

Applying the DCED Standard to an Environmental Project – The case of EcoVecindarios in Bolivia



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DCED

The Donor Committee for Enterprise Development

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Synopsis

The DCED Standard, which has been designed for private sector development programming, is also being applied by programs in other development fields. This case study describes how SwissContact has applied the DCED Standard to EcoVecindarios, a project that is primarily concerned with environmental change.

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This case describes how the program addressed a typical challenge in results measurement. The aim of the case is to provide insights that will be useful to other practitioners facing a similar challenge. The author does not represent the DCED or SDC, nor do the views expressed in the case necessarily reflect the views of the DCED or SDC.

Table of Contents:

1 Measuring Environmental Results	3
2 Introducing EcoVecindarios	3
3 How EcoVecindarios applied the DCED Standard	4
4 Benefits of applying the DCED Standard.....	10
Annex: Photos of the EcoVecindarios Project	11

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1 Measuring Environmental Results

EcoVecindarios supports municipalities and businesses with the aim of conserving the environment. To monitor their interventions and to measure their impact, the project applied the Donor Committee for Enterprise Development (DCED) Standard for Measuring Results.

This case study describes how the project team has applied the DCED Standard, which has been designed for private sector development programming, to a project that is primarily concerned with environmental change. By reviewing the Standard and its supporting guidelines, the project team has been able to apply the same principles and practices, adapting them where necessary. Ultimately EcoVecindarios found that the key principles of the DCED Standard were applicable to an environmental programme, without substantial adaptations.

2 Introducing EcoVecindarios

EcoVecindarios (EcoV) is a four-year (2013-2016) project implemented by SwissContact in Bolivia with 50% funding from Swiss Development Cooperation and 50% from other donors. Its total budget is 2.3 million Swiss Francs (approximately 2.5 million USD), equivalent to nearly 0.65 million USD annually.

The goal of EcoV is to realize environmental benefits by creating social and institutional changes. The project sensitizes citizens to the importance of waste separation. The project supports businesses and municipalities to improve their environmental management. It seeks to identify and develop economic incentives for environmental conservation, for example, by supporting local businesses to collect, separate and recycle waste materials. The project supports various municipalities to improve their waste collection systems. EcoV also works with the Ministry of Environment to support municipalities in implementing waste management through developing norms and disseminating manuals for municipalities to apply.



The EcoV team consists of six people, consisting of 4.4 Full Time Equivalent (FTE) positions. This includes a Project Leader, an Environmental Management Specialist, a Monitoring and Results Measurement (MRM) Manager, and three Technical Advisors. Two Technical Advisors are located in Santa Cruz and Cochabamba, while the rest of the team is located in La Paz.

EcoV focuses on two primary areas: Integrated Solid Waste Management (ISWM)² and Green Business. This case description focuses on the interventions to improve ISWM.³

Integrated Solid Waste Management

² In Spanish, this is referred to as *GIRS (Gestión integral de residuos sólidos)*.

³ Given their desire to support empowerment of the partner municipalities, EcoVecindarios does not maintain a project website. Instead they facilitate their partner municipalities to set up and maintain their own websites through which, for example, they inform their inhabitants about the separated waste collection services in their neighborhoods. A good example of such a website is the one of the Municipality in Cochabamba: www.emsa.gob.bo.

The project partners with ten Bolivian municipalities to improve their waste collection systems.⁴ EcoV supports those municipalities to organize awareness raising campaigns that should lead to citizens separating and handing in their waste. EcoV also supports these municipalities to design and promote waste collection routes in order to increase efficiency of the collection system. The partnership with municipalities aims to support waste collectors and processors to separate and process organic, non-organic and toxic waste properly. This will lead to less waste entering landfills and elsewhere, hence a reduction of greenhouse gases as well as an increase in recyclable waste material and safe disposal of toxic waste. The incentive for waste collectors is to increase the amount of recyclable waste that they can sell to waste processors. EcoV also them to develop a marketing strategy and as a result, waste collection businesses will become more profitable, expand and employ more people. EcoV's complementary green business intervention supports the financial sustainability of the system by facilitating the growth of businesses that purchase the processed waste.

The results chain for EcoV's Integrated Solid Waste Management intervention is shown below.

3 How EcoVecindarios applied the DCED Standard

The project team reviewed the DCED Standard and supporting guidelines. Most of these principles and practices were found useful and were applied by EcoV, even though the project team had to translate these 'private sector practices and languages' to their own project objective and working approaches.

The project developed a results chain, defined impact indicators, developed a monitoring and measurement plan for their interventions, and developed a plan for estimating wider impact. The below sections discuss why and how these four elements were developed and applied, and why that was important and beneficial to EcoV.

3.1 Developing Results Chains

In order to develop results chains, EcoV first determined the different levels that exist between the activities and the project goal.

⁴ These include La Paz, El Alto, Viacha, Cochabamba, Villa Tunari, Puerto Villarroel, Villazon, Tarija, Comarapa, Postrervalle.

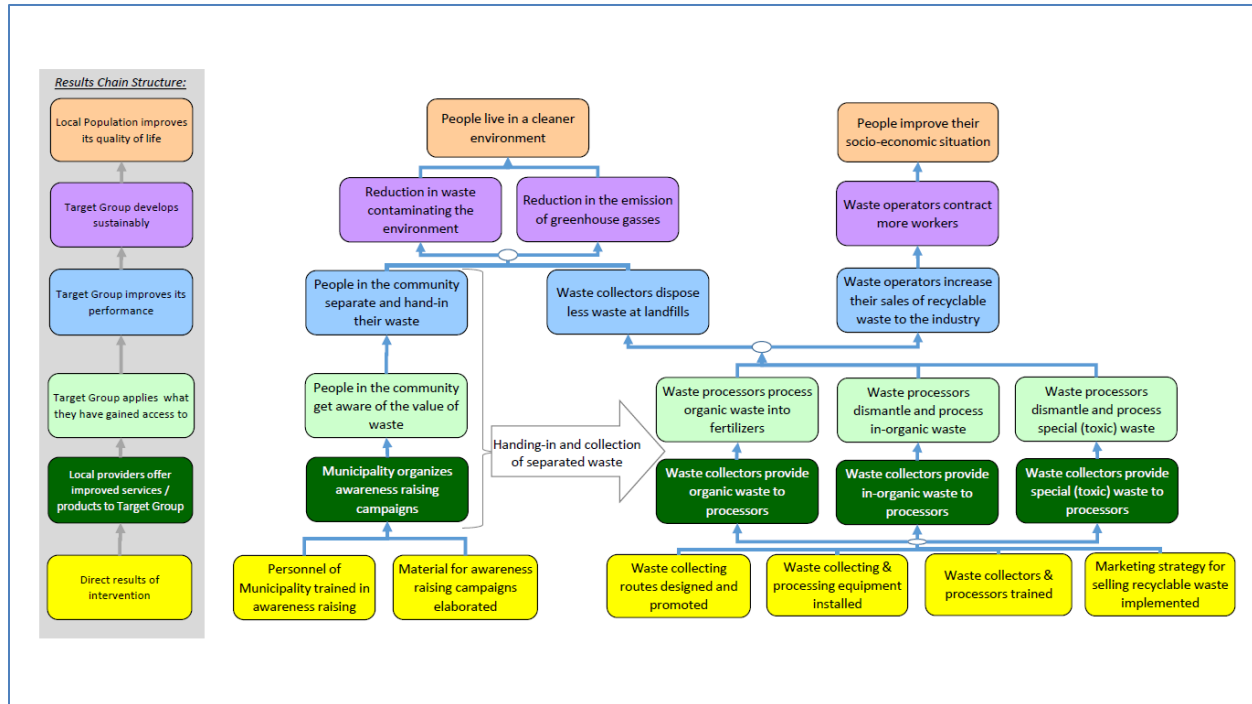


Fig.1 Results chain⁵

Defining the actors involved in the project was helpful in determining these six levels: the ultimate beneficiaries (the local population), the target group (households, waste collectors and waste operators), and local providers (municipalities and waste collectors). The levels are (from top to bottom):

1. *Local population improves its quality of life*: at this level, citizens benefit from the ultimate impacts of the project in terms of a cleaner environment, as well as socio-economic changes, such as income changes for workers active in the sector.
2. *Target group develops sustainably*: at this level intermediate changes are recorded, such as reduction in waste contamination of the environment, fewer greenhouse gas emissions and more employment.
3. *Target group improves its performance*: at this level, changes in behavior of the households (separating and handing in waste) and waste processors (disposing and selling waste) occur.
4. *Target group applies what it has gained access to*: the changes that the target groups (households and municipalities) make as a result of the changes in the local providers' activities (citizens' awareness and access to separated waste by processors).
5. *Local providers offer improved services or products to the target group*: this level reflects the changes in capacity and behavior of the actors the project supports (the municipality and the waste collectors).
6. *Direct results of intervention*: the level where the support to the partners actually takes place.

The results chain helped the EcoV team to focus on the incentives for change of the various actors. Incentives and changes in capacities, behavior and performance need to be considered and monitored for each actor. Whereas financial returns are typically assumed to be the dominant incentives driving

⁵ The results chain was developed by SwissContact.

behavior within Private Sector Development programs, for EcoV the willingness of consumers and municipalities to voluntarily change their behavior in order to improve their communities was the dominant presumed incentive. The results chain enables the EcoV team to visualize how both environmental changes (contamination, emissions) and socio-economic changes (employment) are targeted.

3.2 Defining indicators



For EcoV to effectively measure its impact, it needed to define impact indicators that it could aggregate and report to donors. The DCED Standard refers to these as 'common impact indicators' and has proposed three that many Private Sector Development programs aim to influence: scale, net change in income, and net change in jobs. As 'impact' indicators, they refer to changes for the people that the program ultimately aims to benefit, rather than

intermediaries such as businesses, NGOs, or governments.

EcoV had to develop its own impact indicators that related to its ultimate aim: to improve the environment. The main challenge was to find common indicators that were measureable and attributable. EcoV's desired environmental impact is reducing soil, water and air contamination so as to improve people's quality of life. All three types of contamination are difficult to measure. It is even more difficult to attribute reductions in contamination levels to the project.

EcoV found that measuring reductions in CO₂ emissions was one feasible way of measuring environmental impact. Hence it chose **'the reduction in CO₂ emissions in tons per year'** as an appropriate indicator to capture the results of its efforts to reduce organic waste. Although directly measuring such emissions would be impossible for a small project, EcoV could use existing studies that estimated the extent to which reductions in organic waste leads to reductions in CO₂ emissions. Several estimates exist, and EcoV is still deciding which ratio(s) are most appropriate in its context.

Although measuring CO₂ emission reduction was important, this did not capture the full expected environmental impacts of EcoV. The reduction in the other forms of contamination that EcoV was targeting (i.e., soil, water and forms of air pollution other than greenhouse gases) is difficult to measure. Inorganic waste (plastic, metal, glass etc.) fills waste dumps and takes centuries to biodegrade, but it does not produce CO₂ during the process. It may however produce other toxins. After considering several options, EcoV decided to use a proxy indicator: the **'increase in the amount of recycled waste (inorganic & organic)'**. This was selected because it indicates the reduction in waste that would have otherwise contaminated the soil, water and/or air. Importantly, it captures the impacts of EcoV's reductions in inorganic waste that are not captured by the CO₂ indicator. This indicator is based on the assumption that waste that is not recycled would have otherwise contaminated the environment. Based on EcoV's observations, most of this waste would have been deposited either in landfill or (more likely) in public places like streets and rivers.

In addition, the EcoV team found it useful to define another common intermediate indicator that measures outreach. However, the environmental impact that it sought (reduction in CO₂ emissions and contamination) does not create benefits that can be easily measured on an individual level. Thus the

EcoV team instead selected an intermediate indicator that provides an indication of impact on people: the number of people that change their attitudes and behavior with respect to waste disposal. As such, they defined **'the increase in the percentage of the population that hands-in its separated waste for more than one year'** as an important indicator of scale. It is important to note that EcoV did not define and measure 'change of attitudes' only, but actually measured the result of that attitude change: the handing-in of separated waste. This gives insight not only into outreach but also the sustainability of the behavior change.

The EcoV team also reviewed the three common impact indicators proposed by DCED for Private Sector Development programs: scale, net change in income and net change in jobs.

EcoV's ISWM intervention is not designed to improve the incomes of enterprises, although they use potential profitability as an incentive for change to achieve environmental changes in their green business intervention. Therefore the DCED-recommended 'Scale' indicator (*Number of members of the target group who realize a financial benefit as a result of the program's activities per year and cumulatively*) and 'Net change in income' indicator (*A sustainable net change in income (additional sales minus additional costs) accrued to the target group as a result of the program per year and cumulatively*) were not appropriate.

The suggested **'Net change in jobs'** indicator however was important to EcoV. The project is likely to create additional employment by waste collectors (at waste collection pickup points) and waste processors (at treatment plants) due to the improved separation, handing-in and processing of waste.

The DCED common indicator is defined as, *'A sustainable net change in the number of full time equivalent jobs created for the target group as a result of the program, per year and cumulatively. "Additional" means jobs created minus jobs lost. "Per year" comprises 240 working days. Jobs saved or sustained may be reported separately'*. EcoV adjusted the definition to their context over the course of the implementation. It added 'decent jobs' to the definition, because it found that job quality was a significant issue in the solid waste sector. Many of the jobs created, were often leading to workers being forced to work under appalling conditions. EcoV modified the indicator to only consider jobs to be decent by adding complementary indicators that focus on two aspects of job quality: health insurance and physical safety. The EcoV also adjusted the number of days (240) to the Bolivian context (220 days).

In summary, EcoV's impact indicators were:

Type of indicator	Impact indicator
Environmental impact indicator	The reduction in CO2 emissions in tons per year Increase in the amount of recycled waste (proxy)
Scale intermediate indicator	The increase in the percentage of the population that hands-in its separated waste for more than one year
Socioeconomic impact indicator	Number of decent jobs created with workers having access to personal safety equipment and health insurance

3.3 Monitoring and Measuring

With the common impact indicators and results chain defined, the EcoV team developed a measurement plan. One of the key challenges was how to measure a reduction in CO2 emissions. CO2 emissions are generated primarily by organic waste during the degradation process. Composting and

other measures reduce the emissions that would otherwise be emitted from decaying organic waste in landfills. Given the challenge of directly seeking to measure CO₂ emissions, EcoV sought published ratios estimating the CO₂ emission reductions created by composting organic waste. EcoV has reviewed studies through internet research to find the most appropriate ratio. Once selected, EcoV will apply the ratio to the amount of organic waste that is composted as a result of the project interventions.

The EcoV team partnered with municipalities to develop a measurement plan. It made maximum use of its partners to actually monitor and report changes. Many of the data that were to be collected served a dual purpose. The municipalities should own and use the monitoring system in order to manage their collection system, and the project needed the information to manage the intervention and report impact to its donors.



One aspect of this was the measurement of job data. EcoV implemented organizational health and safety interventions to improve the quality of jobs in the waste sector. It then worked with the municipalities, waste collectors and processors to count every job that was created, and assess the proportion that were safe and insured. Existing jobs that became 'decent' were also counted under this measure. To do so, EcoV sent a form to every partner (both municipalities and green business) every six months. On the form, EcoV's partners listed the number of employees, their start dates and the number of hours per week that they worked. EcoV used the results to calculate the full-time equivalent jobs of each partner and EcoV's impact on FTE, only counting those positions that were new. Nearly all of the positions were newly created given that all of the green businesses that it worked with were new companies, as were the ISWM units in the majority of the municipalities. To assess whether the jobs were 'decent', EcoV confirmed whether the jobs that had been created were in the formal sector, thereby receiving a minimum salary, a social security pension and health insurance. It found that all those jobs created by the municipalities and the green businesses it worked with were in the formal sector. Given the practical challenges of monitoring whether safety equipment was in regular use, EcoV assessed safety by whether the workers had received personal safety equipment and training.

EcoV also used its good relationships with its partners to collect data on other indicators. In general, municipalities and businesses fill in a spreadsheet with waste data and submit these to EcoV. For example, to measure whether students are separating their waste and providing it to the municipality, EcoV worked with the municipalities' waste truck driver and helpers to observe whether the waste was separated and then to weigh the waste by type for a sample of schools. This enabled EcoV to understand the amount of organic and inorganic waste that was being collected (and thus the waste composition) and extrapolate this to all schools in the municipality.

For the percentage of recyclable waste generated within the municipality, EcoV worked with the municipality to weigh and record the volume of waste reaching the separation plant (recyclable waste) and the volume of waste reaching landfill (non-recyclable waste). By observing the ratio of recyclable to non-recyclable waste, EcoV was able to observe if the recycling system was improving. To measure the processing of organic waste, EcoV wanted to determine how much compost was being generated. To do so, it worked with the Ministry of the Environment and Water to conduct a study into composting. Whereas EcoV had originally thought that one tonne of organic waste would result in 0.25 tonnes of compost, the study demonstrated that the actual yield was 0.3 tonnes of compost.

EcoV found several ways to reduce their own data collection expenses. These included finding and using data from other research sources, such as government data and citizen movements like a grassroots organization focused on improving La Paz (La Paz Como Vamos). Another strategy was to focus its resources on the areas with greatest impact. EcoV decided to select the largest municipality in each of the three major zones in which it operated in Bolivia, the Andes, Valleys and Amazon. In each of these municipalities, it will conduct a representative survey of the population to understand with a high degree of precision how perceptions have shifted. This will allow EcoV to quantify its results in the places where it expects to create the largest impacts. In the smaller municipalities, EcoV plans to use less robust surveys (with lower confidence levels and higher margins of error) or qualitative methods (for example, focus group discussions). EcoV will then compare the results obtained in these municipalities against the model municipality in each region. EcoV will undertake additional investigation if the results differ substantially.

Responsibilities for monitoring and results measurement (MRM) were distributed throughout the team. An MRM Manager was responsible for overall direction and coordination of data collection, while each of the Technical Advisors captured and verified data from partners. Through experience, EcoV found it necessary to increase the resources allocated to the MRM system. Whereas it originally had a 0.5 FTE position for MRM, it increased this to one FTE position to support larger-scale information collection as the interventions grew.

3.4 Measuring wider impact



The objective for EcoV was not only to reduce CO₂ emissions and contamination in the ten selected municipalities, but also to demonstrate that Bolivian partners can change environmental management practices.

The intermediate scale indicator, the increase in the percentage of the population that hands-in its separated waste for more than one year, is an

important indicator of wider impact. A steady increase suggests a corresponding change in the attitudes of the population towards the environment. If a critical mass is obtained, the growth of the number of citizens changing their behavior is likely to continue without any other external support.

Independent investment by the ten partner municipalities in equipment and infrastructure that supports Integrated Solid Waste Management is another important indicator that informs EcoV if the partners will continue to apply those management practices after the intervention. Whereas EcoV matched some of the initial investment by municipalities for collecting separated materials, ongoing investment by the municipalities would be taken as an indication of their commitment.

Another important indicator for measuring systemic change is the spread of the intervention: the number of municipalities that were not supported directly by EcoV but that copied the improved Integrated Solid Waste Management model and practices developed in the supported ten municipalities. EcoV supported the national government to enact a law on solid waste, produce and disseminate guides for municipalities on applying the law, and creating a national ISWM management information system. To estimate whether EcoV had contributed to the uptake in ISWM by other municipalities, the project applied in-depth interviews and observations to determine the number of other municipalities who were using the guides that it had supported to implement their ISWM system,

as well as the number of municipalities who shape their ISWM system around the solid waste law that EcoV supported.

4 Benefits of applying the DCED Standard

EcoV had to translate some principles and practices in the DCED Standard that originate from Private Sector Development to make them work for their environmental project objectives, approaches and partnerships. This resulted in a solid causal model that reflected the intervention logic. This results chain assisted EcoV to focus on achieving results, making maximum use of the incentives of different actors.

The principles of defining, measuring and reporting the environmental impact indicators (reduction in CO2 emissions and waste) enabled them to measure efficiently and communicate their impact convincingly.

Further, the emphasis within the Standard on assessing systemic change helped the team to focus on finding concrete ways to capture these changes. Moreover, the emphasis laid within the Standard on capturing qualitative information reminded the team of the importance of it, and helped them to incorporate qualitative information gathering in their measurement plan.

Annex: Photos of the EcoVecindarios Project

The collage illustrates the EcoVecindarios project process through 18 numbered steps:

- Step 0: Identifying the waste problem** - A large pile of unsorted waste in an open area.
- Step 1: Awareness raising (here: at school)** - A group of people gathered around an informational display.
- Step 1: Awareness raising (here: incl. waste collection)** - A community meeting with a table and chairs.
- Step 2: Waste separation at origin** - A woman sorting through a large bag of waste.
- Step 2: Waste separation at origin** - A table covered with various types of waste for sorting.
- Step 3: Separated waste collection** - A person placing waste into a bin labeled 'MATERIAL RECICLABLE E.M.A.S. ECOVECINDARIOS'.
- Step 3: Separated waste collection** - A person pushing a cart full of sorted waste.
- Step 3: Separated waste collection** - A group of people gathered around a collection point.
- Step 3: Separated waste collection** - A person sorting through a large pile of waste.
- Step 4: Waste processing (organic)** - A white truck with a green container.
- Step 4: Waste processing (plastic)** - Workers in hard hats sorting through plastic waste.
- Step 4: Waste processing (paper)** - A person operating a machine to process paper.
- Step 4: Waste processing (electronic)** - A person working with electronic waste.
- Step 5: Re-using recycled waste (here: fertilizers from organic waste)** - A person working in a field with plants.
- Step 5: Re-using recycled waste (here: design bags from plastic)** - A person working at a table with materials.
- Step 6: Children grow up in a cleaner environment** - Children riding bicycles on a clean street.

Logos for **ecovecindarios** (TRABAJAMOS EN COMUNIDAD) and **swisscontact** are visible in the top left and right corners of the collage.