Solid Waste Capacity Index for local governments

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Currently, urban solid waste management (SWM) is one of the significant challenges faced by low- to middle-income countries, an issue that needs to be addressed. Weak capacity in SWM not only causes adverse environmental consequences but also affects the health of the community. In Vietnam, the Law on Environmental Protection (LEP) in 2020 stipulated in Clause 7, Article 72, Sections I and Chapter VI that requires localities be responsible for SWM in their localities, promulgate regulations on waste management and implement preferential and supportive policies for SWM activities in accordance with Law. Therefore, the capacity of SWM at the local level contributes to the sustainable and effective management of solid waste.

The program "Clean City, Blue Ocean" (CCBO) is a key program of the US Agency for International Cooperation, solving solid waste pollution problems and plastic ocean waste. The program is implemented in 10 countries in Asia, the Pacific Ocean, Latin America and the Caribbean: Dominican Republic; Federated States of Micronesia; Fiji; Indonesia; Maldives; Papua New Guinea; Peru; Philippines; Sri Lanka and Vietnam. One of the program's components is to strengthen local SWM systems' capacity. To do this, CCBO has developed a Solid Waste Capacity Index for Local Governments (SCIL), allowing localities to self-assess their current capacity on SWM in association with essential criteria. It is crucial and necessary to build, operate and maintain a sustainable SWM system, helping the locality to identify the current status of SWM and improvements in phased-management activities by performing subsequent assessments. It is an important basis for developing a local SWM plan; in addition, the results of the evaluation also provide important and valuable information for the locality about training needs, as well as the need for policy changes and other related actions.

Solid Waste Capacity Index for local governments (City)

Evaluation Tool

SCIL is a tool developed to assess the capacity of local authorities in implementing 3R (reduce - reuse - recycle)/solid waste system management. During implementation, the current power of local SWM will be identified and a list of issues to be improved is proposed as a basis for developing future implementation plans. Therefore, localities can rely on SCIL's assessment results to strategically invest resources and develop a roadmap to improve their 3R/solid waste system. In particular, the results of this assessment are most meaningful when the locality is implementing the development, updating or review of 3R/SWM plans or strategies.

The SCIL tool is organized in many layers with different levels to become more detailed, designed into components and sub-components help clarify each component that the tool implements, criteria, and questions. The locality completes the questionnaire of each component to get the evaluation score. The tool allows scoring for each component according to the instructions. After determining the score of each component, the overall score of the management capacity of the automatic SWM system is aggregated based on the results of the components. In addition, the tool is designed to be easy, logical and intuitive to use locally, and includes: An Assessment Manual; Introduction to SCIL tools; A set of evaluation and survey questions for each component; Analysis tool (in which tables are built on Excel program). This tool will be published to provide detailed instructions for local governments on how to do this and the process of implementation. When conducting the assessment, the evaluation team reads the entire text of the instructions before implementation. SWM is a complex system with many interconnected components, each of which plays a role in and contributes to the local SWM system. The SCIL tool evaluates the local's SWM system on the basis of

6 components including: (1) Planning component; (2) Policy and legal component; (3) Financial management component; (4) Service provision component; (5) Human resource component; (6) Community connection component.

Planning component

This component aims to evaluate the development of a good and comprehensive master plan for the City's SWM that meets the people's needs, based on two sub-components to evaluate the transparent and complete planning process and the approved long-term, strategic 3R/SWM master plan. Manny criteria need to be developed to determine the above two contents, this component has 9 criteria. Each criterion has a corresponding number of questions. The total number of questions in the planning component is 36.

Policy and legal component

This component is for the purpose of assessing the City's implementation of policy and legal requirements required by higher levels (national and provincial levels), based on 3 sub-components, specifically: (1) an assessment of the city's policies and legislation to support the implementation of 3R/solid waste; (2) Evaluation of performance and monitoring of performance; (3) Evaluation of the practices and responsibilities of stakeholders in the standardized SWM system, this component includes 12 criteria, each criterion will have a corresponding number of questions. The total number of questions in the policy and legal component is 30.

Financial management component

The purpose of this component is to evaluate the systems and processes of management, budgeting and monitoring of costs and revenues of the city's 3R/SWM system, based on three sub-components, namely: (1) Evaluation of if the City has identified and analyzed the financial options for the 3R/solid waste system, the plan to mobilize resources for the system; (2) The City has established a comprehensive budget system for the 3R/solid waste system; (3) The efficiency and transparency of using the budget for the 3R/solid waste system. This component has 7 criteria. Each criterion will have related questions. The total number of questions for this component is 24.

Service delivery component

The purpose of this component is to assess the availability of the City's infrastructure and ways to provide residents with 3R/solid waste services in a reliable, equitable and environmentally friendly manner for all types of solid waste, including recyclable and reusable waste, based on four sub-components, namely: (1) Collection service of all types of waste; (2) Waste collection process and recycling market for materials; (3) Carry out landfilling and treatment of solid waste; (4) Service performance and evaluation. This component's total number of questions is 36, corresponding to 7 criteria.

Components of human resources

The purpose of this component is to evaluate how the City has built effective and fair human resources, organizational structures and processes towards the effective and safe delivery of 3R/solid waste services, based on 4 criteria, specifically: (1) Evaluation of the organization and personnel on 3R/solid waste; (2) Regarding human resource management; (3) Training for officials and employees on 3R/SWM; (4) Regarding occupational safety. This component's total number of questions is 23, corresponding to 8 criteria.

Community connection component

This component was developed to assess the extent to which the City connects with citizens and relevant organizations involved in processes, such as planning/planning, implementation of 3R/SWM activities, continuing receive and incorporate input from the community and stakeholders in the system development and monitoring process, based on two sub-components, namely: Community participation in decision-making on 3R/solid waste, and monitoring activities; Effectively implement the strategies proposed to change the behavior of 3R/solid waste among the people. This component's total number of questions is 28, corresponding to 11 criteria.

In particular, the set of questions is an essential part of the evaluation process. These questions contain the discussion contents and the implementation process of the system. Each question is an evaluation score and the question is formulated in the form of "Yes/No". Each question has a different level of complexity, but the answer is always defined as "Yes" or "Are not". For each yes answer, the evaluator should provide documents corresponding to the content of the questions; as evidence for the answers. The data will be entered into the assessment tool after completing the survey based on the questionnaire of 6 components. This assessment tool is based on Microsoft® Excel software, consisting of sheets and each component corresponds to a worksheet. The scores for each component are automatically aggregated after data entry and accordingly, the aggregate assessment scores are also automatically aggregated.

The purpose and value of the SCIL tool

The purpose of the SCIL tool is to assist cities to self-assess their practical competence in SWM by providing a systematic approach to assessing all six components of the SWM system. The result is an assessment score, providing an overview of the implementation of the current SWM system, identifying the root of significant problems and causes at each component of the system to address them that will provide complete solutions, priority content to be solved in the immediate future and will be solved in the plan. In addition, this evaluation process also enhances coordination, discussion and criticism among members of relevant departments in the City's SWM system, thereby identifying problems. Issues that need improvement fall within the scope and authority of the relevant departments and branches.

The results of this assessment can be used as a basis or combined with the city's existing plan to include the construction contents or the revised content on the city's 3R plan/ SWM. This assessment is expected to be a tool for cities to evaluate SWM system in the area year by year.

Applying the SCIL tool in Viet Nam and its effects

In the implementation plan of the CCBO Program in Vietnam, the SCIL tool is applied and evaluated in 4 cities including: Huế, Đà Nẵng, Phú Quốc and Biên Hòa. Currently, 3 out of 4 cities above have conducted a capacity assessment of the SWM system including: Huế, Đà Nẵng and Phú Quốc.

During the implementation of CCBO, the program has coordinated with the cities to organize a capacity assessment of the SWM system. The total implementation time is from 1 to 3 months; however, this is the entire period when the program has worked with the cities to plan the implementation. The total time to conduct the assessment is about 36 working hours within 1 - 2 months, along with a detailed plan shared with the assessment team members, to help these members proactively arrange the plan for implementation. The program conducts a capacity assessment in Huế City during the period from February - April 2022, Phú Quốc from May - June 2022 and Đà Nẵng City from July - September 2022.

Each city has established a working group/ assessment group, which is representative of the relevant departments of each of the six components mentioned above. The assessment team has 1 team leader, 1 implementation coordinator and at least 6 members participating in the assessment. Each component has at least 1 representative from relevant departments; however, according to the practical situation of each city, this assessment team is appropriately established to ensure a complete and accurate assessment process. In Đà Nẵng City, two units are providing solid waste services for the City, namely Đà Nẵng Urban Environment Company and Hanoi Urban Environment One Member Company Limited, branch in the Central region, therefore, members who implemented evaluation in the service delivery component are representatives from these two units.

All three cities highly recommend the SCIL tool because it's easy to implement, clear and has intuitive results. The issues that need to improve in each city were identified and included in the implementation plan between the CCBO Program and the City. In Huế, the Department of Natural Resources and Environment and Huế City have reviewed and included the contents and criteria of the Assessment Tool so that they can be considered and added to the implementation plan of waste separation at source in the City. While in Đà Nẵng, the Department of Natural Resources and Environment is reviewing the Assessment Tool and is collaborating with the CCBO Program to have a plan to implement the assessment at the district level. The counties will consider some content and criteria of the Evaluation Tool for discussion with service providers in the area to improve further the 3R/solid waste services' delivery in each district. In Phú Quốc, the CCBO Program and the City will apply the approach of the Assessment Tool to develop a draft project on waste separation at the source of the City.

The Program desires to provide cities with tools to evaluate the capacity of SWM systems in their localities as an annual assessment tool, so that localities can determine their capacity and annual SWM system improvements by taking action from the evaluation results ▪