

# Systems Thinking

a different approach for designing our world

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- Mankind has coupled the concept of progress to the consumption of physical objects
- Our species is under threat by our own activity and it's impact in our context
- Sustainability is about social, economical, and environmental solutions

This work intends only to show our experiences in complexity approach in teaching industrial design.

In the last four years we have experimented on changing the focus from the classic problem solving method in an Industrial Design workshop into a systemic solution point of view incorporating the complexity behaviour of our everyday living.

Next some of the projects:

2008

**problem named:**  
Solid waste recovering

**we found:**  
over designed equipment, lack of strategy, lack of worker benefits, missed business opportunities.

**the solution was:**  
redesign of appropriate equipment, integral strategy, new business development.

**team:**  
Ana Sofia Reyes-Retana, Miguel Franco, Jose Gordillo, Azucena Muñoz, Maria Madgalena Gonzalez, Manuel Amaro, Sandra Portillo, Michaela Stachova, Salvador Guerrero, Juan Herrera, Daniel Gayosso, Alejandra de la Cerda, Pedro Diaz, Diego Stehle, Gabriela Morales, Jessica Zepeda, Tania Muñoz, Fabiola Lezama, Ricardo Suarez, Salvador Soto, Benjamín Valencia.



## Our proposal

1



According to the nowadays behavior, people from their houses separate organic and inorganic waste. Not any more volunteer but official government workers using the street containers (normally fixed to the floor) as trolleys to clean up the streets.

2a

An organic waste truck picks up this material from the street containers, and along the way pre-process it.



3a

The organic waste is downloaded to an underground container where biogas is produced to be used later as fuel for all waste truck fleet.



4a

The remainings of organic waste are transported to a compost field where humus is produced.



2b



An inorganic waste truck picks up this material from the street containers and has a special area for separating and processing all recyclable materials in a safe and organized way, this truck is a normal 5t vehicle.

3b



All the inorganic material is separated and recycled properly. In places like malls or schools a program to recollect aluminum, glass and plastics is also proposed.

4b



All non-recyclable materials (mixed plastics, non-disassemblable objects, etc.) can be processed to finally create products like furniture.

2008

**problem named:**  
Political campaigns advertisement

**we found:**  
disproportionate amount of public resources, huge amount of waste, visual contamination, corruption.

**the solution was:**  
sustainable business model design, order in amount, type and position of advertisements (regulations), use of infrastructure in non campaign periods, reuse and recycling of ad material.

**team:**  
Veronica Gonzalez  
Teresita Suarez  
Leonardo Romero



2008

**problem named:**

Sustainable certification for industry and products

**we found:**

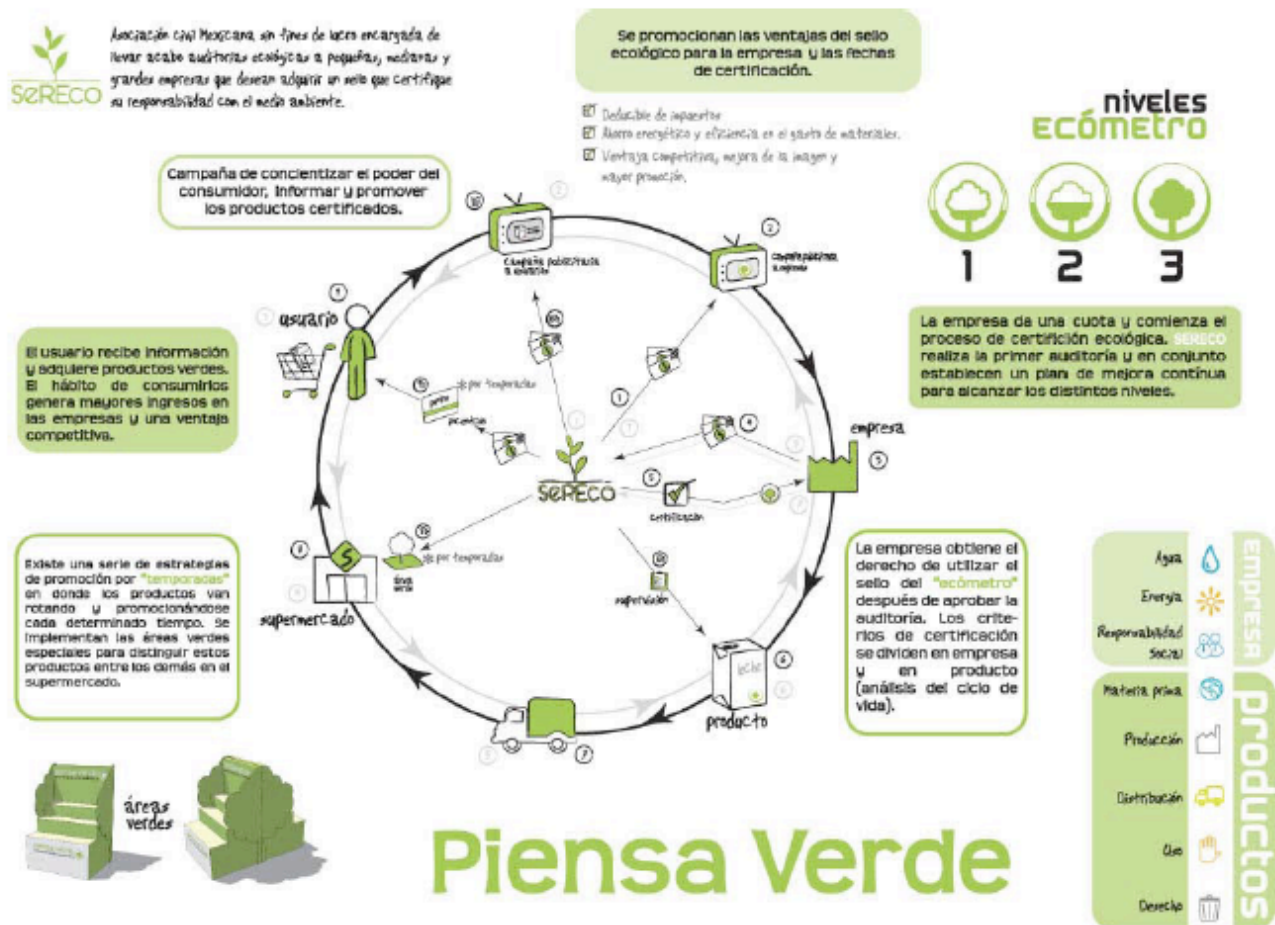
Hundreds of certifications for different things, lack of an integral and easy to understand logic for customers.

**the solution was:**

design of certification tests, seal, strategy for an integral certification of products and industries as well as public awareness.

**team:**

Laura Segarra, Adriana Garcia, Tanyha Lopez



2009

**problem named:**  
Human body waste

**we found:**

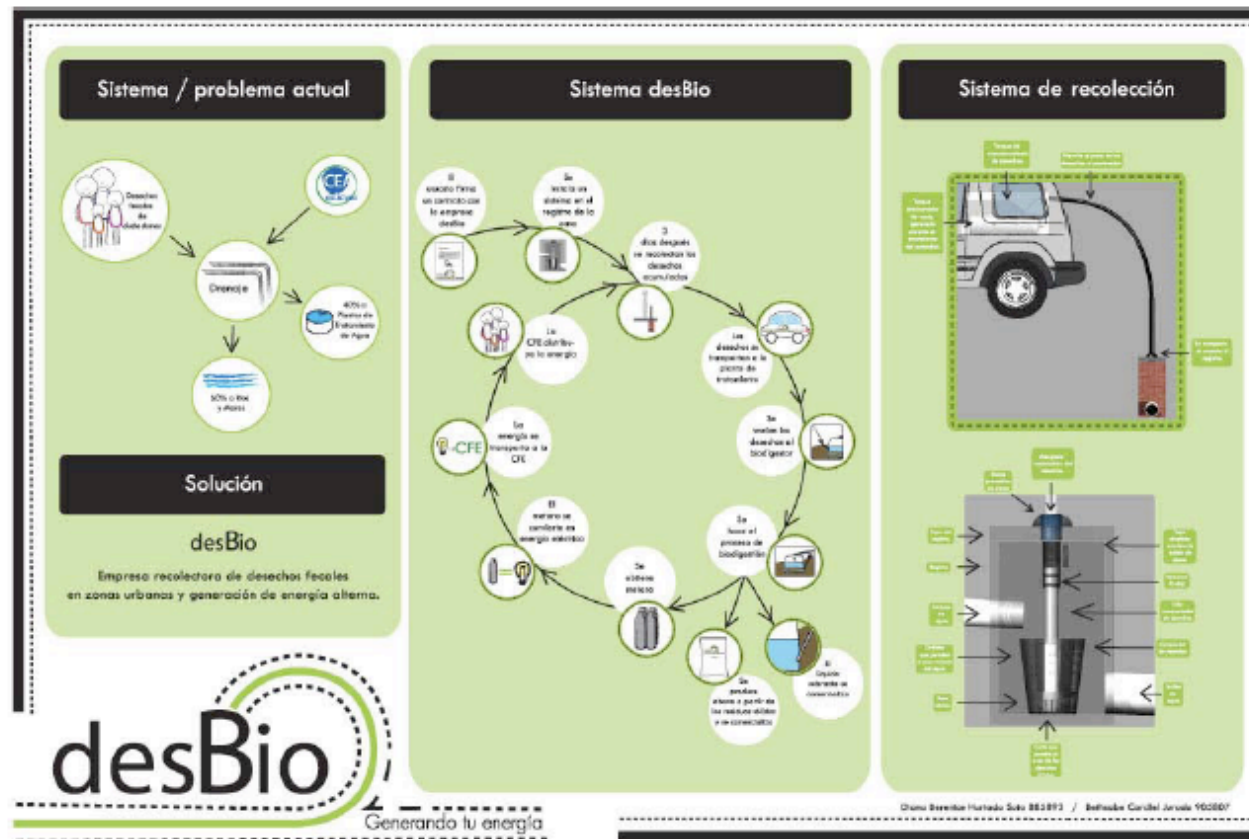
In many cities of the world the human fecal and urinary waste are not properly treated, in Queretaro 86% of sewage waters goes to rivers and oceans, impossibility to change infrastructure, business opportunity unexploited.

**the solution was:**

Desbio is a company that recolects human fecal waste and process it to create methane and with it electricity, entire business model and necessary equipment to perform the task cleanly and safety.

**team:**

Diana Hurtado, Bethsabe Cardiel



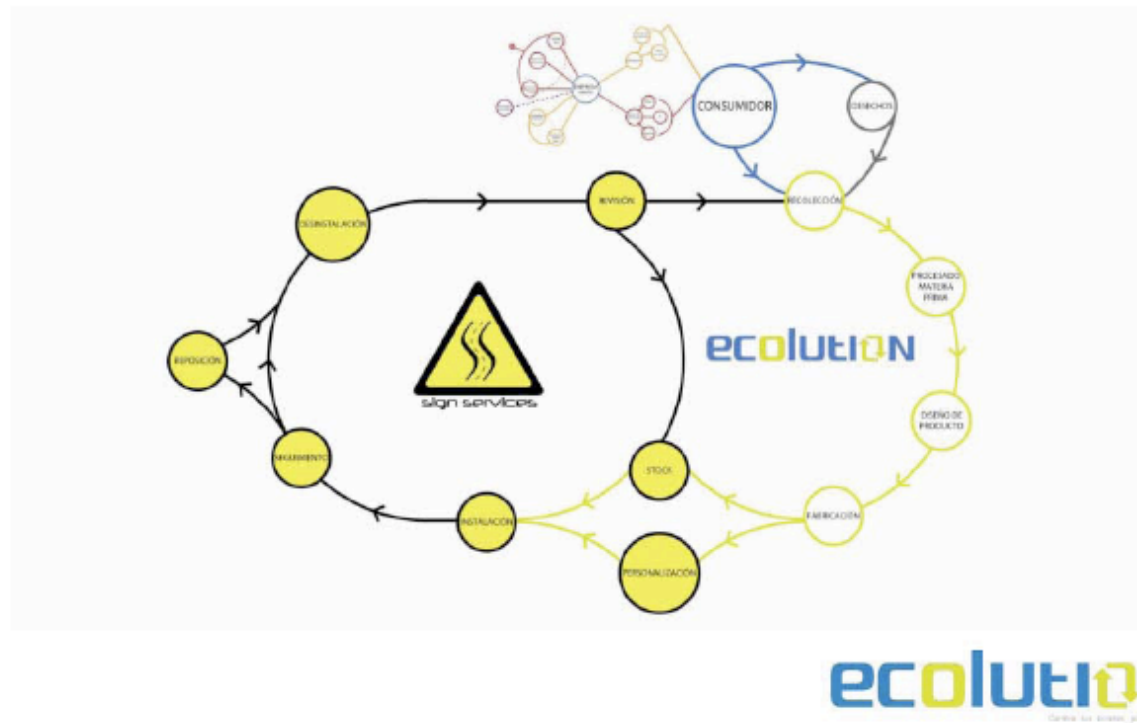
2009

**problem named:**  
junkfood packaging waste

**we found:**  
huge amounts of bi-polypropylene ending in landfills, material waste, high pollution and business opportunity unexploited.

**the solution was:**  
ecolution, a company dedicated to recolect the material and recycling it, creating new products under the Product-Service-System scheme.

**team:**  
Laura Segarra, Adriana Garcia, Tanyha Lopez





2009

**problem named:**

global awareness on current global trends

**we found:**

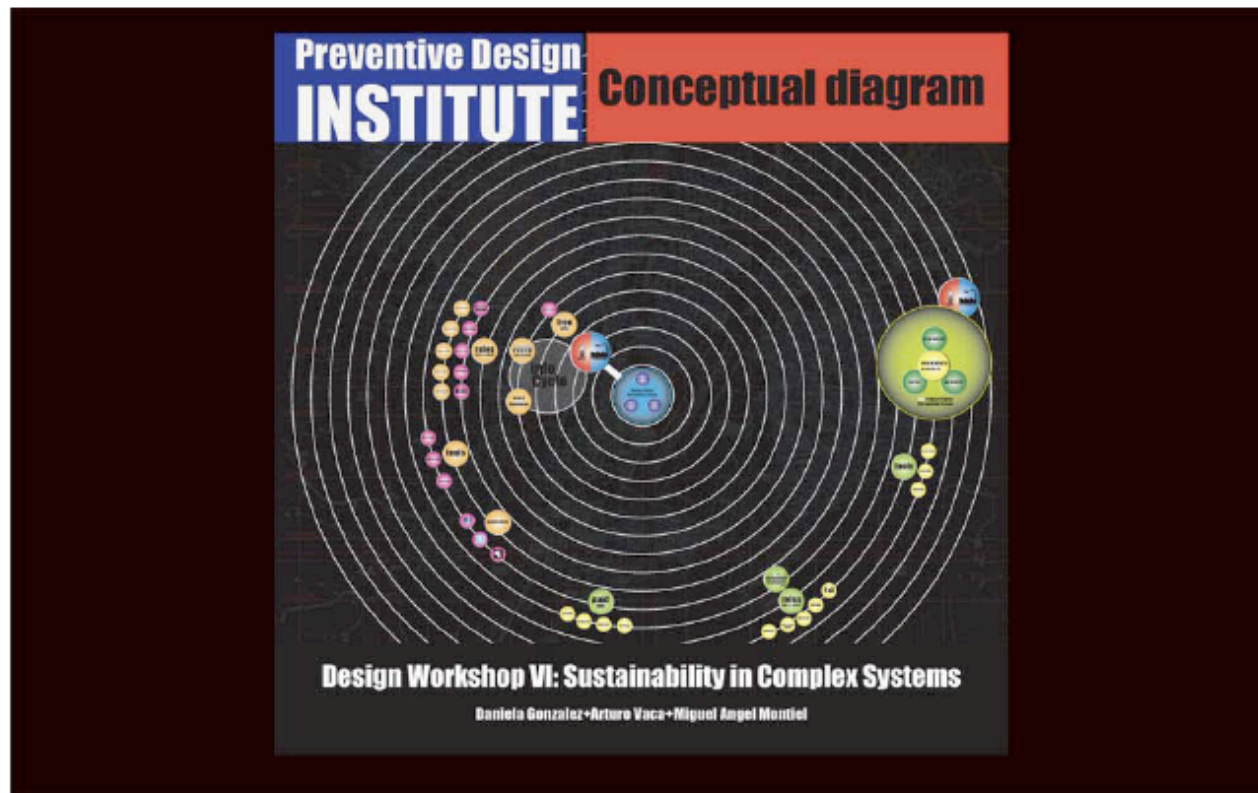
lack of awareness on people about global situation, lack of correlation between people, industry and government in order to reach a sustainable future.

**the solution was:**

the Preventive Design Institute is an organization which will perform a constant monitoring of the current economical, social and environmental models in order to avoid that the current solutions become the problems of the future.

**team:**

Miguel Montiel, Daniela Gonzalez, Arturo Vaca



2009

**problem named:**

No education opportunities for the visually impaired

**we found:**

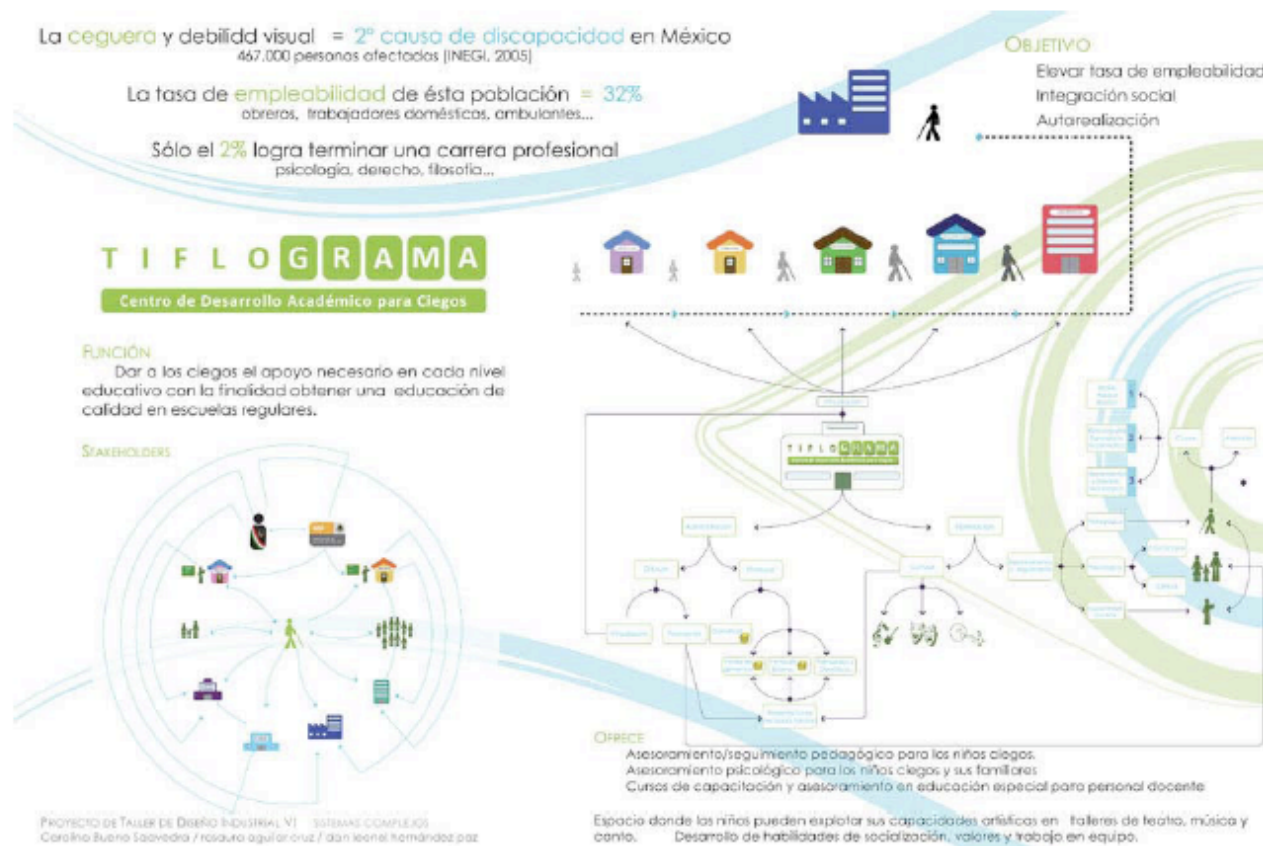
lack of trained professors, lack of schools with apropiated infrastructure, social rejection, no economic activity integration.

**the solution was:**

tiflograma, a center for academic development, pedagogic guidance from primary school to university, professors training courses, psicological support and social-cultural activities.

**team:**

Carolina Bueno, Rosaura Aguilar, Dan Hernandez



2009

**problem named:**

economical problems in the social security system

**we found:**

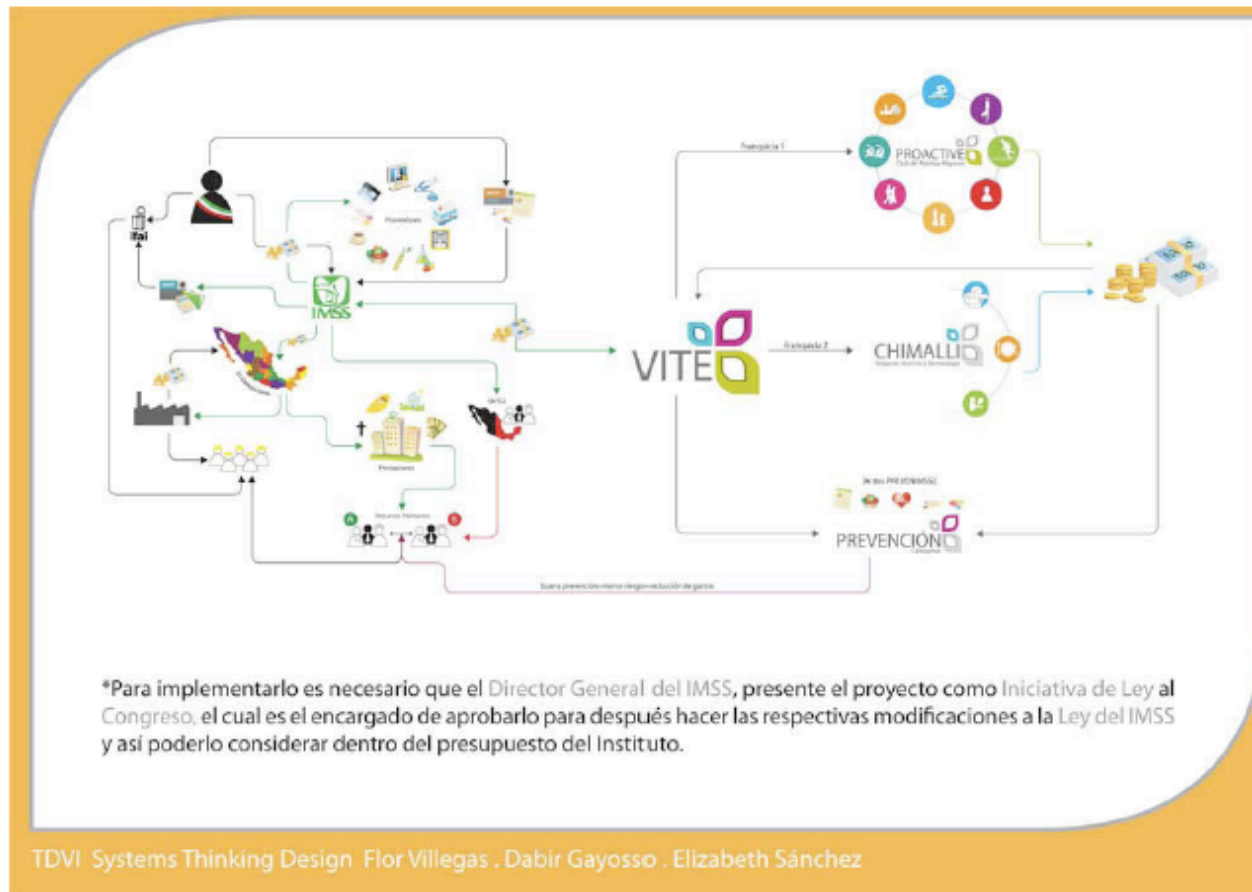
service saturation, lack of motivation on personel, lack of economic power, bad public image, lack of future strategy and business opportunity unexploited.

**the solution was:**

VITE is a dependency of IMSS which administrates the franchises Chimalli for elderly care and Proactive health prevention through prehispanic techniques.

**team:**

Flor Villegas, Dabir Gayosso, Elizabeth Sanchez



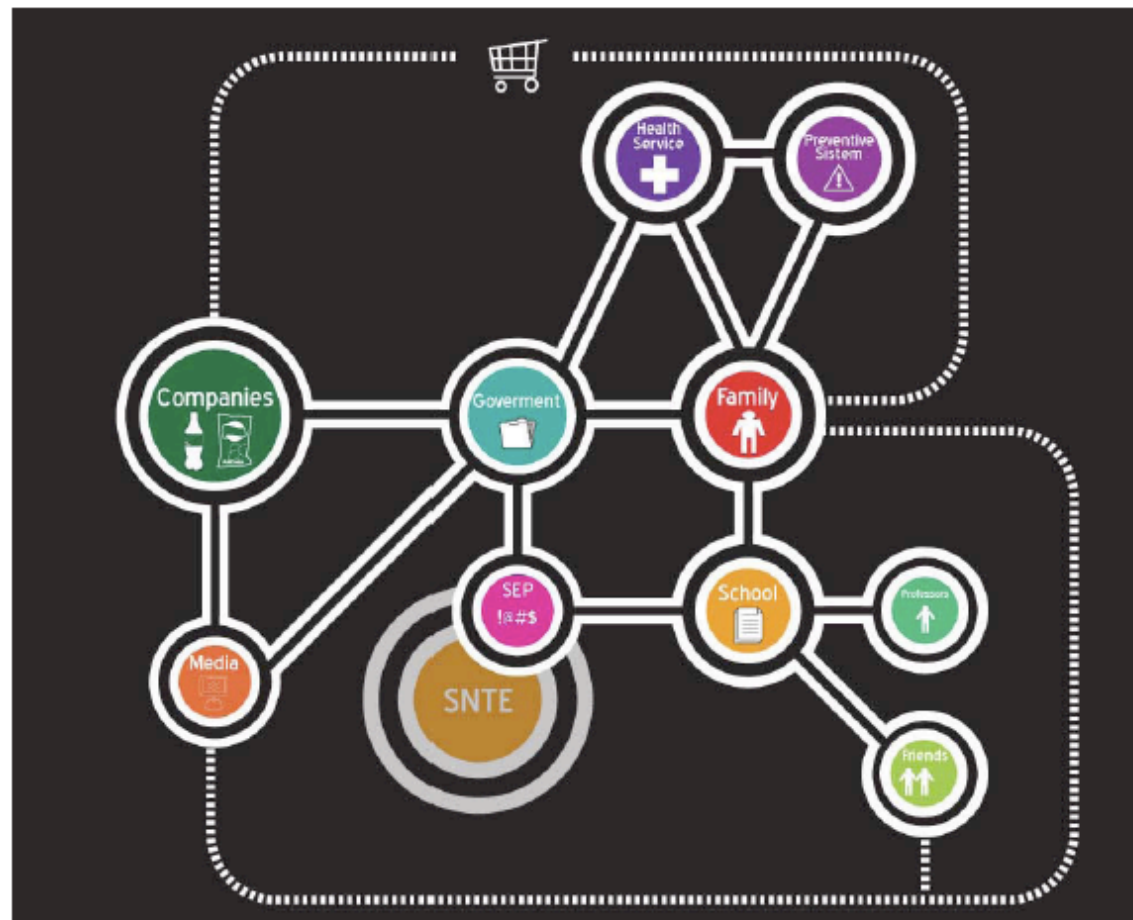
2010

**problem named:**  
child obesity

**we found:**  
severe obesity problems in Mexican children, lack of commitment by junk food industry and government, mass media manipulation, social pressure, severe economic problems in the future for the social security system.

**the solution was:**  
a series of strategies directed to families, schools, mass-media and changes in regulations, all orchestrated to create a preventive systems instead of a reaction system.

**team:**  
Marisa Bracamontes, Alejandro Suarez, Ernesto Hernandez



2010

**problem named:**

excess of energy consumption

**we found:**

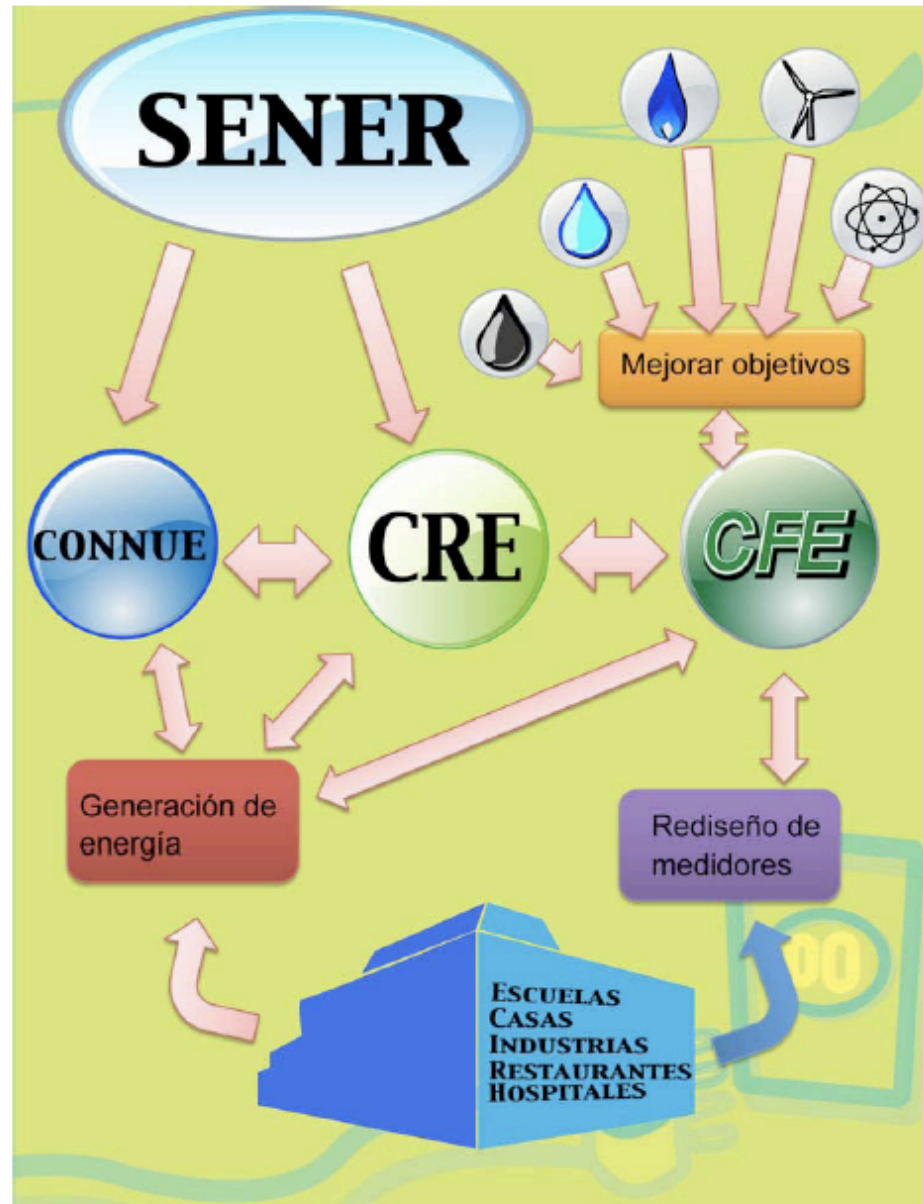
lack of real awareness in people about their energy consumption, lack of alternatives for co-generation and future renewable sources of energy.

**the solution was:**

redesign the communication system so people can really understand their consumption habits, a change in regulations to open the co-generation strategy, create a feasible plan for having in a near future 100% of energy produced by sustainable sources,

**team:**

Karime Kanchi, Arlette Lomeli, Juan Pablo Martinez



# 2010

**problem named:**  
food waste

**we found:**

in some cases up to 50% of the food produced is somehow wasted or discarded, lack of knowledge in people about nature, seasons and fruit and vegetable production, and business opportunity unexploited.

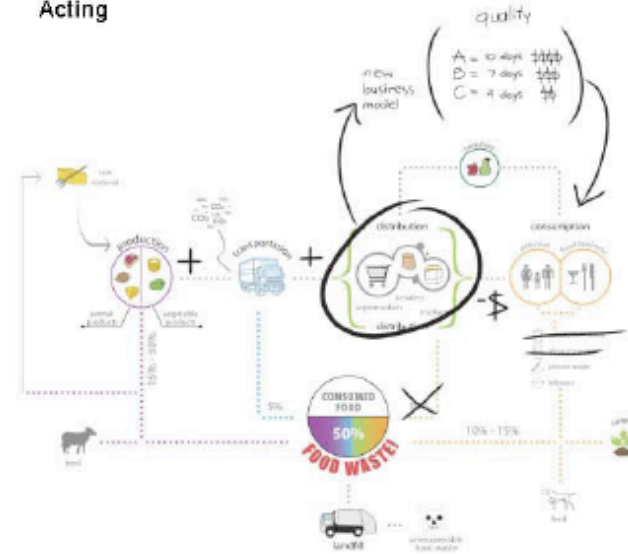
**the solution was:**

a mass-media communication program to emphasize the right fruit and vegetable consumption according to the seasons, new business for different qualities of vegetables and fruits.

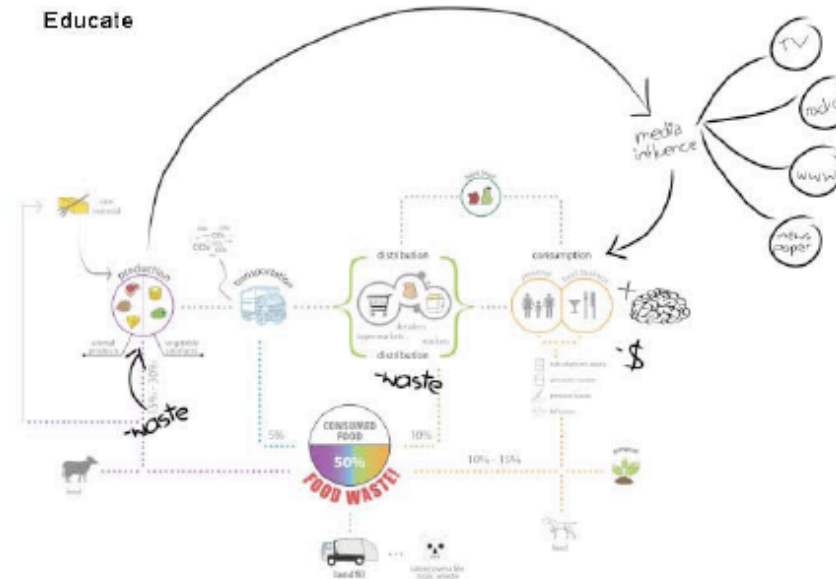
**team:**

Juan Pablo Alanis, Eleonora Morales, Antonio Martinez

**Acting**



**Educate**



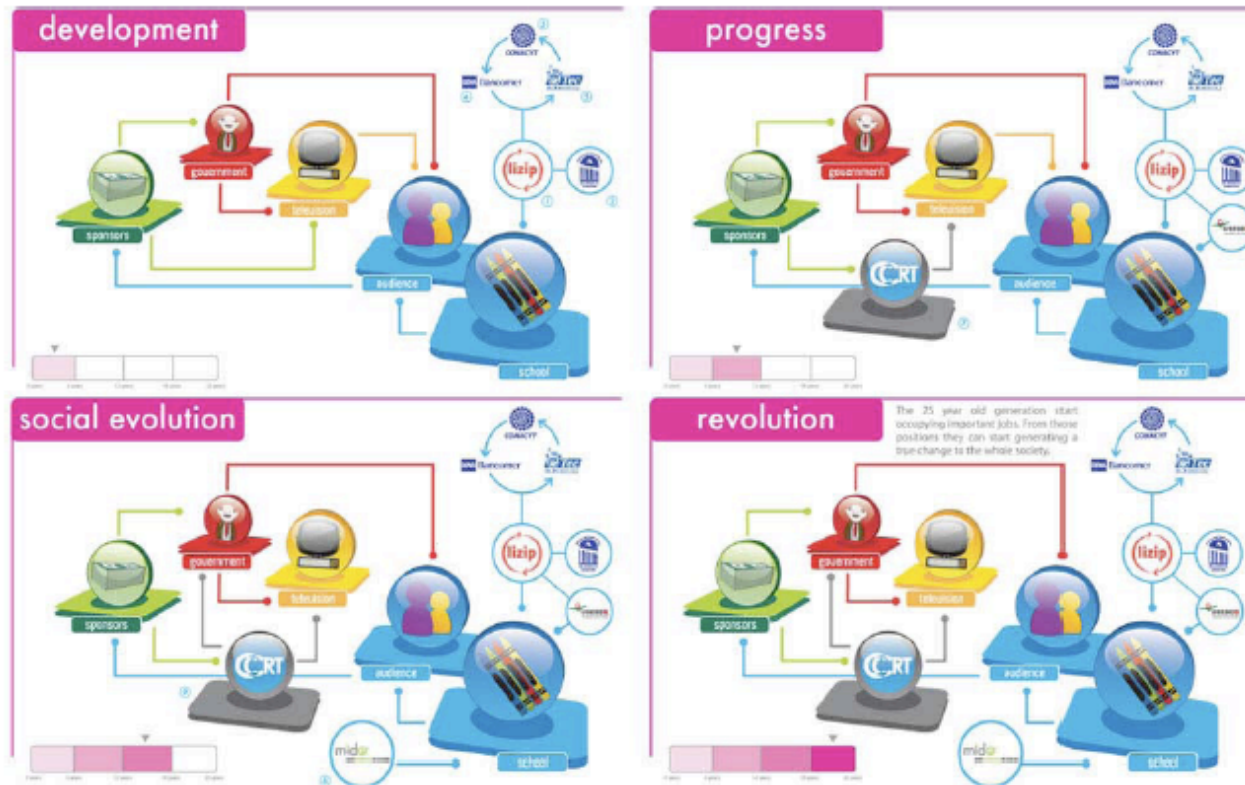
2010

**problem named:**  
promotion and idealization of individualism

**we found:**  
a current development in industry, consumption and mass-media promoting individualism, lack of social cohesion, lost in the potential for progress.

**the solution was:**  
a strategy aimed to all stakeholders to change in a 25 year period its focus on social cooperation.

**team:**  
Karen Ocampo, Ricardo Vega.



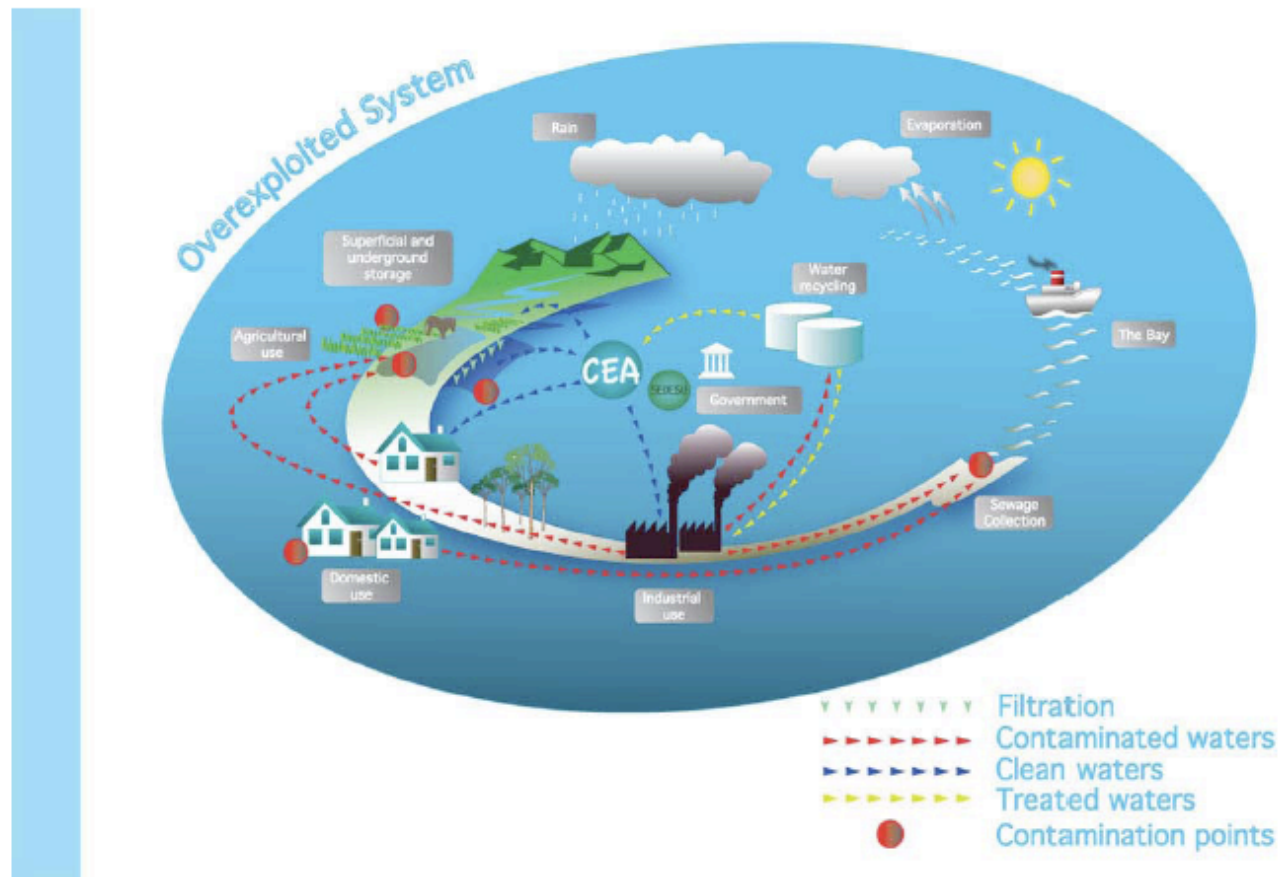
2010

**problem named:**  
overexploited water system

**we found:**  
in Queretaro 85% of the water is used in farms surrounding the city, most of them produce alfalfa for cow food.

**the solution was:**  
changing the cows diet.

**team:**  
Sofia Orvañanos, Andres Fellowes, Cinthya Leon





2010

**problem named:**

lack of opportunities for youngsters in Mexico

**we found:**

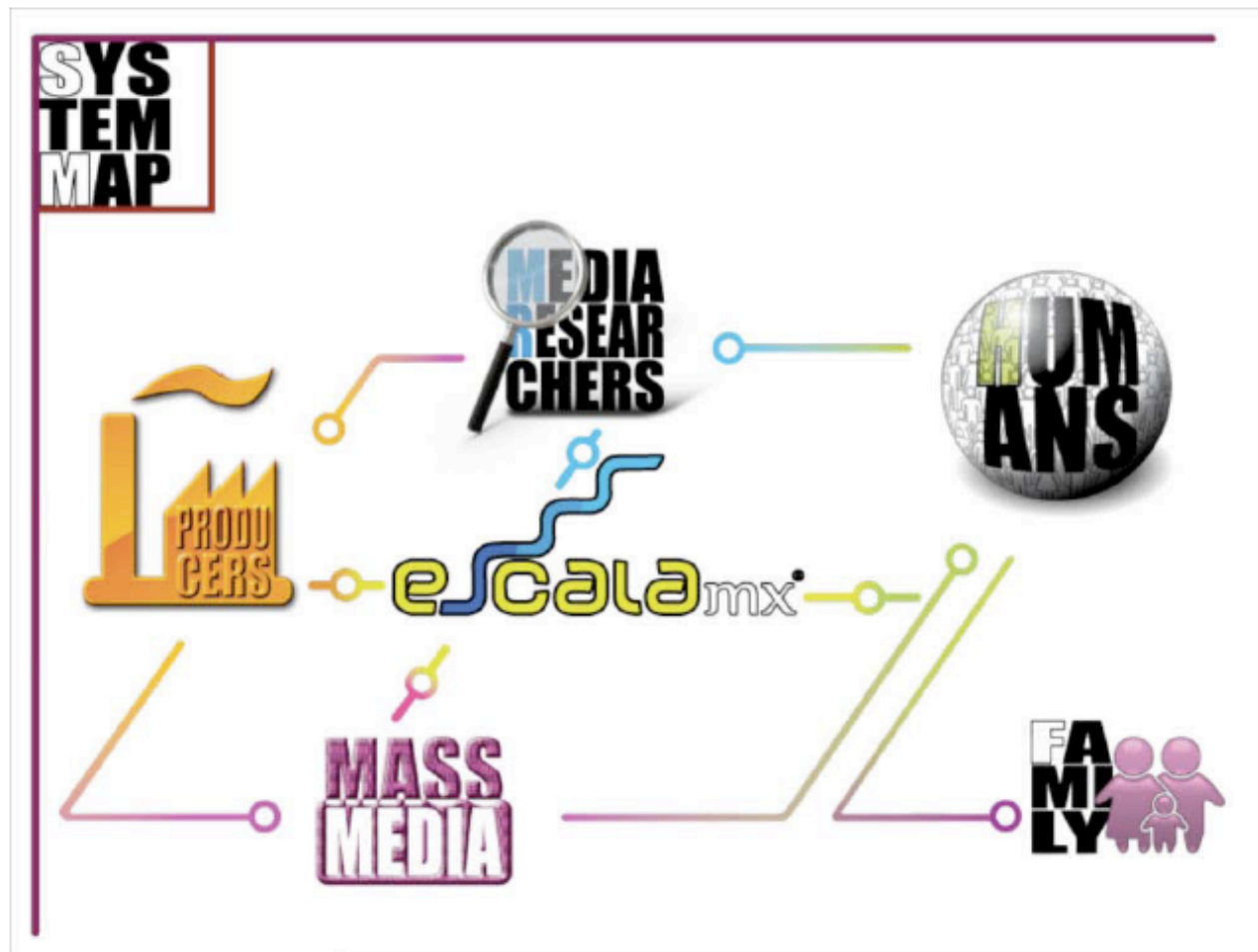
lack of social cohesion, in some cases the only attractive future is narcotrafic or crime, lack of cultural and educational structure.

**the solution was:**

escala mx, a non profit organization dedicated to find talent in our youngsters, a system of cooperation and integration.

**team:**

Monica Martin, Cesar Neria, Oscar Melchor



2010

**problem named:**

lack of infrastructure in rural Mexico

**we found:**

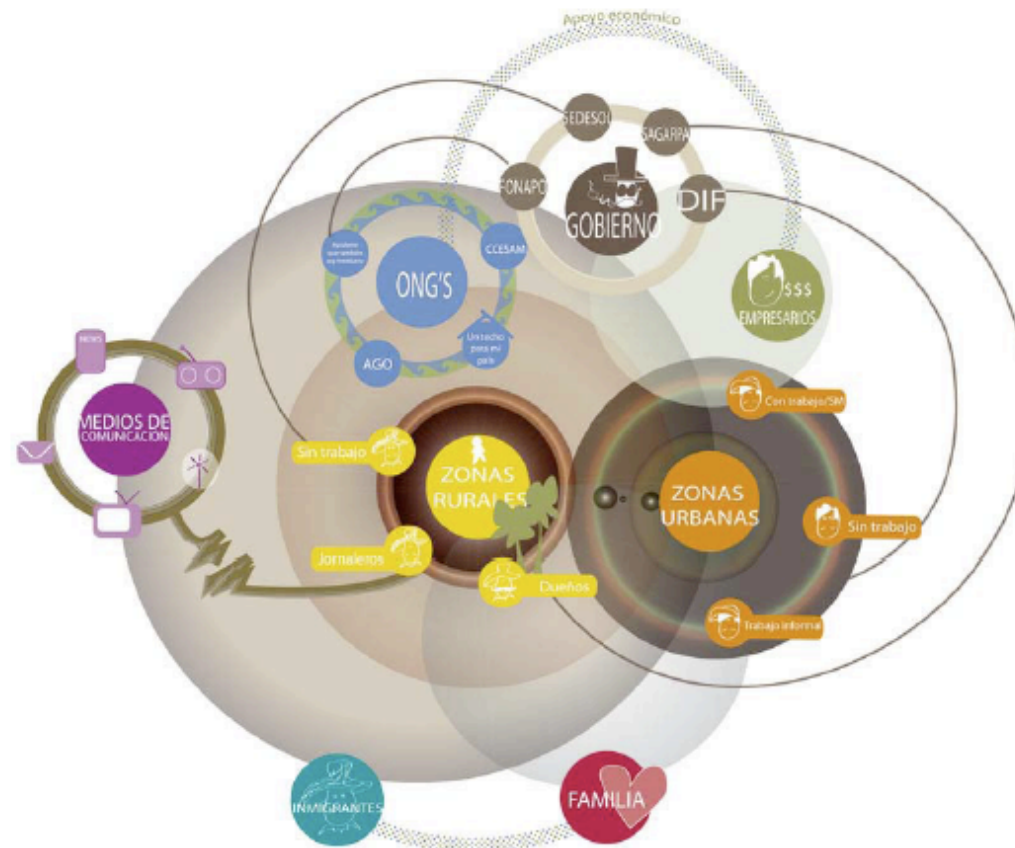
profound delay in the construction of basic infrastructure, corruption in government aid, lack of social cohesion.

**the solution was:**

por mi campo is a public organization that promotes the purchase of products from companies who donate to build better infrastructure in rural communities

**team:**

Varenka de la Vega, Alejandra Enzástiga, Eduardo Cordova



2010

**problem named:**  
family planning

**we found:**  
very little information about the issue and aimed mainly to women, lack of integral view.

**the solution was:**  
developing the concept of "life project", a government agency dedicated to support young people and following them across their lives, this is done by a strategy called "community guide" and a strategy of loans for entrepreneurship.

**team:**  
Albany Gomez, Stephanie Bernal, Servando Lopez



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## Thank you

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