



Adapta Sertão: creation of a distribution network of efficient irrigation technologies as a “climate resilient” strategy to increase milk production in northeast Brazil

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1. General details of the local organisation

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Website	www.adaptasertao.net
Legal form of the organisation	Non Governmental Organization
Statutory objectives of the organisation	Fostering innovative action to improve sustainable development and poverty reduction, focusing on capacity building. REDEH devotes special attention to the empowerment of women and youth.

2. Project details

Title

Adapta Sertão: creation of a distribution network of efficient irrigation technologies as a “climate resilient” strategy to increase milk production in northeast Brazil

Objective:

What does the project aims to achieve? What is the main objective? (40 words)

To consolidate a model to improve adaptation to climatic changes of small farmers living in semi-arid regions of the world. This model, developed and tested in Brazil, is based on market mechanism to give farmers access to clean irrigation technologies that is used to grow fodder to increase milk production.

Context

Background/project rationale





The semi-arid region of northeast Brazil (sertão) is the poorest of the country. Here over 60% of the local biome (caatinga) has been deforested mostly because of extensive pasture. Despite the unconfined grazing, milk production density in the region is among the lowest of Latin America, with an average of 3 to 6 liters per head per day. The main reason for such low yields is an unbalanced diet that limits the production of milk in the animal. In the state of São Paulo, the average is 20 liters per day while in the most productive regions of the world, animals in confined grazing manage to produce on average up to 70 liters per day. In many regions of the sertão, milk is the main income generation activity for most farmers because it gives them a stable daily income but farmers need to buy expensive additional nutrients, such as cotton seed or soybean cakes if they want to even slightly increase milk production. This ends up eroding the total income from the sale of milk.

Since 2006, several private and not for profit organizations have been testing, under the umbrella of the “Adapta Sertão” (AS) project, several innovations in the distribution chain of irrigation technologies and commercialization of products of family farmers. The strategy that has been developed consists in the creation of a specific production system based on small irrigation kits and drought-resistant forage varieties to help small farmers produce more fodder on smaller pieces of land. This strategy has two main advantages. First of all, it provides the animal with a more balanced diet throughout the year, leading to higher milk yields and better profits for the farmers. Secondly, it decreases the deforestation rate and in some areas can even contribute to a natural restoration of the original canopy. In the municipalities associated with Adapta Sertão, the distribution of technologies is now made through local cooperatives.

Despite the semi-arid climate of the sertão, the region has plenty of unutilized water resources. Since the 1960's, the Brazilian government started constructing hundreds of wells and small and medium size artificial water reservoirs (*açudes*) to collect and store rainwater during the rainy season. The objective was to increase small farmers' access to water for domestic use, irrigation and pasture during the dry seasons and droughts. However, today most of these water infrastructures are still not used. Hand and inundation methods, both extremely obsolete and inefficient, are standard agricultural practices. Efficient irrigation technologies are responsible for 70% of the increase of crop yields in semi-arid climates but small farmers have still a lot of difficulties to access them because retailers are located in large urban areas, dozens of kilometers away, and keep the prices of such technologies high to compensate the little demand from small farmers. But even in case small farmers manage to increase their production, they may have limited benefits if there is no market that absorbs their production.

Moreover, climate variability in the region is already increasing due to climate change. According to several national and international scientific studies, agriculture is the sector that will be mostly hardly hit by such change. The impacts are likely to affect small farmers much harder because they have very little means to adapt. It is therefore necessary to develop a model that make underserved communities more resilient to an intensification of rainfall variability and that takes advantage of all resources that are available in the region.

The general objective of this proposal is to refine what has been developed so far into a model that could be disseminate throughout the whole semi-arid region of Brazil and also of other regions and countries. The specific objective is that by the end of year 2012, Adapta Sertão will have developed a full production model based on water efficiency and technological innovations that allow farmers to grow their own food for cattle, increasing therefore their current milk yields and total income and decreasing the deforestation rate in the region that has extensive grazing as its key element.

Adapta Sertão aims to become a social enterprise that acts as a catalyst for the dissemination of technologies that are used to increase the yield of agricultural products for milk production and subsistence crops within the region. The opportunity to propose Adapta Sertão as a public policy for climate change adaptation for communities of small family farmers is also currently being explored

Urgency

Why is the project important/urgent?

Agriculture is the sector that will be most hardly hit by climate change, creating additional suffering in the semi-arid region which economy is mostly based on small family farmers. It is urgent to develop new agricultural models that



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enhance climate resilience and food security. As milk production represents the core economic activity for most family farmers in the region, the Adapta Sertão model focuses on the production of animal feed to increase milk production throughout the year.

Outline of the project

Description of the project including the activities

Since 2006, REDEH has been coordinating the work of several organizations under the umbrella of “Adapta Sertão” to bring all the innovations that are necessary to help small farmers of the sertão to produce or even increase their crop yields and animal feed during an intensification of climate variability. The key innovations of Adapta Sertão are based on two main lines:

1. **Supplying small farmers with technology and knowledge to make them resilient to climate change impacts.** The lack of access that small farmers have to technologies is overcome by creating a *distribution network of efficient irrigation technologies* based on local farmers cooperatives and organizations which are not only “distributors” and “retailers” of technologies but also disseminators of modern agronomic knowledge to make crops more resilient to climate change.
2. **Development of a production system to increase the production of animal feed.** Efficient irrigation systems will be used to develop a production system that helps increasing the production of animal feed throughout the year. This production system is based on efficient irrigation technologies and is used with different varieties of drought-resistant forage. The production method is based on organic farming.

Project activities are:

- a. Refine the distribution network model of irrigation technologies through local cooperatives;
- b. Develop a full capacity building modules on the distribution network, writing of business plan for scaling up
- c. Creation of structured partnership with national and/or international micro-credit institutions
- d. Test the use of 5 different types of drought-resistant forage and define a small scale agricultural model that combines subsistence farming with animal feed production
- e. Set up an “Adapta Sertão” revolving fund in 5 additional municipalities of the sertão to test the model in different contexts, build critical mass and allow small farmers purchase irrigation technologies
- f. Test the refined production arrangement (distribution network and revolving fund) in these 5 new municipalities to benefit a minimum of 100 farmers within 2 years
- g. Creation of a social enterprise that can disseminate the model in Brazil and worldwide.
- h. Organization of a series of seminars and workshops for the dissemination of lessons learned and the fostering partnership building.

Results

What are the expected (qualitative and quantitative) results?

Qualitative results

- Creation of an innovative pro-poor market mechanism that can start disseminating efficient irrigation technologies and increase animal feed production within the region in partnership with national and international micro-financial institutions by the end of 2012. The objective is that by the end of year 2012, Adapta Sertão becomes a social enterprise that acts as a catalyst for the dissemination of such technologies within the region and/or that is taken as a reference for the development of innovative public policies in the area of climate change adaptation in Brazil and in other regions and countries
- Development of a distribution network to disseminate technological innovations that help reduce poverty
- Development of a revolving fund that helps financing the purchase of equipments suitable for small farmers
- Dissemination of efficient irrigation technologies and a distribution model in a region (the sertão) that has very poor access to technological innovations
- Creation of a distribution network of irrigation technologies based on the principles of sustainability and self-replication
- Development of an agricultural model that increases crop yields and animal feed in the context of adapting small farmers to climate change impacts
- Development and enhancement of entrepreneurial capacities of small farmers and of their cooperatives
- Enhancing technical skills of local young technicians working in the cooperatives



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- Development of a pro-poor commercialization chain of agricultural products and milk in partnership with supermarket chain and local milk cooperatives
- Systematization of a model that can be disseminated in other parts of the world affected by similar problems.

Quantitative results

- Installing a minimum of 100 irrigation systems in 2 years to benefit 100 family farmers (400 people)
- Building capacity of a minimum of 15 technicians in 5 municipalities
- Creation of 5 revolving funds to allow small farmers purchase irrigation equipments with an expected number of 200 families (800 people) benefited in 5 years
- Extend the model to 1000 family farmers by 2016
- Building capacity in the management of revolving fund in at least 5 rural banks
- Help local cooperatives in the commercialization of a minimum of 600,000 liters of milk per year
- Organization of at least 3 regional seminars to disseminate the lessons learn of the project
- At least five new tools and videos disseminated in the Adapta Sertao website in Portugues and English .

Collaborative partners of the project

<p>Are other parties involved in your project? If so, who?</p>	<p>Netafim (www.netafim.com.br), manufacturer and market leader of drip irrigation equipment</p> <p>Tigre (www.tigre.com.br), manufacturer and market leader of piping system for agriculture</p> <p>Branco (www.branco.com.br), manufacturer and market leader of water pumps</p> <p>EMBRAPA (www.cpatsa.embrapa.br). This is the largest agricultural research institution in Brazil focusing in the production process of small family agriculture.</p> <p>Cooperative COOPSERTÃO of the municipality of Pintadas, Bahia, where the Adapta Sertão model has been developed. COOPSERTÃO will act as a multiplier of the experience in the 5 municipalities</p> <p>Cooperatives STR of Baixa Grande, STR of Brumado and STTR of Quixabeira are three farmers associations that act as local partners in the three municipalities</p> <p>SICCOB (www.siccoob.com.br), a credit cooperative and rural bank that is today hosting already 3 Adapta Sertão revolving fund</p> <p>ASCOOB, (www.ascoob.com.br), a credit cooperative and rural bank that is today hosting already 1 Adapta Sertão revolving fund</p> <p>Centro Clima, Federal University of Rio de Janeiro to solve and answer specific issues related to climate change. www.centroclima.org.br</p> <p>Volans, the pathway to scale program that helps in the refinement of the model and scaling up process www.volans.com</p>
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Additional comments on the financial situation of the organisation and/or the project

During the period 2006-2009, the project has been receiving three grants so far:

- Euro 95,000 from Cariplo Foundation, Italy (www.cariplo.it)
- Euro 100,000 from the Dutch Ministry of International Affairs through SouthSouthNorth (www.southsouthnorth.org)
- Euro 350,000 from the Federal Environmental Agency of Germany / UBA (www.uba.de) for the development and test of the model
- Euro 250,000 from the Federal Environmental Agency of Germany / UBA (www.uba.de) for researching and developing climate change adaptation and monitoring methodologies in semi-arid regions, especially linked to agriculture

These grants has been used to:

- Develop the full pilot prototype of Adapta Sertão in four municipality of the state of Bahia
- Install 35 irrigation systems in the four municipalities
- Create a Euro 90,000 revolving fund split in four municipalities
- Develop a methodology to assess climate change adaptation strategies

This initial investment has allowed the development of a model that today can be systematized and tested to be expanded within the semi-arid region as a true entrepreneurial activity with minimum level of subsidy. The objective is that with this final grant, the model will be ready to be self-disseminated within the region. Part of the money will be used in any case for the replication of the model through the creation of a revolving fund in the five municipalities which will receive the pay back of the irrigation systems installed.

The project has been awarded with the following three prizes for its innovation components, its social and environmental benefits.

1. **SEED Award recipient in 2008** (www.seedinit.org). SEED is a global network founded in 2002 by UNEP, UNDP and IUCN to contribute towards the goals in the UN's Millennium Declaration and the commitments made at the Johannesburg World Summit on Sustainable Development. Adapta Sertão was one of the 5 projects awarded in 2008 for its potential to be scaled up among over 400 projects.
2. **United Nations Habitat, Best Practice Database in Improving the Living Environment, 2008** (<http://www.unhabitat.org/bestpractices/2008/mainview.asp?BPID=2043>). T
3. **Wisions Award, PREP Good Practice in Sustainable Energy and Resource Efficiency, 2006** (http://www.wisions.net/pages/GP_Sustainable_energy.htm). The key objective of PREP is to publish and promote good practice in energy and resource efficiency. Adapta Sertão received the prize for its innovative conception.

Additional comments

Adapta Sertão wants to foster entrepreneurship and champion collaboration with other organisations to create added value and mutually beneficial outcomes for all partners. The project is based on the 3 P perspective, People, Profit and Planet. One of the core believes of this enterprise is that even in very extreme underserved situations like the one found in the Sertão, we can find resources that can be activated to transform the situation and create a better situation for all. The project is alleviating poverty (social sustainability) through efficient water irrigation technologies to increase animal feed yields (environmental sustainability) using a pro-poor market approach linked to micro-finance (economic sustainability). It is also innovating by activating local change with the opportunities created by the adaptation to climatic change Adapta Sertão is also empowering local underserved populations especially women farmers and youth to be more in control of their livelihoods The objective of this project is to create a model that can disseminate efficient irrigation technologies to increase milk yields in partnership with national and international micro-financial and other social and environmental responsible businesses and government programs.





References

Marcelo Baratella, Marketing Director, NETAFIM Brasil – tel: 55 16 2111-8049 Email: marcelo.baratella@netafim.com.br
Netafim Brasil is the world market leader of water efficient irrigation technology Adapta Sertão has partnered with

Helen Marquard, Executive Director, SEED Initiative hosted by United Nations Environment – tel: +44 1420 488 544
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Other reference are available upon specific request – for example local communities and cooperatives, local rural banks that have partnering with the project.