



# Knowledge and Capacity Building Products (KCP) Proposal

Maximum 7 pages

DIV 9-21-10  
AOF 500K  
Ex Qs IDB  
UDR INF

## I. KCP Type

- ☐ 1. Advisory Services  
☐ 2. Policy and Capacity Development  
☐ 3. Outreach and Dissemination  
☒ 4. Research and Development ✓

## II. General Information

**KCP Title:** Regional Studies on Solid Waste Management (SWM)

**OPUS Number:**

RG-T1863

**Date of Proposal:**

4/22/2010

**New KCP:**

☒ Yes ☐ No

**Linked to project:**

**Team Leader / Unit:**

Horacio Terraza, Senior Water and Sanitation Specialist

INE/WSA

**Joint Proposal:**

☒ Yes ☐ No

If yes, identify units: (1)

SCF/INF

(2)

INE/ENE

(3)

-SELECT-

**Proposed amount** in USD equivalent (enter whole number only, ex. 99,800): USD

500,000

**Unit of Technical Responsibility:**

INE/WSA

**Unit of Disbursement Responsibility:**

INE

**Execution:**

☒ Bank-executed ☐ Recipient-executed

**Letters of Request available**  
(or equivalent)

☐ Yes ☒ No

**Non-objection available**

☐ Yes ☒ No

**Execution period:**

24

months

**Disbursement period:**

27

months

**Executing Agency:**

**Executing Agency description and capacity:**

**Country of Origin of Executing Agency:**

- SELECT -

**Contact in the Executing Agency:**

**E-mail address:**

**Beneficiary Countries:**

☐ Argentina

☐ Bahamas

☐ Barbados

☐ Belize

- |                                     |   |                                    |  |
|-------------------------------------|---|------------------------------------|--|
| <input type="checkbox"/> Bolivia    | <input type="checkbox"/> Brazil             | <input type="checkbox"/> Chile     | <input type="checkbox"/> Colombia          |
| <input type="checkbox"/> Costa Rica | <input type="checkbox"/> Dominican Republic | <input type="checkbox"/> Ecuador   | <input type="checkbox"/> El Salvador       |
| <input type="checkbox"/> Guatemala  | <input type="checkbox"/> Guyana             | <input type="checkbox"/> Haiti     | <input type="checkbox"/> Honduras          |
| <input type="checkbox"/> Jamaica    | <input type="checkbox"/> Mexico             | <input type="checkbox"/> Nicaragua | <input type="checkbox"/> Panama            |
| <input type="checkbox"/> Paraguay   | <input type="checkbox"/> Peru               | <input type="checkbox"/> Suriname  | <input type="checkbox"/> Trinidad & Tobago |
| <input type="checkbox"/> Uruguay    | <input type="checkbox"/> Venezuela          |                                    |  |

If ALL 26 borrowing member countries (LAC) will benefit from the project, check: ☒ All LAC

- |                              |                              |                              |                              |  |
|------------------------------|------------------------------|------------------------------|------------------------------|--|
| <input type="checkbox"/> CAN | <input type="checkbox"/> CCB | <input type="checkbox"/> CID | <input type="checkbox"/> CSC | <input checked="" type="checkbox"/> REGIONAL |
|------------------------------|------------------------------|------------------------------|------------------------------|--|

**Beneficiary entity:**

**Sector:**

Water and Sanitation

### III. Relation to IDB's Institutional Priorities (GN-2518-20)

#### 1. Social Policy for Equity and Productivity

- ☐ Targeted Poverty Programs
- ☐ Labor markets
- ☐ Education
- ☐ Health
- ☐ Gender and Diversity

#### 2. Infrastructure for Competitiveness and Social Welfare

- ☐ Basic services: Access to water and sanitation
- ☐ Energy
- ☐ Transportation

#### 3. Institutions for Growth and Social Welfare

- ☐ Financial services
- ☐ Fiscal efficiency and sustainability
- ☐ Citizens security
- ☐ Innovation

#### 4. Competitive Regional and Global International Integration

- ☐ Trade and Integration
- ☐ Infrastructure
- ☐ Health

#### 5. Protecting the Environment and Responding to Climate Change

- ☐ Environment
- ☐ Health
- ☐ Rural development and forestry

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#### Cross-cutting

- ☐ Macroeconomic Analysis
- ☒ Learning and Capacity Building

3.1 For Advisory Services and Policy and Capacity KCPs, briefly explain how this KCP is aligned with the country or regional programming and client needs. For Outreach and Dissemination and Research and Development KCPs, briefly explain how this KCP is aligned with the need to deepen the Bank's knowledge in new areas or disseminates it in the region:

Solid Waste Management (SWM) is a sector that has been disregarded in Latin America and that has recently gain attention because of its obvious negative environmental impacts. In developed countries SWM is not just taking out the trash, but a catalyst for economic development as a service that supports urban and economic growth and as a source of employment and alternative resources (recycling materials and energy generation) while reducing waste disposal impact to the environment. SWM sector was incorporated as an integral part of the Water and Sanitation Initiative of the IDB because of the increasing demand of technical assistance and operations; however, the bank's limited level of activity in the SWM sector in the past reflects in the lack of regional and localized information, indicators and guidelines that limit alternative proposal for the development of this sector in LAC.

#### **IV. OBJECTIVES, EXPECTED RESULTS AND ACTIVITIES**

4.1 Briefly describe the knowledge gap that KCP intends to close; lessons learned from previous similar KCP; objectives and expected results.

SWM has become the second priority issue in the urban-environmental agenda of our client countries. However, there are still major technological, policy/planning, financial and institutional obstacles that prevent the development of the sector. From the technological point of view, the backbone stages of an integral SWM system are known in the region, however, more advanced and environmentally friendly components of the system like: minimization, source separation and recycling, treatment alternatives and methodologies like Waste to Energy (WTE) are still at a very preliminary stage of development. Our clients receive everyday innovative technological proposals that they do not know how to evaluate. From the policy and institutional development point of view, there are essential gaps related to the client's capacity to regulate the sector in terms of costs and quality as well as to set up efficient cost recovery mechanisms for service. A set of complementary studies are necessary in order to assist our clients with the evaluation and inclusion of these aspects in their SWM planning strategies.

The main objective of this set of three studies is to increase the knowledge base of the SWM sector in the region and to develop a simple set of tools to assist our clients in the development of better policies. All these elements are directly relevant to the Bank's priorities as specified in the New Operational Framework.

The Bank will execute the project because the thematic and products of the KCP are not related to a specific country, the regional scope is the entire LAC region. Additionally, it will be key in order to reach the project objective to have an executor with an established strong sectorial dialogue with the client countries. There is no other institution in the region with such characteristics.

#### **Components, Activities and Methodological Framework:**

Provide a description of the main components and activities expected to be carried out:

##### **4.2 Year One**

The objective of this KCP will be achieved through the development of three key SWM technical notes. Accordingly, the KCP is divided into three main components:

##### **I. Feasibility of Waste-to-Energy Projects Implementation in LAC Countries**

The objective of the study is to develop a set of technical guidelines providing essential information about waste to energy (WtE) facilities that will assist the Bank clients in assessing the feasibility of implementation of WtE projects in LAC and in making an informed decision about the technology choice for treatment and final disposal of MSW. Given the fact that there is a tremendous interest from both the private sector and the energy sector in the development of this type of projects, this particular study will be developed as a joint proposal with SCF/INF and SNE/ENE. The guidelines will address basic issues related to the construction, operation and maintenance, economics, risks and environmental impacts of WtE facilities.

- **Technical Aspects:** technological alternatives and principles, technical complexity, operation and maintenance, energy generation potential, technical and operational staff requirements, comparison/pros and cons, international market, suppliers, etc.
- **Economic Aspects and Feasibility Analysis:** Investment costs, operational and maintenance costs, transaction costs, revenues from energy and waste disposal, comparison between them and with costs associated with final disposal in landfills, economic sustainability, cost-effectiveness analysis of alternatives and feasibility analysis in LAC.

- Business models: possible business models will be analyzed based on existing case studies, institutional roles (municipality, operator of the transfer station, operator of the Wet facility, energy utility, etc.), contracting, etc
- Environmental Impacts: Identification of the main environmental impacts associated with each of the technologies and associated costs for prevention, identification of best practices, etc
- Risks: economic, institutional/reputational, environmental, etc.
- Case Studies: couple of case studies will be developed

The guidelines will be designed keeping in mind that the objective is to develop a practical and concrete tool to be used by municipal/regional/national technical staff from client countries, consultants and Bank technical staff as well.

## II. Assessment of the Recycling Market in Latin America and the Caribbean

The objective of the study is twofold: (i) from a broad perspective, the intention of the study is to uncover the main drivers of the market as well as to establish the main local and international routes of supply and demand for LAC countries; and (ii) from a local perspective, the goal is to identify the main incentives and associated costs related to the establishment of a source separation system. The expected result is to stimulate the dialogue with the client countries regarding the necessary legal and economic framework to establish a long term plan for reduction, reuse and recycling (3R's) of solid wastes; as well as to provide an economic perspective for formalizing waste pickers recycling activities. This study includes an overview of economic and political drivers for 3Rs activities in developed countries, identification of policy instruments to support the 3Rs system in LAC, the identification of local and international buyers of recycled materials, analysis of historical prices, waste characterization sample, identification of recycled materials being recovered, estimate of the formal and informal recycling market size, identification of source separation schemes in the region and their associated costs, costs of curbside recycling, materials recovery facilities (MRF), among others.

## III. Cost Estimate and Recovery for Municipal Solid Waste Management Services

One of the key problems for the SWM today in the region is the lack of capacity in municipalities to determine the appropriate cost of the service in relation to the quality of service provided. Additionally there is no regulatory agency to assist them with cost structure determination. This problem in conjunction with the limited user fee payment record has been affecting the sustainability of the service itself.

The objective of the study is twofold, first to develop a set of practical tools to improve the municipal/sub-national capacity to regulate the price and quality of the Municipal Solid Waste Management (MSWM) service, and second, to analyze the capacity and willingness of households to pay for those services using different cost recovery mechanisms. The objective will be achieved through the development of a set of guidelines to regulate the municipal SWM service and a set of model contracts for municipal SWM services according to the selected regulatory framework (for example: concessional, discretionary, hybrids, etc); and estimating the cost of waste management service delivery. The willingness and capacity to pay and cost recovery mechanisms for solid waste services part of this component will study options in the design of cost recovery mechanisms, so that municipalities might improve the sustainability of providing these services but most important it will analyze the affordability of the service by analyzing households' capacity to pay for them.

### 4.3 Year Two

4.4 If project execution spans more than one year, briefly describe how current year activities feed into the plan of activities for subsequent years:

These are three independent studies. It is expected that the all of them will begin during 2010 and will be completed by mid 2011.

4.5 When warranted, describe the methodological approach to be used in the development of the activities and the type of data sources which might be used.

#### I. Feasibility of Waste-to-Energy Projects Implementation in LAC Countries:

WtE facilities have only been implemented in developed countries, so most of the information will be sourced from international best practices and from specific case studies to be developed in the framework of this project. A literature review will be carried out as well as a complement to the case study approach. Economic and financial analysis will be at the backbone of the Technical Note. The following institution will be invited to participate in the preparation and review (peer review) of the technical note: Fundacion Forum Ambiental de Barcelona (Spain), the International Solid Waste Association (ISWA), and the WtE Research and Technology Council (Columbia University). The council involves a large group of renown universities, scientists and private sector companies.

#### II. Assessment of the Recycling Market in Latin America and the Caribbean

The study will involve a review and an economic analysis of the recycling systems in Europe, Japan and the USA. For the diagnostic of the recycling markets in LAC a representative group of countries (a minimum of 8) will be selected to work with. Information will be gathered from the rest of the main economies of the region but it will not involve field work. It is planned to include for project development the LAC chapters of the International Solid Waste Association (Abrelpe from Brazil, ARS from Argentina, etc). The main stake holders to be contacted are: the formal recycling industry, local recycling associations, organized groups of waste-pickers, national authorities and a selected group of municipalities.

### III. Regulatory framework for Municipal solid waste Management

This component will identify the basic set of norms to be included in a regulatory framework and the scope of these norms. Lessons learned will be drawn from international experience and the Colombian case (only country with a regulatory framework in the region). Model Methodologies to Calculate the Tariff: Explore and discuss the different methodological options to regulate the tariff. It will identify pros and cons of each of them (ceiling, floor/ceiling, yardstick and benchmarking, etc.) and their adequacy to the SWM sector. Special emphasis will be given to case studies and lessons learned from developed countries and the Colombia case. One methodology will be selected and developed as a practical tool for client's usage. Model Contracts: The study will include a discussion of contract options, including pros and cons and applicability. It will include the development of a set of model contracts according to different regulatory options, ranging from "concessional" to "discretionary" regulation. Models will be based on best international practices.

The methodologies and the contracts will be reviewed and commented by international recognized experts in regulation for quality enhancement of the final product.

A literature review will be carried out to assess methodologies in use for determining willingness to pay for collection and disposal of solid waste. If necessary, a case study, including a household survey, will be developed to apply the identified methodologies and to produce an operational guideline for economic project evaluation. Similarly, cost recovery experiences will be identified from the international literature, and best practices will be identified and analyzed.

**V. KCPs RESULTS FRAMEWORK.** Main Deliverables (outputs) by component. When warranted, describe dissemination strategy:

List main deliverables 1) publications; 2) conferences, workshops, seminars; 3) training courses; 4) databases; 5) surveys; 6) other (specify); and dates for final completion.

5.1 For publication deliverables: Based on the taxonomy of the Bank's publication protocol (books, monographs, working papers, policy briefs, technical notes, newsletters, discussion papers and presentations or studies for conferences and technical meetings), list the specific types of publications as the deliverables.

Deliverables Year 1	Intermediate Milestone (if applicable)	Milestone Date (if applicable)	Expected Completion Date
Guidance for the feasibility of WtE projects in Latin America		February 1, 2011	12 months
Technical Note: Latin America Recycling Market Assessment		July 1, 2011	12 months
Guideline for Cost regulation and recovery for solid waste management services		March, 1 2011	12 months

5.2 Dissemination plan: when warranted briefly describe dissemination plan of expected deliverables / results with a timeline for key activities, person/institution responsible for implementation:

Expected deliverable products will be part of the knowledge base of INE/WSA. Copies of the studies will be available to bank staff and clients through INE/WSA solid waste initiative webpage. BBL presentations at Headquarters will be organized as part of a waste management seminar series. Results will be presented at the AIDIS (Association of Sanitary Latin American Engineers) annual meeting, ISWA annual meeting, and at a series of national seminars organized by the Bank clients. Feedback and measure of participant learning is provided by the seminar organizing institutions.

5.3 Results Matrix:

Indicators	Baseline	Intermediate Targets	Final Target	Expected
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		Year 1	Year 2	Subseq. years	Completion Date
<b>Outcome Indicator</b>					
Implementation of projects including recycling components and other alternatives financed by the IDB in LAC based on studies conducted	0		1	4	5 years
<b>Deliverables (outputs) Indicators</b>					
Guideline for Cost regulation and recovery for solid waste management services	0			1	12 months
Guidance for the feasibility of WtE projects in Latin America	0			1	12 months
Technical Note: Latin America Recycling Market Assessment	0			1	12 months

## VI. BUDGET:

6.1 Budget should be presented by deliverable (outputs) or groups of deliverables (for example: three publications, three conferences, seminars or workshops; one database; one survey; two training courses). Total available funds from counterpart sources should be reported. Use whole numbers only.

Costs	Project Cost						Counter-part Resources	Other Financing
	Year 1			Year 2	Subseq. years	Total request		
Component	Consult.	Travel (1)	Other					
Guideline for Cost regulation and recovery for solid waste management services	30,000	20,000		20,000		70,000		
Guidance for the feasibility of WtE projects in Latin America	50,000	30,000		20,000		100,000		
Technical Note: Latin America Recycling Market Assessment	220,000	50,000		60,000		330,000		
Sub-total	300,000	100,000		100,000		500,000		
Monitoring and evaluation								
Total						500,000		

Approximate value of in-kind counterpart

(1) Consultant's travel only

6.2 Bank staff participation in KCP:

Staff Name	Bank Unit	FTEs
Horacio Terraza	INE/WSA	0.04

Gianfranco Carassale	SCF/INF	0.01
Arnaldo Vieira de Carvalho	INE/ENE	0.01
Rodrigo Riquelme	INE/WSA	0.02
Jorge Ducci	INE/WSA	0.02
Kleber Machado	INE/WSA	0.02

6.3 Types of Consultants: Firms or individuals and main activities/deliverables:

Type: Individual or Firm (if available)	Nationality	Estimated Cost	Main Activities / Deliverables
Individual		100,000	Guideline for Cost regulation and recovery for solid waste management services
Firm/Associations/Foundation		70,000	Guidance for the feasibility of WtE projects in Latin America
Firm/Associations/Foundation s		330,000	Technical Note: Latin America Recycling Market Assessment and Guidance for the feasibility of WtE projects in Latin

6.4 Proposed administrative budget estimation required for the execution stages by year of execution (specify consulting, travel and other expenses)

Type	Year 1	Subsequent Years
Consultants		
Travel		
Other		
<b>Total</b>		

## VII. Risks and Coordination with other MDBs:

### 7.1 Implementation Risks:

The only possible risk is the availability of information in a readily manner. The 12 month period for the completion of each study already accounts for time under this risk.

### 7.2 Summarized collaboration or coordination with other MDBs and donors (if any):

## VIII. Monitoring and evaluation plan.

Fill-out the KCP's Development Effectiveness Matrix (DEM) using this link to the [DEM template](#). On Section 4.II *Quality Measurements at Completion*, fill-out only the portion that corresponds to the KCP type selected. Then save it in IDBDOCS and record its number immediately after the "equal" sign on the link below:

<http://idbdocs.iadb.org/wsdocs/getDocument.aspx?docnum=35149329>

8.1 Summarize the basic elements of the Monitoring and Evaluation plan, including key activities and associated budget:


Activity	Budget	Responsible	Expected Completion Date	Means of Verification
Initial report and Methodology review		Consultants and INE/WSA	5 days after initial report	Methodology approval memo
Progress report		Consultants and INE/WSA	6 months of contract date	Draft final report
Final report published		Consultants and INE/WSA	12 months of contract date	INE/WSA web page

## REGIONAL STUDIES ON SOLID WASTE MANAGEMENT (SWM)

**RG-T1863**

### CERTIFICATION

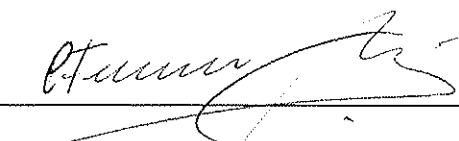
I hereby certify that this operation was approved for financing under the AquaFund (AQF) through a communication dated on July 15, 2010 send by GCM Single Window. Also, I certify that resources from the AquaFund (AQF) are available for up to US\$500,000 in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of ten (10) calendar months counted from the date of signature below. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this TC Annex. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

  
Marguerite S. Berger  
Chief  
Grants and Cofinancing Management Unit  
VPC/GCM

9/14/2010  
Date

### APPROVAL

Approved:

  
Federico Basaños  
Division Chief  
Water and Sanitation Division  
INE/WSA

09/21/2010  
Date