carbon monoxide, nitric oxide, sulfur dioxide, hydrocarbon, hydrogen chloride, hydrogen sulfide, and hydrogen fluoride. The release of such gases has its own cost to human health. As per the calculation the cost to human health of per tons of dry sludge is NPR 1000.[9] Table 3 summarizes the economic benefits.

Table 3: Environment and health benefits

Benefits	
Savings from reduction in diarrheal cases	NPR 4.04 billion
Income gained due to days lost in work avoided	NPR 10.42 billion
Savings from reduction in emission of chemical gases	NPR 0.01 billion
Total environment and health benefit	**NPR 14.48 billion**

IV. Based on the above assessment, the benefit to cost has been calculated to be **8.84.** (Table 3)

Table 3: Cost and benefit ratio

Total cost to the government	NPR 2.78 billion
Total benefit to the government	NPR 24.54 billion (Economic plus Environment and Health)
Benefit to cost ratio 8.84	

[6] National Library of Medicine. (2010, 08 10). Pubmed. Retrieved from Pubmed.gov: https://pubmed.ncbi.nlm.nih.gov/20620115/

[7] Marina Vaidya Shrestha, S. R. (2019). Household Expenditure on Diarrhea Treatment among Under Five Children in Godawari Municipality of Nepal. *JNHRC*. https://www.jnhrc.com.np/index.php/jnhrc/article/view/2181#:~:text=The%20average%20out%2Dof%2Dpocket,NRs%20114.15%20(US%20%241.01)w

[8] WHO. (2004). *Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level* . WHO. https://www.who.int/water_sanitation_health/publications/wash-improvements-costs-benefits/en/

[9] RPA, Milieu Ltd and WRc for the European Commission. (2008). *Environmental, economic and social impacts of the use of sewage sludge on land.* https://ec.europa.eu/environment/archives/waste/sludge/pdf/part_ii_report.pdf.

Exchange rate of 1 euro=NPR 120 has been assumed.

3. Communication and Awareness

Communication and awareness generation on the tax provision once it is approved by the government, is a crucial step. There could be various marketing products developed through partnerships with local NGOs and stakeholders including advertisement in newspaper, television, radio, and brochure, however as discussed with the private players these conventional communication tools have become obsolete with the advent of electronic media. At present, the most popular communication product is the electronic media. Companies often design their own e-brochure and post it in the social media including facebook, twitter and Instagram which also reduces costs. A formal government channel could also be used.

Another important aspect of communication and awareness is that all the required procedures should be clearly documented and shared with concerned government entities involved in the approval process. This needs to be carefully worked on during the implementation phase.

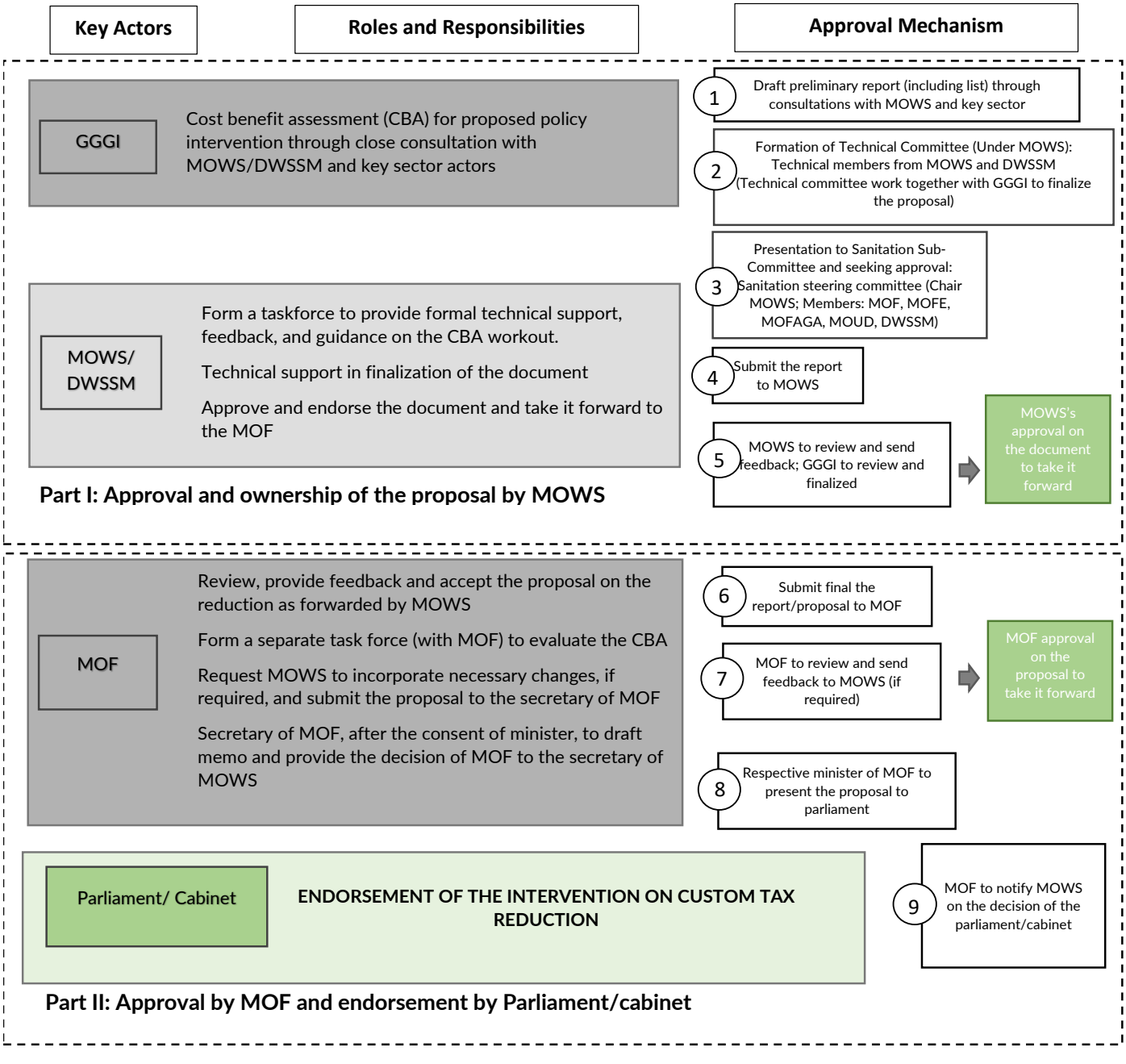
4. Where are we now: Status of the assignment – phase I completed

The policy has been approved by the MoWS which is the stage committed in our current grant deliverables. The proposal has been developed through extensive consultation with the key sector stakeholders under the guidance and leadership of Ministry of Water Supply, and following documents have been submitted to the Ministry of Water Supply:

a. The proposal on the custom tax reduction with detailed cost benefit analysis
b. The list of the sanitation equipment to be forwarded for the custom tax reduction
c. The implementation plan for the proposed intervention

Lobbying and approval from the Ministry of finance and Implementation of the fiscal measures will be dependent on the MoWS.

Implementation Plan Summary:



Note: *MOWS will closely coordinate with FNCCI and private players throughout the process. These entities act as lobbying group for the implementation of the proposed tax reduction*

MOWS: Ministry of Water Supply; DWSSM: Department of Water Supply and Sewerage Management; MOF: Ministry of Finance; FNCCI: Federation of Nepalese Chamber of Commerce and Industry.

Annex I:

S.No.	Name of specific products
User-Interface	
1	Urine diverting Dry toilets Pan (different types)
2	Waterless Urinals - Toilet Bowels
Collection/Containment	
3	Prefab plastic/ other materials septic tanks
4	Jokaso
5	Containments and Super structure used during disaster responses **(Emergency toilet)**
6	Island grease trap (HHs, Institutional)
7	Household level and Institutional level biogas digestors (Puxin,etc.)
8	Geobag (Intermediate collection)
9	Sludge collector
Emptying and Transport	
10	Sludge pump
11	Gulper
12	Vacuum Tankers (De-sludging trucks)
13	Vacuum and progressive Cavity Pump
14	Inlet Wastewater Pump
15	Coarse, fine and scum Screen
Treatment	
Solid Liquid Separation	
16	Mechanical screens (Drum screens; Step screen, etc.)
17	Tube Settlers
18	Cationic Polymers, and other, coagulation and flocculation polymers
19	Inoculum
Dewatering	
20	Belt Filter Press
21	Chamber Filter Press

22	Centrifuge equipment
23	Screw Press
Stabilization/further treatment	
24	Disinfecting equipment: UV radiation, chlorinator
25	Chlorine Dosing pump (For Chlorination)
26	Aerators
27	Pasteurization Equipment
28	PVC media used in biological treatment: e.g. Pallrings (Bio-media)
29	Diffusers
30	Membrane Bio Reactors (MBBR)
31	Jokaso FSTP
32	Omni Processor
33	Grit Remover
34	Grit clarifier
35	Sludge conveyor
36	Scum Skimmer
37	Gravity Thickener
38	Mechanical thickener
39	Deodorization Facility
40	Biogas flare system
41	Gas scrubbing system
42	Omni Processor

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