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## 13. Building the country kernel by kernel

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### 13.1. Introduction

Its multiple uses accompany our daily activities almost unnoticed. From basic foodstuffs to plastics and textiles, total gross sales of the Argentine corn and sorghum industries are more than 6 billion dollars annually. This is not just a figure, hundreds of thousands of Argentines work daily in this sector and are committed to the improvement and development of new products, and to the conquest of new markets. An objective that translates into a higher income for the country and for the well being of all citizens of Argentina.

In this spirit MAIZAR- the Argentine Corn and Sorghum Association- was founded. It calls on all members throughout production, commerce, industry, the feed and food industry and the exports value chain, to promote these crops and to increase the total supply for the value adding industries.

#### *United through Corn and Sorghum*

Unlike many other organizations, that only gather representatives of one activity, MAIZAR reaches people openly and widely. It sets as one of its basic objectives the creation of wealth along the whole corn and sorghum value chain, the search for sustained development of the crop and all its related industries, and the consolidation and increase of our export markets.

This wide view provides an innovative position at a time that presents a tremendous challenge for the Association, since the integration of visions and interests of different industries is what it is all about. This challenge is the key to achieving higher knowledge, value added, larger and better businesses, and more jobs. These are achievements that in the end will contribute to the creation of a more solid and successful value chain, and a better society.

MAIZAR works constantly to make the political and business communities aware of the importance corn and sorghum have in the creation of economic activity, and their capacity to boost value added processes and employment.

### 13.2. The Argentine bioenergy value chain

The world is facing a deep energy matrix restructuring. The central issue focuses on the use of renewable energies to decrease the environmental impact of fossil fuel use. This situation offers Argentina a chance to develop a new value chain, and thus supply domestic and foreign demand with renewable energy on a large scale.

This complex challenge can be approached from two different standpoints:

1) Relying on spontaneous and isolated actions of individual value chain players who invest according to their own individual views.

2) Setting a series of common goals that are taken as one by all value chain participants.

As mentioned above MAIZAR is a non profit organization that coordinates the participants of the corn and sorghum value chains of Argentina. The members are divided into five different sectors.

Based on relationships between value chain participants from the five sectors, a common strategy is agreed on, and this strategic plan is discussed with local, provincial and national authorities, and the different communities involved in its

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development. The attraction of investors, the creation of new jobs, and the opportunity to produce value added products are essential elements of the Argentina we believe in for the future.

MAIZAR set the cornerstone for the ethanol and other renewable energy value chains based on inquiries from members of the Association who, after analyzing the dramatic change on the world's energy matrix, asked MAIZAR to discuss and plan the basic elements of a successful corn and sorghum ethanol development plan.

The debate included all work commissions, and from the conclusions reached, a group of goals were set. These goals intend to include all possible participants in this new value chain, in the belief that with a common vision in mind the potential of this industry will be maximized.

### 13.3. Setting goals

When analyzing the Argentine corn and sorghum situation, one finds that their planted areas have been steadily falling since the 1970's, and for both crops the 2005-2006 season was the lowest in the whole period. (2.4 million hectares for corn and 300 thousand for sorghum). Therefore all participants agreed that for both crops the planted area could be increased by 1.3 million hectares in order to recover part of the area lost.

It is interesting to note that the planting season of 2007-2008 will have an increase of over 1 million hectares already, in comparison to 2005-2006. The corn crop will cover 3.1 million hectares and sorghum over 800 thousand hectares.

The overall potential for the area planted with corn and sorghum in Argentina ranges from between 6.5 and 10 million hectares, as can be seen in different studies by private institutions like Fundacion Producir Conservando, and other academia.

The proposed increase in planted area should generate an extra 10 million tons of corn and sorghum. This additional production can be exported or transformed into a higher value product, for example four million cubic meters of ethanol and 3.5 million tons of Distillers Grains, to be supplied wet or dry to the Argentine cattle, dairy, pork or poultry industries, which are all seeing a strong and steadily growing increase in demand.

The proposition includes the creation of three renewable energy clusters in regions far from the main ports. This will allow crops of marginal regions to conquer markets that would be out of reach, due to high transportation costs.

### 13.4. Actions for each link of the chain

In order to have a coordinated development of an Argentine biofuel and ethanol value chain, and thereby maximize our country's potential as a supplier of renewable energy, a series of key actions are needed:

The scientific and technological sector, public as well as private, should promote research in corn and sorghum crop technology, including biotechnology of plants, bacteria, and enzymes for the industrial process. Cropping techniques are needed to increase the energy balance, green house gas capture, and overall per hectare energy output of these crops.

Research of second generation biofuels, including pyrolysis and other thermochemical technologies, as well as lignocellulosic fermentation and use, must be started. Research into diesel and otto engines' ethanol combustion, and the use of other fuels from these crops and their byproducts must be continued.

In regards to farm supply companies, new types of corn and sorghum are appearing worldwide, and new biotechnological events are cornerstones of new applications in the energy, food, feed and other materials industries.

Therefore if we are facing the start up of a new industry the approval of these technologies is critical, and its paperwork and control is a time consuming and awareness creating task, to be taken by public and private leaders simultaneously.

There is vast opportunity for Argentine engineering and industrial development through the planning and construction of a series of ethanol plants that would transform 10 million tons of corn and sorghum cereal, as well as the stover and straw needed to generate the steam and electricity to power them.

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These large investments should look for optimal locations within communities that appreciate job creation, new investments, and the transformation of agricultural raw material into a higher value product. Agreements between Argentine engineering and industrial technology and the world's leaders is critical to the achievement of world class competitiveness.

Ethanol and other biofuel trade and logistics are becoming a fundamental issue in this new sector. We believe the world's leaders in biofuels trade should know the potential of Argentina as a reliable supplier of ethanol and other bioenergy materials. The continuing work with our Ministry of Foreign Affairs and Agriculture is essential to the achievement of a position in front of today's potential clients. The planning and execution of the adequate logistic infrastructure needs through understanding and massive investments that can only be organized with the support of overseas banks, funds, and firms specializing and interested in the long term development of a supplier of biofuels from Argentina.

Pipes, ports, terminals, biofuel storage facilities, trains, barges and trucks, etc. The creation of futures and options markets also presents an opportunity for an increase and improvement in the Argentine capital market.

#### *An opportunity for farmers and local businesses*

Farmers should promote the construction of ethanol and bioenergy plants owned by associations of farmers, and actively participate in the launch of this new industry. The adoption of crop technologies and the commitment of suppliers to new technologies and new farm supplies, that will increase the competitiveness of corn and sorghum, will help the rebirth of rural areas.

The investments in new ethanol industrial plants, the technology associated with it, and the addition of activities related to its operation, generate a very positive effect on the local, regional, and national economies, that stimulate activities in isolated rural communities, as has been seen in many countries.

The installation of a plant necessarily increases the income of farmers, as the increased demand for their crops is transformed into a higher price for commodities in their place of origin.

MAIZAR has invited several opportunities leaders in the ethanol business from the USA and other countries, to help Argentine farmers understand the role of farmers in transforming their crops into higher value products through bioenergy. US Farmers' coops are a good example of this new reality.

### **13.5. From theory to practice**

To reach this objective we find that it is essential to recognize the importance of regional development and wealth creation close to the original place or region where raw materials originate. Therefore, we are convinced that Argentina can create a biofuels value chain and that all members of our society can be included in, and committed to, its development.

To build a world class value chain, from a long way inland, each actor of every link must be highly competitive and focused on their competitive advantages. However this alone will not assure that the whole chain will be successful. It is also critical to work on a sense of belonging, and a commitment to the common goals of each and every participant, permanently renewing and reviewing the strategy and achievements.

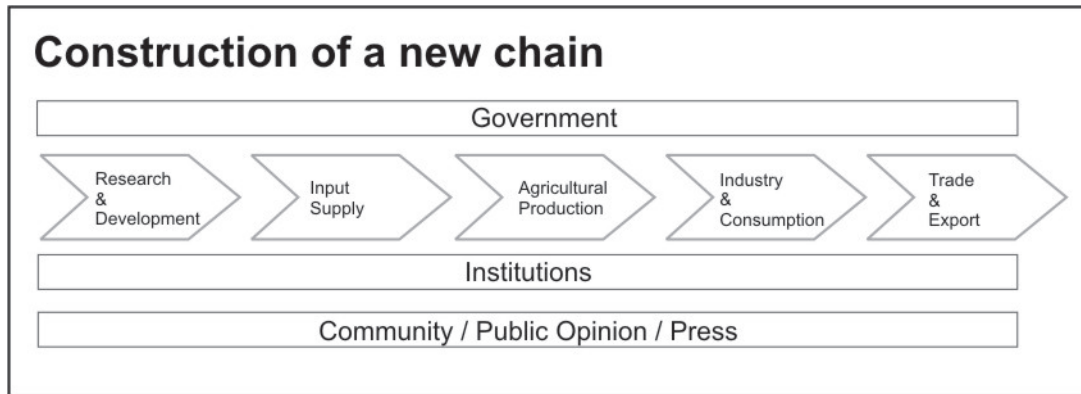
### **13.6. Structure and strategy of a value chain**

Bioenergy can serve to develop and motivate, from the farthest and most isolated regions, to the most central and sophisticated sections of a society.

It is crucial to work with each and every one of the actors in each link of the value chain in order to create a strategic plan that includes all stakeholders, including those who are part of the chain and those who view it or control it from the outside, such as governments and NGOs.

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The following links are proposed in the creation of this new value chain, and other stakeholders are seen in the diagram:



### 13.7. New institutional culture: skills and habits

#### *A - Sense of belonging.*

The only way to plan and create a new reality is by assuring that each actor assumes his role as part of his community, town, etc. Therefore the initial step in the creation of this value chain is to have all actors strongly linked to the reality they live in, and the need to improve it. The idea that solutions belong to the sphere of a higher authority and will "come from above" must be opposed.

This is important in countries like Argentina, that have suffered economic and social crises which have divided communities, and no group wants to be associated with failure or defeat, while most feel that the other group was responsible for the crisis and the impoverishment they suffer.

It is crucial that all sectors be invited on an equal basis. (scientists, farmers, local and multinational businessmen, traders, exporters, industrialists, as well as local, provincial and national government officials, etc.).

#### *B - Dedication and commitment*

Feeling part of one's community is not enough to create a new reality. Therefore each actor must participate in a debate that is indispensable to the planning of the future. One typical indicator is the time dedicated to non profit organizations that propose and commit to the goals the community is setting for the creation of a new value chain.

The goals and objectives set must be internalized and made public, so that each person feels responsible for the achievements of his company, industry, university, research center, etc. Competitiveness of each link of the value chain can be measured through international benchmarking.

#### *C - Conversations and information*

Conversations build possibilities and actions. Work develops within these conversations. Therefore institutions are the result of conversations that have decided and planned how work is being done.

Therefore the more similar the cultural background of people the higher the chance of having everyone understand precisely the same thing. It is absolutely critical that all actors of every link of the value chain understand and interpret the same idea. To obtain this, active listening and comprehension are to be promoted and worked on thoroughly. Speaking the same language is no barrier to misunderstandings and uncoordination.

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*D - Negotiation and consensus:*

The ability to listen and express oneself in an environment conducive to good communication creates room that is indispensable for negotiations and coordination. The most challenging task today is to develop an institution in which all actors will feel safe to negotiate ideas and reach consensus.

*E - Trust*

Societies with high levels of trust are capable of achieving levels of coordination that lead to the creation of large organizations, and networks of businesses that can be globally competitive. This concept is also applicable to the creation of a new bioenergy value chain.

Trust within a value chain is created by the transmission of coherent, relevant and true information to all actors, and by the fulfillment of the goals and obligations each actor assumes.

*F - Continuous improvement*

The hardest achievement of all is motivation for continuous improvement. In many organizations and countries, finding who is guilty is enough, and solutions are never searched for or implemented.

A value chain has no meaning if it is not oriented towards the permanent search for competitiveness through continuous learning and the adaptation of practices and attitudes necessary to face the challenges that change brings along.

*G - Entrepreneurial and innovative initiative*

The endless search for opportunities, and the capacity to anticipate what will come, is critical to seizing the new scenarios generated in the modern business world. In many occasions countries like ours have lost opportunities for growth and development, and a lack of preparation was always critical.

Support and coordination between all members of the future value chain must allow the creation of a new culture, based on creativity, and the search for new opportunities and horizons, as opposed to the fear of error and failure.

## **13.8. Conclusion**

MAIZAR works very hard in order to have this vision of a wholly integrated value chain. With an optimistic view of the new paths the world of bioenergy are opening, convinced that Argentina has the people, the resources, and the tools to develop a private-public strategy that will involve our whole society towards a common goal and a new vision of our nation.

We invite you to contact us and find out more about Argentina and opportunities in the bioenergy sector.