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Request for Proposal
Development of online simulation/phone app

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A. Background and Rationale

Urban sanitation is an emerging challenge for India. With only one third of the population having access to sewerage-based sanitation systems and growing problems of untreated sewage and septage waste dumped into water bodies, and growing water scarcity, there is a need to rethink centralised sewerage-based systems and shift the focus to decentralised systems for managing faecal waste.

Sanitation Capacity Building Platform (SCBP) is an initiative of the National Institute of Urban Affairs (NIUA), Delhi for addressing urban sanitation challenges in India. SCBP Phase I (2016-19) and Phase II (2020-22) are supported by a Bill and Melinda Gates Foundation grant. The project is aimed at promoting decentralised urban sanitation solutions for septage and waste water management.

Under Phase I, multiple training modules have been developed addressing different aspects of faecal sludge management, and are available on the SCBP website. These training modules integrate presentations with hands-on exercises to keep the participants engaged, and the kind of exercise varies according to the participants' profile. Under Phase II, SCBP is currently engaged in gamifying these exercises in order to better achieve its goals of using actual case studies to increase information retention by participants even after the conclusion of the training session. With this in mind, SCBP and its partners are engaged in building a physical board game, and now wishes to engage with an experienced and reputable technology company to develop computer-based simulations and/or mobile phone apps of these exercises, which can vastly increase its reach. This is the primary objective of this exercise.

The main target audience for these simulations/apps are Urban Local Body and state-level officials in various technical and non-technical roles; however, the apps/simulations can potentially be made accessible to other stakeholders working on sanitation-related issues in India. The simulations/apps will be developed with the dual purpose of informing as well as promoting the subject matter to decision makers, both current and in the future.

Interested companies are invited to apply to NIUA using this RfP.

B. Scope of work

The design of the simulation/apps will be based on SCBP's past work used in its training modules and include content from these modules, as well as combine data and information from cities and towns which have implemented decentralised sanitation solutions advocated for by SCBP and its partners. The modules developed by SCBP contain exercises (described in detail in each module available on the SCBP website) which are proposed to be developed into simulations and/or app-based games (details are included in annexures). Companies are encouraged to propose, based on their past experience, different ways of building the simulation/app in order to achieve the desired objectives (indicative ideas are included in the annexure). Further, the agency is also expected to maintain the simulation/app through regular updates, and must be accessible on platforms like Windows, Android and iOS. The simulation/app must also be equipped with relevant security certificates for each of the platforms.

The simulation/app must, preferably, be available offline as well as online, in order to expand the reach of participants (or players), many of whom may be present in areas with low internet bandwidth/coverage. The simulation/app must have a built-in analytics mechanism to track and identify user experience and feedback, and must also accommodate future scalability requirements. While these are not mandatory, they are recommended in order to achieve the objectives of the exercise, and ways to do this may be discussed with SCBP at a later date. Any other requirements

deemed necessary must also be included in the proposal by the company (such as encryption measures, business continuity plans, data backups etc).

Developing the simulation/app which includes the back-end technology is the primary task, with associated gamification techniques (such as leaderboards, multiplayer options, complexity levels etc.) included within it. Also, proposals must include examples of past work (if any) in building such simulations/apps for government or government-related work in India or abroad, as well as ideas which can be explored in order to achieve the desired objectives. Further, the work plan proposed must also allow for sufficient time to incorporate any changes based on feedback given by SCBP and its partners, before the finalisation and launch of the simulation/app. The proposal should also include the design document (based on information in the annexures of this document as well as other ideas from the company).

NIUA in partnership with SCBP partners, will provide a detailed model for the simulation/app, based on its past experience in Indian cities, and any other technical details, data, information, images and maps etc. required in building the simulation/app. SCBP's progress in building the physical game and all associated details will also be shared. The selected company will also be responsible for developing the System Requirement Specifications (SRS) and Functional Requirement Specifications (FRS) based on the material provided by NIUA.

The simulation/app, including the developed SRS and FRS, will be the property of NIUA and will be hosted on the NIUA/MoHUA servers. Once the initial app is released and initial bugs, if any, resolved, the company will also be responsible for handover, guidance and training to NIUA staff in order to maintain the simulation/app post-completion of the contract.

C. Details of the proposal, deliverables and timeline

Any contracts resulting from this RFP will be based on the most advantageous offer to SCBP in terms of cost, functionality, content and timelines. Further, SCBP reserves the right to:
- Discontinue this RFP process without obligation or liability
- Accept other than the lowest priced offer
- Award more than one contract

The proposals are to include the following information (indicative):
1) Approach and methodology
   Include a description of approach adopted to simulation/app development in the past as well as for this particular project. Further, any relevant processes used to incorporate feedback, resolve technical issues etc. must also be included.

2) Deliverables and timeline
   Include a detailed work plan to complete the described work and deliverables within the stated timeline. Also indicate the areas of support required from SCBP in the workplan to complete deliverables as per schedule. An indicative deliverable and corresponding timeline is summarised below:
   - Detailed plan (including technical details): 2nd Week
   - Developing/finalising the logic flow of the app: 6th Week
   - Demo/first iteration: 16th Week
   - Incorporating feedback based on testing from NIUA and partners: 20th Week
   - Delivery of final product and launch: 24th Week
   Any deviation from the above will have to be justified in the proposal. Further, the above deliverables will also provide the basis for releasing payments to the selected company, and will be finalised in the contract.

3) Detailed pricing

Include a breakdown of pricing based on the deliverables mentioned, and provide separate cost estimates of developing the simulation/app and the cost of operating and maintaining the developed simulation/app through the contract period.

4) Description of prior projects, if applicable
Include an overview of completed projects relevant to this RFP, and provide an example of related work, preferably done for government clients in India or abroad.

D. Who can apply

Preference will be given to companies/individuals who have worked with government or government-affiliated agencies in the past to develop similar simulations and apps, including those for multilateral organisations. Individuals as part of a consortium will also be considered, however, the principal person in charge has to be mentioned clearly in the proposal.

All proposals will be evaluated and shortlisted by a committee at NIUA and an interview will follow for the final selection.

Only successful applicants will be informed.

E. Selection Process

Kindly send your proposals by 5th September 2020 electronically to akshayagarwal@niua.org copied to akumar@niua.org.

Proposals should preferably be less than 10 pages, including appendices, and should include the sections described above and accompanied by any other relevant information. In case of any queries related to this RFP process, you may write to us at the above email addresses.

The terms and conditions will be as per contracting processes of NIUA.

Appendix 1: Brief note on the simulation/app

The SCBP team at NIUA and its partners see this game as a learning tool, to complement our existing capacity building measures for government officials at various levels. It is not meant to simulate actual events, even though the gameplay is informed by our experiences in the past, nor is it indicative of all possible consequences of decisions taken by participants in the real world. However, the main goal is to ensure that players learn about the conflicts and trade-offs that exist in the real world by experiencing it through meaningful game play. After playing the game, players will be in a situation to understand the needs and perspectives of the various stakeholders involved in city-level sanitation, and how best to balance them out under specific natural conditions.

The game play is envisaged to be used broadly, and therefore, has to be designed so that it fits into multiple applications such as standalone version (which participants/players can download on their devices and use without a facilitator) as well as supplementing workshops and trainings conducted by SCBP for government officials (in presence of facilitator). Doing so will also ensure that the game play is self-explanatory and therefore, can be considered to be open to general public and other non-government stakeholders as well. However, the core role of the player will be as a government official who is in charge of handling the city's sanitation, with the overall aim of ending the game with optimal conditions and satisfying all stakeholders in the system.

In line with the introduction in the above RFP, a short brief on the simulation/app as understood by the SCBP team is presented here. These are divided into three scenarios, with each having its own objectives and mechanisms to achieve said objectives. Please note that these are only indicative and may be altered in discussion with the SCBP team at NIUA.

Scenario 1: Introduction to Faecal Sludge and Septage Management
Objective:
To introduce players to basics of FSSM, including terminology, contexts, existing government policies and legislation, protocols in place etc.

Delivery method:
The SCBP team visualises this to be delivered through a Q&A format with multiple choice options for players to choose from. This format will also have complexity levels for progression from easy to difficult, with the complexity as well as nature of questions changing as the player moves from one to the next level. Each question is to be followed by on-screen text with an explanation to the answer, as well as a voiceover of the text. This method is also seen to encourage participation among players through periodical leaderboard announcements and awards. The nature of questions to be included will be discussed at a later date, and will be updated periodically to include more relevant questions based on SCBP's learnings from its work.

Scenario 2: Implementation aspects of FSSM at city level
Objective:
There are multiple aspects of planning which go into implementing an FSSM strategy at a city level. In this phase, SCBP plans to realise the following aspects of implementation under this RFP: selection of conveyance vehicles/modes, setting up a calendar for scheduled desludging for a city, and selecting appropriate technology for a particular city. The objective of this scenario is to simulate a city-level map and have players plan to implement the above stated aspects with real time consequences of their decisions.

Delivery method:
The SCBP visualises this scenario to be in the form of an app similar to existing urban planning apps (such as SimCity). This scenario will also have different complexity levels which can be developed by varying indicators such as city size, resources available, and event triggers etc. A decision flowchart is presented in Appendix 2, and an indicative game interaction diagram is presented in Appendix 3. Appendix 4 contains examples of triggered and random events, structures and achievements as depicted in the game interaction diagram of Appendix 3.

Scenario 3: Exercises and calculations required in planning for FSSM
Objective:
The current training modules developed by SCBP contain multiple sessions which have participants engage in hands-on exercises and calculations to develop skills in planning for FSSM implementation in their respective cities and/or multiple contexts of Indian cities. In order to expand reach, these exercises need to be developed into a digital format with sufficient explanation for players/ participants to successfully use it for their respective cities based on city-level needs.

Delivery method:
This scenario is visualised as a part of the simulation/app to be developed for scenario 1 above, with backend support for players. This part will have certain constant indicators, while players will be allowed to input custom values for other indicators to arrive at the final result. This will, as in scenario 1, be followed by explainer text and voiceovers for players.

For potential material/content to be included in scenarios 1 and 3, please refer to the existing training modules available on the SCBP website (www.scbp.niua.org).

Appendix 2: Indicative Decision Flowchart

As mentioned under scenario 2 in Appendix 1, the following is a section of the decision making flowchart/logic flow for the selection of technology for treatment of faecal sludge. Please note that this is a part of the diagram, and the complete detailed diagram will be made available to the selected company/person at a later date.
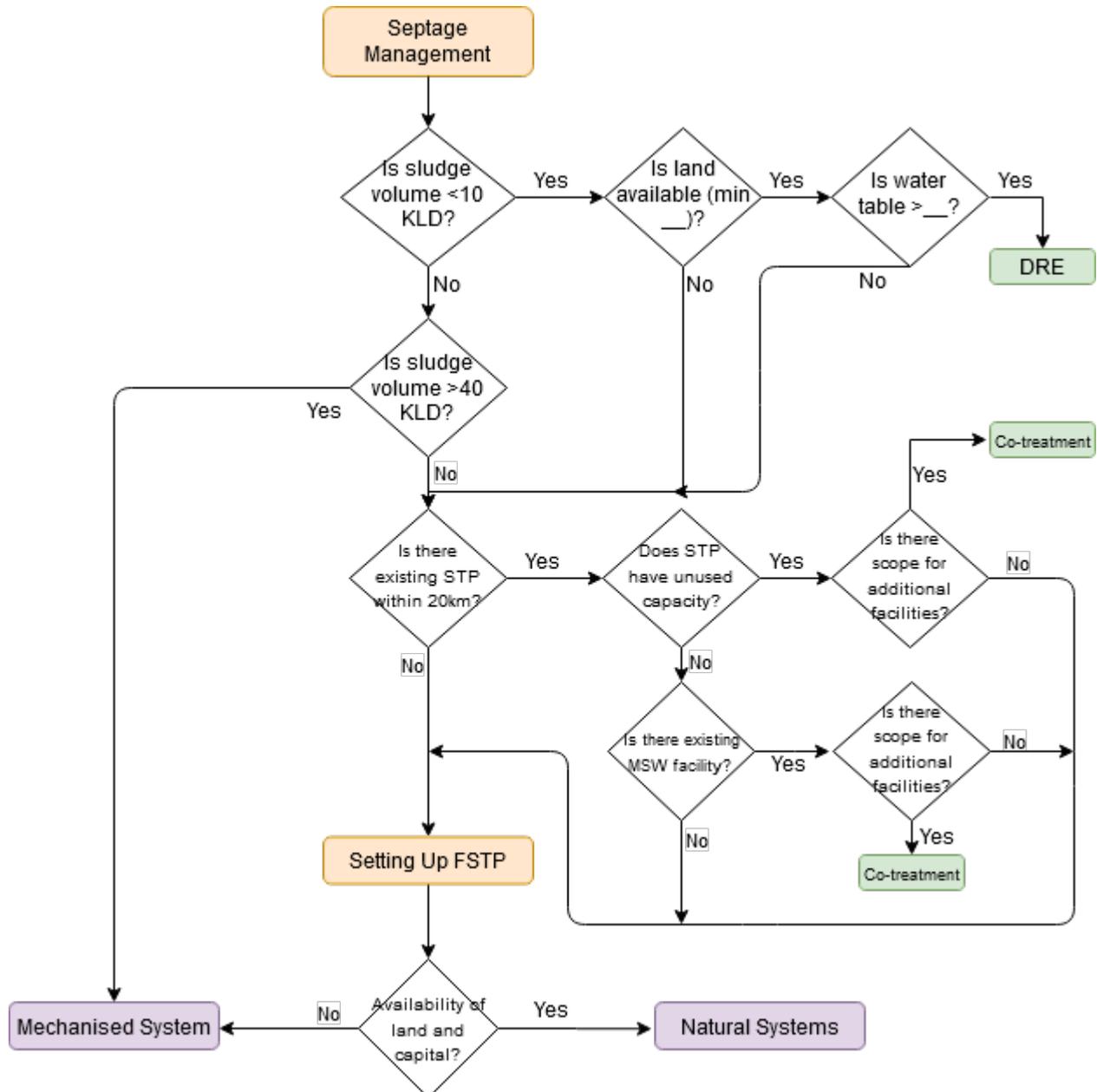
Appendix 3: Game Interactions

As mentioned under scenario 2 in Appendix 1, the following is the game interaction as visualised by the SCBP team. Please note that the number of indicators/events etc. may be expanded in discussion with the SCBP team at a later date.

With the underlying logic mapped behind the scene, we envisage players to learn through playing the game putting to test theoretical concepts covered in other scenarios, as well as through mistakes leading to negative consequences in the game, drawing from the real world.
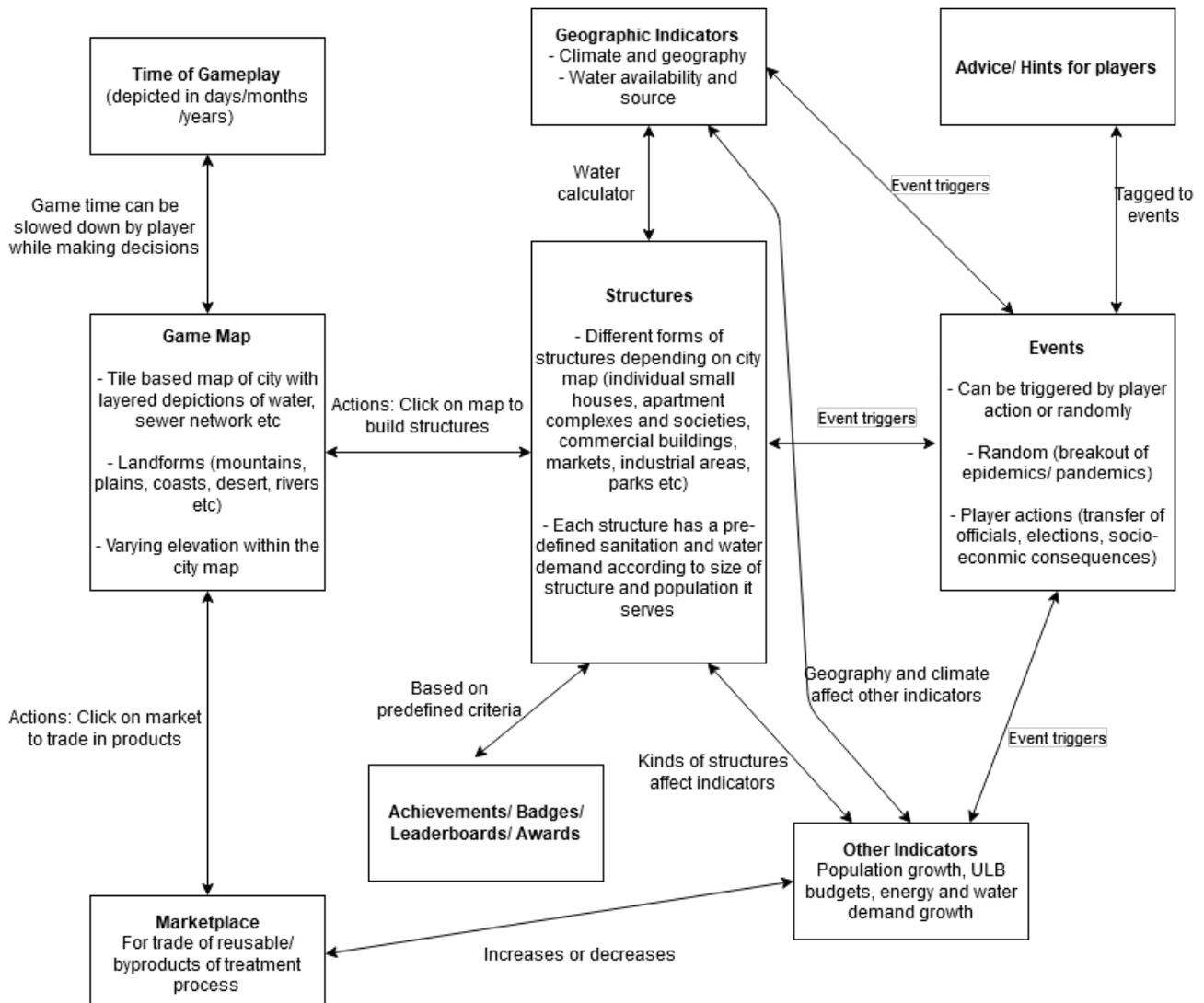
Appendix 4: Examples of Events, Structures and Achievements

Events are classified into random (independent of player actions) and triggered events (dependent on player actions), and a suggested list is below:

Name	Type	Trigger Condition	Short Description
Breakout of diseases	Random	NA	Disease has broken out in areas of the city, with adequate resources and funds required to control the spread
Natural calamity	Random	NA	Due to unseen natural calamity, the city government is forced to step back and focus attention on relief measures
Groundwater pollution caused by poor sanitation disposal facilities	Triggered	Absence of sustainable sanitation in region/ incorrect technology option for groundwater depth	Alert! Due to absence of safe sanitation in XYZ area, the residents have started falling ill, thus putting pressure on the public health system as well as creating adverse political ramifications
Protests by residents	Triggered	Due to inadequate IEC campaigns, residents protest setting up FSTP plant in their locality	Due to opaqueness by government, residents have taken to streets to protest against a planned FSTP in their area, and demand public consultations before project implementation
Transfer of bureaucrat	Triggered	Poor handling of public discord/protests	Due to poor handling of public protests and lack of transparency, the bureaucrat pushing the project at the ministry level has been transferred, and the new person has stalled the project leading to delays in project execution
Satisfaction among farmers in outskirts of city	Triggered	Sale of fertiliser in markets around the city	Due to sale of fertiliser generated by sludge treatment, farmers are able to procure high quality fertiliser/compost and grow organic produce leading to higher incomes
Public satisfaction over job creation	Triggered	Jobs created due to setting up sanitation facilities and treatment plants	Due to the setting up of treatment plants and other operational infrastructure, the increased job creation has pleased the citizens of the city and has brought down unemployment.

Structures are classified under the following categories. The following are already present in the city and are not made available to the player to build. The only structures available to build by players include FSTP-related structures and associated infrastructure. Each kind of structure will have a predetermined water and sanitation requirement which can be seen by the player.

Type	Examples
Residential	Individual houses, apartment complexes, apartment societies, informal settlements/ slums
Commercial	Markets, malls and shopping complexes, neighbourhood shops, office buildings
Industrial	Factories, workshops, power plants, transport stations
Open areas	Parks, playgrounds, vacant land, stadiums, farms

Achievements include recognition for government officers, and these will be along the lines of actual government achievements such as Swachch Sarvekshan Awards. Apart from this, to encourage players, leaderboards will also be made part of the game.