

Project:

“REGIONAL PLATFORM ON PC ELECTRONIC WASTE IN LATIN AMERICA AND THE  
CARIBBEAN”

Presented by:

SUR Corporation of Social Studies and Education

Santiago, Chile, May 2007

## CONTENTS

1	THE MAGNITUDE OF THE PROBLEM AND HOW THE PROJECT ASSISTS IN ITS SOLUTION	4
	1.1 Background	4
	1.2 Basic Premises	5
	1.3 Objectives	6
2	AREAS OF INTERVENTION	6
3	DEVELOPMENT COMPONENTS OF THE PROJECT'S ACTIVITIES	7
	3.1 Applied Research	7
	3.2 Capacity building	9
	3.3 Communication Management	11
4	EVALUATION	11
5	GENERAL PROJECT OUTPUTS	13
6	ACHIEVEMENTS EXPECTED FROM THE PROJECT	13
7	APPROACH	13
8	STAGES OF INTERVENTION	14
9	AN ASSOCIATIVE PROJECT	15
10	WORK PLAN	17
11	BUDGET	¡ERROR! MARCADOR NO DEFINIDO.
12	BIBLIOGRAPHY	18

## EXECUTIVE SUMMARY

The main conclusions of the Applied Research Project on PC Recycling in Latin America and the Caribbean carried out in SUR Corporation of Social Studies and Education, with the support of IDRC during the period 2004-2007, demonstrated the need to face the issue of electronic waste in Latin America and the Caribbean (LAC). Electronic waste in this Region must be dealt with by the different social actors involved and in its many dimensions. Sustainable, environmentally responsible solutions must be sought, which take regional contexts into account, explore business opportunities the recycling process offers and incorporate available resources, as developed by the social projects devoted to PC Refurbishing in LAC.

The following proposal is presented in response to the need to face the issue of electronic waste in the Region. Its principal aim is the following:

To implement an associative regional platform which, by means of applied research, capacity building and communications management, will foster, articulate and circulate initiatives to promote solutions for the prevention, the appropriate management and the right final treatment of electronic waste generated by PCs in LAC.

The specific objectives are:

- a) To build a body of knowledge on PC electronic waste in LAC, to promote incidence processes, and processes to establish and develop pertinent policies in the matter.
- b) To build on the capacities of the diverse social agents, in order to establish an aware and informed community, which can participate in the construction of a system for the prevention of PC electronic waste and its final treatment. This system must take the particular characteristics of LAC into account.
- c) To facilitate articulation and cooperation amongst the various social agents, to promote and replicate experiences which will encourage the development of prevention and recycling of PC waste in the Region.
- d) To produce a communications system which will offer useful information and become a by-word for content and experiences related to electronic waste from and for LAC.

In order to achieve these objectives, the activities of the project will take place in three areas:

1. Applied research, where information will be generated, strategies will be planned and intervention tools will be constructed.
2. Capacity building, which will consist in the advancement of a legal framework, the creation of a waste management system, the design of a business model to support this management, and the training of specialized professionals in the field.
3. Communications management, to cover the articulation of initiative and partnerships and, lastly, the circulation of information on the project's initiatives.

Some of the main products which it is hoped will be obtained by means of these actions are: a network of involved social agents, aware of the issues at stake; a proposal for a fair, sustainable and efficient recycling system, which will clearly take legal aspects into account; a set of methodological tools aimed at training and circulating knowledge and influence nationally, regionally and globally; a group of specialists in the issue of electronic waste, and a useful system for the circulation and exchange of information.

The development of the project will be carried out in three territorial areas: national, regional and global. For the intervention at a national level, four countries and a case study have been selected.

SUR Corporation of Social Studies and Education is the institution directing the project. For the implementation of this proposal, partnerships have been established with a core of leading institutions with experience in the subject and representative of the diverse dimensions and components the project involves. Thus, a cooperative working commitment has been established with EMPA, in Switzerland. Furthermore, other institutions which form part of this initiative are the Research for Justice Institute (IJC for its abbreviation in Spanish) of Uruguay, and the Central American Association for Economics, Health and Environment (ACEPESA for its acronym in Spanish), of Costa Rica. The support of Environment Canada is also being considered.

This proposal will be developed over two years (2007-2009) and involves a budget of approximately 500,000.00 CAD.

# 1 THE MAGNITUDE OF THE PROBLEM AND HOW THE PROJECT ASSISTS IN ITS SOLUTION

## 1.1 BACKGROUND

The following proposal responds to the need to face the issue of electronic waste in Latin America and the Caribbean (LAC). Electronic waste in the Region must be dealt with by the different social actors involved and in its many dimensions. Sustainable, environmentally responsible solutions must be sought, which take regional contexts into account, explore business opportunities the recycling process offers and incorporate available resources, as developed by the social projects devoted to PC Refurbishing in LAC. These are the main conclusions of the Applied Research Project on PC Recycling in Latin America and the Caribbean, carried out in SUR Corporation of Social Studies and Education, with the support of IDRC during the 2004-2007 period.

Electronic waste is one of the new challenges the information society must face. This challenge arises from the millions of pieces of equipment whose obsolescence, owing to the toxicity of their components, calls for special treatment for the protection of human health as well as the environment. There are also, in the electronic waste treatment process, business opportunities based on the recovery of valuable materials contained in the equipment.

In industrialized countries, this issue has been included in national and regional agendas for some time, and there are currently strong measures and strategies which regulate the negative impact of electronic waste. In Latin America, dealing with materials no longer in use, particularly PCs, is dealt with by means of a series of social projects which handle the issue of re-use and reconditioning of equipment in the context of overcoming the digital gap, thus postponing the matter of electronic waste.

A study developed within the Applied Research Project indicates that, although the rate of adoption of technology by Latin American populations is not equal to the figures found in developed countries, the trends regarding the production of electronic waste show the same accelerated rise as those countries, added to the fact that, at present, electronic waste represents the largest amount of garbage compared to any other type of waste material<sup>1</sup>. The same study shows that the accumulated PC sales in LAC between 1983 and 2005 amounted to 94,674,000; and if we consider that unused PCs constitute 27% of the total of these sales, we are talking about 25,561,900 pieces of equipment which have become waste. Logically then, it is projected that in 2008 there will be an accumulation of 117,717,000 PCs, which will mean 46,585,800 obsolete pieces of equipment which will potentially become electronic waste, to which should be added some 40 million peripheral devices and printers which will also have become obsolete. This will represent a significant volume of waste material which will be awaiting appropriate final treatment in order to prevent environmental risk.

However, the search for solutions in order to reduce electronic waste, or for its correct final treatment, is far from finding an appropriate solution in the Region.

The SUR Project also established the absence of local-regional regulations for the final treatment of electronic waste. The Convention of Basel was identified as the only and principal tool for local and international regulation regarding transboundary movement of this kind of waste. It was also established that, in order to fulfil adequately the environmental and health requirements regarding electronic waste, the legal framework, both national and regional, needs to be reconsidered and updated.

The results of the project have shown that the development of the recycling industry in the Region is only in its initial stages and is insufficient. The current alternative for the treatment of obsolete electronic equipment is disassembly. This implies separating the components, having the toxic elements treated, selling some of the materials locally and selling the valuable items on the international market (to recyclers). In the best of cases, this process is carried out according to legal regulations regarding health and the environment, and therefore, those who carry out these tasks represent themselves as recycling companies. At present, it has been possible to identify only two experiences of this kind in all of LAC. Neither of them would be a real alternative to the problem. On the other hand, we assume that the

---

<sup>1</sup> Market study [www.rrrtic.net](http://www.rrrtic.net)

remaining disassembly and recycling activities are carried out by informal enterprises, with no controls or environmental regulation.

Neither are there any actions to promote the development of electronic waste management, aside from two or three isolated cases. Initiatives regarding shared responsibility or Extended Producer Responsibility<sup>2</sup>, are not yet applied in the Region. There are no formal and institutionalised policies according to which suppliers of PC equipment (mainly importers and assemblers of equipment) have assumed responsibility for their obsolete devices.

Furthermore, knowledge on the subject is limited and certain sectors—both public and private—whose responsibility it should be to find solutions, are largely indifferent to the problem. There is no reference to toxic content or warnings about how equipment should be finally disposed of. The breadth of knowledge on the subject among the majority of consumers is scant or non-existent. Even worse, there is currently no way in which a citizen of LAC is able to participate or intervene actively in finding a solution to the electronic waste problem.

Civil society organizations involved in poverty and development, have regarded the import and reception of donations of computers as a way to include marginalized populations in the “global community”, but they have not, up to now, considered the problem of obsolescence of the equipment and their responsibility in the final treatment of this garbage.

This scenario is not encouraging, but at the same time, its very deficiencies offer many opportunities to take part and affect the search for solutions.

## 1.2 BASIC PREMISES

Based on the experience acquired through the Applied Research Project, we have been able to identify some aspects we consider a priority in this proposal, with the intention of developing action which will be useful in the search for solutions to electronic waste in the Region.

Although the previous project made it possible to come up with a general diagnosis on the subjects of reconditioning and recycling of PCs, the process laid bare the lack of studies regarding this subject in LAC. To this may be added the absence of researchers specializing in these areas. All of which shows that the generation of information on political, social, economic and cultural contexts is indispensable in order to support projections in the search for solutions to the problem of electronic waste.

Another priority in dealing with this matter is to work on the implementation of policies, technical systems and management of electronic waste. It is proposed to promote extended responsibility systems which respond to the specific conditions regarding the origin of waste in the Region. In this context, we consider that reflection and debate on the strategies which must be followed are an indispensable first step prior to the adoption of any of the systems implemented in industrialized countries, such as Extended Producer Responsibility.

This does not prevent—on the contrary, it reinforces—the alliance and exchange of experience between northern and southern countries which were described in the applied research project and which are strongly maintained and which it is proposed to maintain in this new project.

This proposal highlights social vision from different viewpoints. Our interest is to encourage equitable policies regarding the distribution of economic opportunities offered by recycling. This is part of the intention to strengthen the proposals made by computer reconditioning social projects (such as Colombia's Computers for Education and/or Chile's “Todo Chilenter” Foundation) as regards their capacity to be sustainable by means of the implementation of recycling. Providing vulnerable sectors with business opportunities is a possible solution for this project. The

---

<sup>2</sup> Extended Producer Responsibility (EPR) is a widespread new paradigm for the handling of waste. The WEEE Directive adopted by the European Union and implemented in August 2004, establishes that it is the responsibility of manufacturers and importers in EU States to recover their products from consumers and ensure their disposal in an environmentally appropriate manner.

spreading of information is another way to ensure the democratization of the social and corporative processes promoted by this proposal.

It is also proposed to make use of the existing experience and knowledge of PC refurbishing social projects in LAC, which may be included in the development of social enterprises and become sustainable initiatives. This could create fairer company models, inasmuch as they would equitably distribute the benefits accrued from this incipient business venture. In this context, it would be important to assess the possibilities of building networks and regional partnerships in order to facilitate sectoral stock building and collection of waste on a significant scale.

Finally, the processes of communication are very much a part of information technology projects and present-day society. The need to share meanings and content demands that these processes be constructed by means of strategies which incorporate different means and forms of communication. On the one hand, meetings, and means of circulation and materials, are able to articulate, reinforce and complement the research and implementation processes of which this proposal is composed, and on the other hand, they constitute a dimension in itself, with their own achievements and objectives, which are an essential part of this project.

### 1.3 OBJECTIVES

#### General Objective

To implement an associative regional platform which, by means of applied research, capacity building and communications management, will foster, articulate and circulate initiatives to promote solutions for the prevention, the appropriate management and the right final treatment of electronic waste generated by PCs in LAC.

#### Specific Objectives

- a) To build a body of knowledge on PC electronic waste in LAC, to promote incidence processes, and processes to establish and develop pertinent policies in the matter.
- b) To build on the capacity of the various social agents, in order to establish an aware and informed community, which will be able to participate in the construction of a system for the prevention of PC electronic waste and its final treatment. This system must take the particular characteristics of LAC into account.
- c) To facilitate articulation and cooperation among the various social agents, to promote and replicate experiences which will encourage the development of prevention and recycling of PC waste in the Region.
- d) To produce a communications system which will offer useful information and become a by-word for content and experiences related to electronic waste from and for LAC.

## 2 AREAS OF INTERVENTION

The objectives of this proposal are directed at covering three areas of intervention related to the evolution of the PC's life cycle.

- a) Prevention. We consider prevention to be the state prior to the moment when the PC is put on the market; this is related to the possibility of intervening in the design and composition of the materials in a PC. This is an area in which Latin America has special features, which means that the proposal should be aimed mainly at the processes prior to importation and donation. One of the intentions is to extend the criteria employed by the ICT industry in industrialized countries with regard to electronic waste and thereby standardize prevention policies on a global scale.

- b) Refurbishing. This is part of the subject of re-use. It refers specially to the acts and activities of social reconditioning projects of and is therefore concerned with donation policies. The aim is to promote the extension of the useful life of PCs by means of social projects, whilst taking into account the possibility of integrating these into the chain of inverted production.
- c) Recycling. This is concerned with the recovery of materials and the proper treatment of electronic waste.

### 3 DEVELOPMENT COMPONENTS OF THE PROJECT'S ACTIVITIES

The activities related to this proposal will be carried out on the basis of three components. These, as a whole, meet the four objectives of the project.

Each one of these components is interrelated and feeds back reciprocally from the work of project coordination with its direct partners in the formal areas of exchange which are organized in workshops, meetings and contacts.

#### 3.1 APPLIED RESEARCH

This component refers to the first specific objective. It will develop by means of research activities related to the construction of a cognitive map which will contribute to: the understanding of the problem of electronic waste; knowledge of the context within which this problem arises; recognition of the many actors involved in prevention and the solution to the problem of handling electronic waste, at both a national and a regional level.

Research activities will be designed with the objective of providing functional knowledge which will influence the political, social and economic agents who define the prevention and recycling of electronic waste. The processes which are to have an effect at both the level of public policy and in the training of social agents will be based on this information.

In this component, information which is pending from the first project will be systematized, so that it can contribute to the preparation of content which will support the training and information processes which are proposed with regard to capacity building and communication management.

#### Activities

The activities of the applied research component will be organized into the following areas:

##### a. The Generation of Knowledge

- Development of quantitative research. Preparation of a survey regarding the consumption, use and management of electronic waste at the household level. By means of this tool, information will be obtained regarding the behaviour of consumers in relation to the PCs in their homes. It will constitute a representative sample of the PC-owning population and will be applied in metropolitan regions of two countries in the Region, taking the different areas into account; Central America, the Southern Cone, the Caribbean. The methodology will allow for the construction and assessment of indicators on the subject, which in turn will be included in regional measurements of a more considerable scope.
- Development of a baseline in four of the Region's countries: Chile, Colombia, Costa Rica and Peru<sup>3</sup>. This will permit the construction of scenarios which will take into consideration the political, social and

---

<sup>3</sup> Contacts have been established in all of these countries. However, some of them may be replaced if the suitable conditions for the implementation of the studies are not achieved.

economic contexts of the intervention countries selected. These studies consider the information on the types and quantities of electronic waste generated and the national legal systems that contain them, and identify the private and public actors related to the subject of PC re-use and recycling. In this process, it is important to analyze the final disposal route of electronic waste in its different stages—from production to final disposal—taking into account the accumulation, recovery and disposal of the waste generated.

- In the construction of baselines in the countries selected, the study of the legal framework within these countries will be emphasized. With this information to hand, it will later be possible to initiate effective processes aimed at the formulation of public policies in the matter.
- In this information gathering process, it is hoped to establish contact and involve, amongst others, legislators, municipal managers, potential recycling enterprises, social organizations and so on; and to initiate joint tasks with them.
- Provide support for the development of tutorials for the production of papers or research results on the subject of electronic waste directed by universities in the different countries in the Region. An appeal is made which will require associative systems among researchers in the LAC countries, who would be given the counsel and support of experts from academic centres in industrialized countries. For this activity, we may count on the support of EMPA, Environment Canada and the University of Florida (USA).
- The systematization, analysis and integration of general knowledge produced in the first stage of the project and also from other experiences in the Region.
- Production of materials for the training of social actors and for information in support of the intervention processes in the development of capabilities.

#### *Outputs*

- \* Results of two PC user surveys
- \* A replicable survey model
- \* Baseline information on 4 countries
- \* Indicators on the subjects
- \* 6 tutorials for research work

#### b. Strategy Planning

- The systematization and integration of general knowledge
- Intervention design and model

#### *Output*

- \* Intervention plans

#### c. Construction of Intervention Tools

- Production of materials for education and training in the subject

#### *Outputs*

- \* 4 working charts
- \* 6 working presentations (PowerPoint)



## 3.2 CAPACITY BUILDING

The activities contained in the capacity building component are aimed at contributing to the strengthening and training of public, private, social and academic actors who participate in the process of incidence aimed at the establishment of an effective and proactive system to develop activities which will solve the problem of electronic waste.

Activities aimed at involving local actors who take part in decision making relative to handling of electronic waste will be emphasized; as well as those which encourage collective actions in the matter of electronic waste, and those aimed at innovation in the field and the creation of social and sustainable enterprises.

### Activities

The activities of the capacity building component will take place in the following areas: the political-legal system; the technical system; the administrative system; professional training and institutions.

- a. Promotion of a Legal System. To promote the creation and implementation of a legal system which will support and facilitate the processes of prevention and recycling of electronic waste, thus ensuring the protection of the environment. This legal dimension begins with a process which identifies actors, spaces and conditions related to the prevention and recycling of electronic waste. This process implies the development of activities which require the active participation of representatives of the social sectors involved, in particular the government, who have the greater power of decision in these aspects. In this context, the beginning of a long-term strategy is visualized, in order to influence public policies related to this matter.
- b. The sensibility of the different sectors may be motivated by means of the participation of these agents in the construction of knowledge and in the delivery of this information in specific seminars, and by means of the establishment of groups with an interest in the subject. Furthermore, within this component, standards for the importation and donation of PCs will be drawn up and promoted.

#### *Outputs*

- \* Workshops for informing and training the groups involved
  - \* An incidence working paper
  - \* A technical standards for prevention group
  - \* Working groups at a national level
  - \* A joint agreement proposal for the handling of electronic waste (a kind of WEEE Directive)
- c. Implementation of a Technical System for the Handling of Waste. Closely related to the previous point; it is proposed to develop a series of activities for the design and promotion of a system for the handling of electronic waste at a national level. In the preparation of this design, identifying and motivating social agents who represent different sectors is considered, so that they may take part in the implementation of the system. As a model, we shall use Costa Rica's ACEPESA experience, which was able to achieve the establishment of a National Technical Committee with representatives from public, private and academic sectors, for the drawing up of a national proposal aimed at the integral and sustainable management of electronic waste.

The design of this strategy will be based on the principles of an Extended Responsibility System (ERS), conceived as a discussion proposal to debate on the possibility of adopting Extended Producer Responsibility (EPR) ("polluter pays"), a system by means of which the management of electronic waste is organized in most countries. It is proposed to evaluate the different components which would compose this ERS within the framework of the characteristics of the Region with relation to the total number of PCs. This

means considering the heterogeneous nature of the origins of this market (informal, re-use, brand-name PCs, clones, national donations, foreign donations).

The proposal implies working with public and private social actors involved in the handling of waste and who can affect the search for solutions to the problem of electronic waste. It is of interest to underline a work area involving the assessment and definition of the roles and integration possibilities of municipal administrations in these proposals. These actors, who have, historically, been in charge of waste management, have not up to now adopted any special policy in relation with electronic waste<sup>4</sup>.

At least four local meetings will be held to promote the establishment of technical working committees.

#### *Outputs*

- \* An Extended Responsibility System Model
- \* Sectoral committee workshops to discuss the ERS
- \* National and Regional committees for the search for solutions

- d. Construction of a social business model for recycling electronic waste. The rationale for this proposal considers the development of a series of activities for the construction of a social business model for recycling electronic waste, a model which must take into account the socio-economic and cultural conditions in the Region. With this in mind, it is intended to design and promote a social business model which will involve and strengthen sectors with the least resources. This proposal is framed within a conception of social economics which encourages capacity building for collective enterprise and resource generation in the more vulnerable groups, so that they may compete within the market.

The activities would be aimed at developing two initiatives. One of them is to relate recycling activities to existing refurbishing projects. These projects have a technical, knowledge and infrastructure potential which would allow them to take responsibility for the electronic waste they produce. Furthermore, they may participate in the benefits to be obtained from the recovery of valuable materials contained in PCs. It is proposed to develop a pilot experience by means of which a model would be offered for the implementation of this type of action in other reconditioning projects, and eventually, in informal electronic equipment collection systems which currently operate in LAC countries.

A second initiative would be to evaluate the possibilities of building partnerships and alliances to promote the management of valuable material recovery in a collective manner, by groups of countries. The possibilities for the generation of profits through the recovery of valuable materials are based on the management of high volumes of materials. These are difficult to obtain by means of local initiatives in the Region; therefore, an alternative is to concentrate materials by Region, which would be possible in Central America, for example.

#### *Outputs*

- \* A proposal for the implementation of social business ventures
  - \* A pilot experience
- e. Training professionals in the field of electronic waste. In this project, six postgraduate students will be selected from LAC universities, who will be offered tutorials by teachers from specialized learning centres in industrialized countries. This will be carried out by means of partnerships between educational centres in northern and southern countries. For this purpose, experts from foreign universities willing to guide work in LAC will be identified; and at least six postgraduate students from LAC universities will be selected and their final papers will receive guidance in the subject.

---

<sup>4</sup> A study on municipal administration and recycling developed within the applied research project. [www.rrrtic.net](http://www.rrrtic.net)

### *Outputs*

- \* A group of professionals in LAC universities, specialized in electronic waste.
- \* Six final papers in different fields related to the management of electronic waste.

## **3.3 COMMUNICATION MANAGEMENT**

Focuses on activities devoted to the systematization, centralization, exchange and circulation of information. In this component, the production of materials which support communicational activities is also considered.

The activities which make up this component are grouped in the following areas:

### a. The articulation of initiatives in the subject and partnership of actors involved

- Development and strengthening of alliances and initiatives involved in this PC recycling project. The setting up of committees and the establishment of agreements will be encouraged. Public presentations of models and regional meetings for the exchange of experience will be included. Support will be offered to other IDRC projects on the subject and an alliance will be encouraged between them.
- Coordination of conversations and meetings with external institutions related to the subject. Public relations meetings and activities with projects and institutions related to the subject, but whose work does not take place directly within the field. Active regional coordination will be promoted by SUR, which will imply direct contact within the intervention countries.

### *Outputs*

- \* 4 national meetings in the selected countries; 2 international speakers, experts in the field related to the project, will be invited to each of the national meetings to provide support for the circulation and training activities.
- \* 2 international meetings; one of these international meetings will be carried out in Central America or Spanish-speaking Caribbean and the other, in South America. Approximately 25 social agents involved in the subject, from public and private sectors, civil society organizations and academia, will be convened.

### b. The circulation of information

- To promote the incorporation of the subject in national and regional agendas. Special attention will be paid to the communications media.
- To circulate information about the Project's activities. Materials in different formats will be produced.

### *Outputs*

- \* 2 publications
- \* A bilingual website
- \* A videotape

## **4 EVALUATION**

At the end of each year an evaluation of the measures and actions taken in the project will be held. This will assist us in making the best decisions in order to achieve the goals of the project.

### Summary Table: PROJECT ACTIVITIES DEVELOPMENT COMPONENTS

COMPONENT 1.- APPLIED RESEARCH		
	Activities	Outputs
a) The generation of information	<ul style="list-style-type: none"> <li>- Development of quantitative research</li> <li>- Development of baseline</li> <li>- Contact with sectors involved in the subject</li> <li>- Support for monographs or research</li> <li>- Systematization, analysis and integration of knowledge</li> <li>- Production of materials</li> </ul>	<ul style="list-style-type: none"> <li>- Results of two surveys</li> <li>- Replicable survey model</li> <li>- Baseline information from 4 countries</li> <li>- 6 tutorials</li> <li>- Indicators on the subjects</li> </ul>
b) Strategy planning	<ul style="list-style-type: none"> <li>- Systematization and integration of general knowledge</li> <li>- Intervention design</li> </ul>	<ul style="list-style-type: none"> <li>- Intervention plan</li> </ul>
c) Construction of tools for intervention	<ul style="list-style-type: none"> <li>- Production of materials</li> </ul>	<ul style="list-style-type: none"> <li>- 4 working charts</li> <li>- 6 series of presentations</li> </ul>
COMPONENT 2.- DEVELOPMENT OF CAPABILITIES		
	Activities	Outputs
a) Legal framework promotion	<ul style="list-style-type: none"> <li>- Identification of social actors, roles and responsibilities</li> <li>- Establishment of technical standards</li> </ul>	<ul style="list-style-type: none"> <li>- Workshops for the information and training of groups involved</li> <li>- Incidence working paper</li> <li>- Group of technical standards for prevention</li> <li>- Working groups at a national level</li> <li>- Joint agreement proposal for the handling of electronic waste (a kind of WEEE Directive)</li> </ul>
b) Creation of a Waste Handling System	<ul style="list-style-type: none"> <li>- Identification of the responsibilities of the social agents involved</li> <li>- Setting up of work groups at a national level</li> <li>- Creation of a model for an ERS</li> </ul>	<ul style="list-style-type: none"> <li>- Replicable ERS model for the Region</li> <li>- Workshops with sectoral committees for the discussion of ERS</li> <li>- National and regional committees for the search for solutions</li> </ul>
c) Social business model for the management of electronic waste	<ul style="list-style-type: none"> <li>- Cost study for the implementation of a social business venture</li> <li>- Evaluation of valuable items recovery management at a Regional level</li> </ul>	<ul style="list-style-type: none"> <li>- Social business implementation proposal</li> <li>- Pilot Experience</li> </ul>
d) Training professional workers	<ul style="list-style-type: none"> <li>- Identification of experts on the subject</li> <li>- Support for the development of papers by university students on the subject</li> <li>- Development of links between universities in northern countries and those in LAC</li> </ul>	<ul style="list-style-type: none"> <li>- A group of professionals in LAC universities specialized in electronic waste.</li> <li>- Six final papers in different fields related to the management of electronic waste.</li> </ul>
COMPONENT 3.- COMMUNICATION MANAGEMENT		
	Activities	Outputs
a) Articulation of initiatives and partnership of actors	<ul style="list-style-type: none"> <li>- Alliances and work agreement at national, regional and global levels</li> <li>- Meetings for the presentation of results and intervention strategies at national and regional levels</li> <li>- Support offers and alliances among IDRC projects</li> </ul>	<ul style="list-style-type: none"> <li>- 4 national meetings in selected countries</li> <li>- 2 or 3 international meetings</li> </ul>
b) Circulation of information	<ul style="list-style-type: none"> <li>- Incorporation of the subject in national and regional agendas</li> <li>- Circulation of information about the Project's activities</li> </ul>	<ul style="list-style-type: none"> <li>- A bilingual website</li> <li>- 2 publications</li> <li>- A Videotape</li> </ul>

## 5 GENERAL PROJECT OUTPUTS

- a. Development of a **network of agents** representing the different sectors involved, in order to encourage the production of joint work proposals at national, regional and global levels.
- b. Progress with regard to **theoretical methodological models which are replicable, useful and flexible** based on empirical information supporting the development of strategies of change and political, cultural and economic achievements which respond to equitable conditions and the environmental requirements of the diverse conditions of implementation.
- c. Proposal of a system of **electronic waste prevention** which takes into account conditions in LAC.
- d. A **package of methodological tools** aimed at the effective circulation of knowledge at a national, regional and global level.
- e. An **aware and well-informed political social community** which is interested and involved in the process of implementation of solutions regarding electronic waste at a national and regional level.
- f. A **proposal for a legal framework** which offers an initiative at the national level in order to solve electronic waste.
- g. Development of a **recycling system model** which takes into account social PC reconditioning projects.
- h. Creation of a **group of specialists in electronic waste** graduated from Latin American and Caribbean universities, specialized in the subject of electronic waste.
- i. A **useful information system** for the circulation and exchange of experience regarding this subject within the Region.

## 6 ACHIEVEMENTS EXPECTED FROM THE PROJECT

- Improvement in the environmental conditions within the Region due to the recycling of hazardous substances which will be subjected to final controlled treatment.
- Protection of resources by means of the re-use and recovery of PC valuable materials.
- Job creation in the areas of re-use of information and communication technologies and of recycling of electronic waste.
- Improvement in the work conditions of vulnerable sectors.
- Exchange of experience and knowledge between north-south and south-south, taking local contexts into account.

## 7 APPROACH

The multi-disciplinary approach implies the integration of different disciplines representing the variety of dimensions involved. In any initiative related to electronic waste, economic, legal, communicational, technical, health and

environmental considerations have to be taken into account. Furthermore, the participation of social actors representing different sectors—such as industry, government, businessmen, academics, and civic groups—constitutes a requisite for the construction of strategies. The joint participation of all of these sectors and their representatives enhances the process of exchange of knowledge and experience.

Part of our approach is aimed at highlighting the conditions in LAC. Our work and merit has been to put the point of view and specific situation of Latin America and the Caribbean on the international agenda and to recognize the characteristics of the local market, the position of different initiatives, the difficulties of intervention, work in progress, etc. This was a positive characteristic of the previous project and must be continued. Recognition of the differences and specific nature of the Region, with its internal inequalities and its possibilities for regional support, constitute a necessary condition for appropriate participation, with its own voice, on the international scene.

Following this line of thought, we believe that incidence and intervention should be applied at local-national, regional and global levels. Intervention can be carried out through a certain number of selected countries which are representative of the various parts of the Region. On the one hand, the intention would be to extrapolate national experiences by producing models which would be useful tools when replicated by other countries in the Region and which would enrich existing initiatives. On the other, it is by drawing countries in the Region together that we can build an overall regional panorama.

Our idea is to continue focusing our work on PCs, in so far as these are a part of electronic equipment. The use of an electronic product, in this case PCs, has been a good way to start working on the entire electronic line. Nonetheless, this does not rule out the possibility, when considered necessary, of integrating other grey-line appliances when promoting recycling systems.

In the previous project it was not possible to include the Caribbean. Therefore, in the present project we have considered initiating a new strategy of integration for the Spanish-speaking Caribbean which is focused and can be carried out as a pilot study or a specific meeting. The Dominican Republic has been selected for the start of this work. This country, in addition to language facilities, offers diverse and important initiatives in the ICT area and contacts exist at government level and with the civil society.

In this project we also want to explore and reinforce the possibility of continuing to work jointly on other projects which the IDRC is carrying out on this subject within the Region. Initiatives such as “Computers for the Community” and “Quipus” have been close to our previous work and we should therefore like to continue sharing and strengthening our results with them.

Key elements in the development of the project are:

- The political, social and economic actors involved in the process.
- The training of experts.
- Political, economical and social systems which enable or facilitate the process.
- The channels and means of exchange and articulation which favour the task.

## **8 STAGES OF INTERVENTION**

Intervention will be developed at two levels: national and regional. There is also a third level: global intervention. Each level will support and reinforce the next. Thus, work at a national level will enable the sharing of models and information which will constitute a regional panorama.

The whole will provide information and experience regarding Latin America and the Caribbean.

The participation of other regions will allow us to work at a global level. Furthermore, it will enable the exchange of experience and support between the industrialized nations and the countries in the southern hemisphere.

Four countries in Latin America and one in the Caribbean have been selected for the development of different activities which initiate the intervention and which share some of the activities which EMPA is developing in the Region. These are:

- Chile. One of the most developed countries with regard to the implementation of ICTs within the Region. In addition, work opportunities are facilitated by the presence of SUR in the country.
- Costa Rica. Work is facilitated by the relationship with ACEPESA. It will also serve as an entry-point country for work in Central America.
- Peru. Contact has been made with the NGO IPES.
- Colombia. There are important undertakings with regard to the refurbishing of PCs and an excellent effort in mutual cooperation: "Computers for Education".
- Spanish-Speaking Caribbean (Dominican Republic). Activities will be initiated in this country in order to open a work space within the Caribbean. There are contacts with the government and civil society organizations.

In the case of Peru the baseline study may lead to its substitution by another country in the Region, depending on the need for additional information to that provided by EMPA.

## 9 AN ASSOCIATIVE PROJECT

The project is conceived as a system of operative partnerships, with a flexible structure, dense in activities. This has been a successful line of work, adopted in the previous project, which has allowed the establishment of alliances and the carrying out of joint work in various undertakings and experiences in both northern and southern countries.

**SUR Corporation of Social Studies and Education.** SUR is the institution which directs the project. Partnerships have been established for the implementation of this proposal with a core of leading institutions with experience in the field and representing the various dimensions and components the project encompasses. All of these institutions have participated actively in the computer recycling applied research project. Work has already been carried out jointly with these institutions at different levels: studies of national rulings and regulations, the presentation of experiences in workshops, a study tour in Switzerland, a meeting in Costa Rica. This associative core has a leading support role in the development of policies and the implementation of research.

**EMPA** is the Swiss technological and materials research institution. It is financed by SECO, the Swiss State Secretariat for Economic Affairs, and has a fundamental role in education, science and technology in Switzerland. It is devoted to research, development and the implementation of projects in sustainable development, technology, health and the environment. Likewise, it has a strong element of cooperation with the public sector, industry and developing countries. With the "knowledge partnership" model in the field of e-waste, they have experience in the implementation of strategic plans for waste management in South Africa, India and China.

A joint work agreement has been established between SUR and EMPA, for the development of a series of activities in this project. One of them involves the selection of the same intervention countries, with the agreement to improve and strengthen intervention results of both institutions. In addition, commitments include mutual support in the different dimensions contained in this project and which coincide with EMPA's proposal for LAC. This includes the exchange of information generated, technical support, specifically, in the Capacity Building component of this proposal, and joint work in the development of meetings and alliances at international levels.

**Research for Justice Institute (IJC for its abbreviation in Spanish).** A legal research centre in Uruguay. Contact has been established with Carlos Gregorio, a Doctor in Law, and responsible for two of the studies in the previous project.

A joint work agreement has been established with IJC for this undertaking. IJC will be an active partner in the implementation of the Capacity Building dimension, specifically in the legal area.

**Central American Association for Economics, Health and Environment (ACEPESA for its acronym in Spanish).** On an international scale, ACEPESA is developing, together with WASTE in the Netherlands (The Bilateral Agreement for Sustainable Development Costa Rica – Holland), an undertaking regarding electronic waste in the country. As regards the development of this proposal, ACEPESA takes part as a strategic partner in the implementation of initiatives in Central America.

**Environment Canada** will be a model in certain areas of Capacity Building and eventually they will provide support for the training of professionals and possibly an undertaking to carry out a study tour of the refurbishing and recycling experiences in that country.

In addition to these associations, we are interested in establishing certain specific alliances with the Basel Convention Regional Centre for Latin America, with headquarters in Argentina, and with SCRAP, an Argentine recycling plant, which may provide support for work on a social business venture. We have also worked with both of these institutions in the previous project.



## 10 WORK PLAN

	Year 1												Year 2											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
<b>Component 1</b>																								
Project Planning	■																							
Baseline 1		■	■	■	■								■	■	■	■								
Baseline 2		■	■	■	■								■	■	■	■								
Working chart preparation		■	■	■										■	■	■								
Survey			■	■	■	■	■	■							■	■	■	■	■	■				
Case Study														■	■	■	■	■						
Tutorials			■	■	■								■	■	■	■				■	■	■	■	
<b>Component 2</b>																								
Legal framework promotion			■	■	■	■	■	■						■	■	■	■	■	■	■				
Information workshops		■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
Work groups				■	■			■	■		■	■		■	■			■	■					
ERS Model Study						■	■	■	■	■	■						■	■	■	■	■	■	■	
ERS Workshops							■	■	■	■										■	■	■	■	
<b>Component 3</b>																								
National Workshops 1-2						■	■	■											■	■	■			
National Workshops 3-4							■	■	■	■										■	■	■	■	
International Meeting 1								■	■	■	■									■	■	■	■	■
Circulation of Information		■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
Website	■	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■
Evaluation											■	■										■	■	
Report 1											■	■	■											
Final Report																							■	■

## 11 BIBLIOGRAPHY

- Bassi, Roxana and Susana Finkelievich (2005): "Análisis de los impactos sociales de la transferencia de equipos de informática usados", Sur – IDRC, Final Report.
- Bridges.org, (2004) "How to set up and operate a successful computer refurbishment center in Africa"- [http://www.bridges.org/refurb/Refurb\\_Centre\\_Guide\\_bridges.org.pdf](http://www.bridges.org/refurb/Refurb_Centre_Guide_bridges.org.pdf)
  - California, EE.UU., law SB 20(2003). [http://www.irf.com/ehs/sb\\_20\\_bill.pdf](http://www.irf.com/ehs/sb_20_bill.pdf)
  - El Mundo, "Lo que hay en un PC" (2005) <http://www.el-mundo.es/suplementos/ariadna/2005/233/1115406000.html>
  - Farias, Lorena (2005): Disminución de la brecha digital a través del reacondicionamiento de computadores, SUR – IDRC
  - Florida Department of Environmental Protection (DEP), Florida's Strategy for the Management of End of Life Cathode Ray Tubes (CRTs), Computers, and Other Electronic Equipment (PDF, 10 pages, 33 KB)
  - Gosch, J. (1992). "Will EC Follow Germany's Lead on Computer Recycling?" *Electronics* 65(6), 11
- Gregorio, Carlos (2005): Estudio sobre marco legal de la basura electrónica en LAC. On [www.rrrtic.net](http://www.rrrtic.net)
- Huisman, Jaco (2003) *The Qwerty/EE Concept*. Delft University of Technology, Netherlands
- ICA (2003) Estudio de caso, computadores para Educar / <http://www.icamericas.net/modules.php?op=modload&name=DownloadsPlus&file=index&req=getit&lid=61>
  - Intel Innovation in Education (2005) "Students Recycling Computers. Donating your Computers", [http://www.intel.com/education/recycling\\_computers/strut.htm](http://www.intel.com/education/recycling_computers/strut.htm)
- Kuehr Ruediger and Williams Eric; Editors; "Computers and the environment: understanding and managing their impacts" Kluwer Academic Publishers, 2003.
- La Opinión, March 2005, "Uruguay no tiene plan de reciclado y eliminación de residuos de computadoras" <http://www.laopinion-rafaela.com.ar/opinion/2005/02/12/h521220.htm>
  - Matthews, Scott, Chris T. Hendrickson, and Francis C. McMichael: *Disposition and End-of-Life Options for Personal Computers*, Green Design Initiative and Deanna J. Hart of Concurrent Technologies Corporation, 1997, <http://www.ce.cmu.edu/GreenDesign/comprec/nytimes98/index.html>
  - McCarthy James E. (2002) RL31505 - Recycling Computers and Electronic Equipment: Legislative and Regulatory Approaches for "E-Waste" <http://www.ncseonline.org/NLE/CRS/abstract.cfm?NLEid=36470> (includes worldwide legislation in 2002)
  - Mejía, María Isabel and Pablo Bernal (2003): *Computadores para Educar. Enriqueciendo la formación de nuevas generaciones de colombianos*, Instituto para la Conectividad de las Américas, ICA – IDRC.
  - Muñiz Díaz, Omar "Reducción, reuso, y reciclaje de computadoras (2000)" <http://www.estrucplan.com.ar/Articulos/verarticulo.asp?IDArticulo=399>
- Lynch, Kevin. (2005) *Echar a perder. Un análisis del deterioro*. GG Mixta. Barcelona.
- Palacio, Rolando and Uca Silva (2005): Estado del arte sobre el reciclaje de PC en LAC. En [www.rrrtic.net](http://www.rrrtic.net)
- Smith, T., et al.(2006) *Challenging the Chip*. Temple University Press, Philadelphia.

- Tchsoup (2003) "Ten Tips for Donating a Computer" |  
<http://www.techsoup.org/products/recycle/articlepage.cfm?ArticleId=524>
- The Basel Action Network (BAN) (2002): Exporting Harm. The High-Tech Trashing of Asia, February 25, 2002, |  
 Silicon Valley Toxics Coalition (SVTC),  
<http://www.google.com.ar/search?hl=es&q=%22Exporting+danger%22+%2B+Asia&btnG=B%C3%BAqueda&meta=>
- ITU, 2001: Actualidades de los indicadores de telecomunicaciones de la UIT, ITU News Magazine, N° 2, March |  
 2001.
- ITU, 2006: World Development Indicators database, April 2006 (to 2004).
- UNU (2004) "Computers and the Environment: Understanding and Managing their Impacts", Kluwer Academic |  
 Publishers and the UNU, paperback (ISBN: 1-4020-1680)
- www.rrrtic.net: Investigaciones e información desarrolladas en el Proyecto de Investigación Aplicada de Reciclaje de  
 PC SUR / IDRC