“An innovative approach for sustainable insertion of smallholders in food chains”

AUTHORS	Marcos Fava Neves Luciano Thome e Castro

ARTICLE INFO	Marcos Fava Neves and Luciano Thome e Castro (2012). An innovative approach for sustainable insertion of smallholders in food chains. *Innovative Marketing* , *8*(3)
RELEASED ON	Thursday, 08 November 2012
JOURNAL	"Innovative Marketing "
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	0	0

© The author(s) 2026. This publication is an open access article.

Marcos Fava Neves (Brazil), Luciano Thomé e Castro (Brazil)

An innovative approach for sustainable insertion of smallholders in food chains

Abstract

There is an interesting opportunity to discuss sustainable agribusiness projects to be implemented in poor regions nowadays. This paper presents a method that suggests four fundamental dimensions to be inserted in agribusiness projects and to be used by governments and development agencies for attracting the right investments. The first dimension is related to the technical and economical viability, the second one is related to organizational aspects, the players' ability to efficiently coordinate their transactions. The third one has to do with business competitiveness and the fourth dimension is environment sustainability. Emblematic cases that help the authors to develop the proposed method are presented. Finally, results from implementing the method in the Sao Francisco River Valley in Brazil are presented and discussed.

Key words: smallholders, irrigation, agrifood chains, agriculture.

Introduction

Sustainable insertion of smallholders in food chains. There is a huge discussion all over the world, which probably is a bigger issue in developing countries, about the conflict between smallholders and agribusiness corporations. According to some critics, the first will be "exterminated" by the unequal competition for areas and resources represented by the second.

Agribusiness is defined as the sum of all production and distribution of agricultural inputs, production operation within farms, warehousing, stocking and processing of agricultural products and by-products (Davis and Goldberg, 1957). The authors do not ever differentiated large or small firms, family or independently owned firms. The critics, therefore, are fuzzy. What is first conceptualized as agribusiness does not deserve the critics. Maybe, the point is a model which, in real practice, leaves no market for small and mainly poor growers. Buying and selling efficiently in the long term in a global scale is a game for well prepared businesses in any industry.

Many researchers claim that smallholders' biggest challenge is their ability to add value to premium products to niche markets, where scale gains are not critical for success. Being the small producer a Swiss dairy farmer or an Ethiopian coffee grower, the success would come from premium or special products targeted to particular group of costumers willing to pay more for the particular product feature. Organics and more recently fair trade products have a good fit to this philosophy. Certainly, whatever the product is, the challenge for targeting niches will be the smallholder financial and mainly marketing capabilities. Interestingly, when large firms or professionally organized non-profit organizations (like *Rain Forest* or *Agro Fair*) opened their eyes for these niches they started to grow faster.

Especially in developing countries, governments have spent lots of resources to structure small growers' production areas, transferring land ownership rights to them and providing farms with agriculture investments and training. There are success cases, but unfortunately a much larger portion of failure ones, mainly when support turns out to be a blind help. This can be concluded for instance from interesting World Bank reports of Public Irrigation Projects in Brazil (Banco Mundial, 2004). It clearly showed growers being strongly encouraged to grow traditional products like bananas and mangos in markets lacking the desired upstream and downstream coordination, where product supply was far higher than existent demand.

It is appealing the idea of maintaining people in rural areas with good life conditions, instead of large monocultures pushing rural population to large cities, mainly in a moment when row material for biofuels may occupy large portions of arable areas in the world. The logic of economic efficiency and specialization challenges it tough. It is not possible however to stop discussing new business models that try to accommodate this society expectation.

A very valid debate deals with the insertion of small holders into strictly coordinated agribusiness systems as showed by the works of Giordano (1997) and Saes et al. (2001). It means the smallholders will not produce just for subsistence or local markets, but for industrialization or *in natura* consumption in any attractive market in the globe.

This view starts to be more recognized by the growing concern on social sustainability. For a firm that for instance, is involved in fruit juice production, buying from smallholders may represent an opportunity for marketing appeal, an opportunity to use its

© Marcos Fava Neves, Luciano Thomé e Castro, 2012.

scarce resources in downstream marketing activities, an opportunity to focus on juice production instead of agricultural production. All these benefits may be counterbalanced by additional transaction costs for leading with smallholders (several production units).

For all discussed above a business plan for an agribusiness firm or a strictly coordinated system must innovate inserting the sustainability concern. Many different public agents place this dimension on the top of a project analysis for its political acceptance and for the obtainment of financial resources from state official sources (Banco Mundial, 2004). The business plan models are well known in the literature. There are models which emphasize the financial aspect, like Clemente (2002) and Bernardi (2002), as well as others which emphasize the strategic view (Lambin, 2000; Chiavenatto and Sapiro, 2003). There are also farm management frameworks and crops viability analysis, well known in classic agricultural economics.

When going more to transaction cost economics, these plans, when they are seen individually, may represent a small part of the whole investment viability analysis (Zylbersztajn and Farina, 1999). Frequently, individual plans do not consider existent aspects upstream and downstream the chain and even with a positive financial analysis, organizational inconsistencies related to transaction costs may be dangerously hided. This aspect is extremely discussed in Zylbersztajn (2005), when he speaks on the insufficient classic economic analysis for maximizing profits. Therefore, an important question is how to insert coordinated subsystems analysis in business plans as well. Cook and Chaddad (2000) highlight agro-industrialization recent changes, regarding the increasing importance of agricultural inputs, industrialization and distribution related to agricultural production and the change with the relation with farming activities with non-farming activities. In fact, non-farming activities must be viable as well as farming activities.

A business project with different viability dimensions and including social considerations is interesting for public agents. They may attract firms for a specific region, aiming to develop this region, once the benefits may not be limited to the generated taxes and jobs, but also the positive externalities might be brought by coordinated and sustainable transactions among all chain participants, upstream and downstream the focal firm. Clearly it is also interesting to the private agents who have a systemic and long-term view. This comprehension facilitates the talks with politicians once positive externalities are clearer and it is interesting for negotiating incentives for the organization to be installed in a specific location.

This paper intends to introduce a method of Integrated and Sustainable Agribusiness Projects. It intends to highlight and also show some directions for enriching business plans models at existing agro-industrial systems, inserting the contributions from different research lines in agribusiness and contributing to the governments and development agencies with a method to be implemented when dealing with economic development.

2. Objective and method

The objective of this article is to present and discuss a method to be used by governments and development agencies to implement sustainable and integrated agribusiness projects.

The method for developing this article is first a theoretical essay, bringing aspects from the literature of business plans development. Aspects of general business administration are brought, as well as, marketing and transaction cost economics.

Secondly, the multi-case studies approach is used to try to bring examples of companies using a model close to what this paper wants to contribute (Yin, 2001). Actually, these cases helped the authors refine the idea, once they were put into practice and many things could be learnt from them. These are 5 agribusiness projects all based on the Brazilian northeastern, the poorest region in the country. These cases reports are structured in the following way. Information was collected regarding the products they were producing, the time of the relationship, small growers responsibilities, firm responsibility, the farmers income, the size of the farms, among other information.

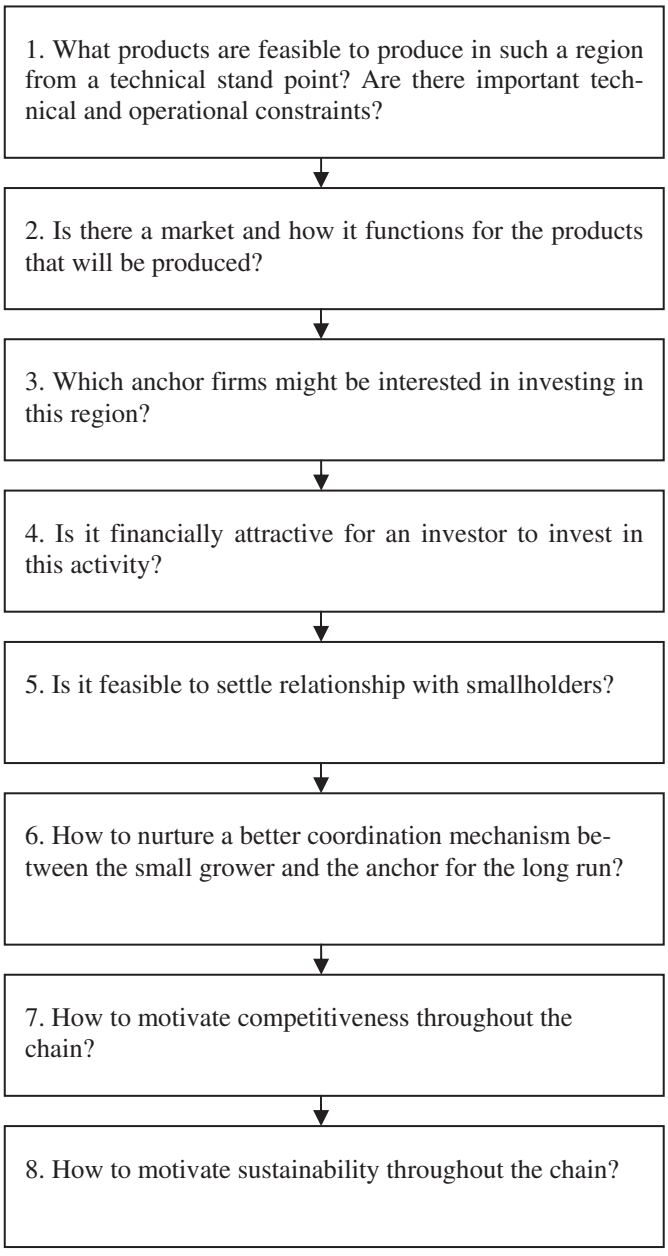
Finally, some grounded theory is implemented, deriving frameworks by directly studying and interacting with the phenomenon of interest (Glaser and Strauss, 1967; Strauss and Corbin, 1990). The paper gives some brief information about the implementation of the method in public irrigated areas, where there are plenty of small growers having all kinds of difficulties in their activities.

It consisted of attracting agricultural processing firms to source part of their supply needs from public irrigated areas in a sustainable form. It was formed a group of 27 researchers worked in 9 project teams grouped by food product (orange, lemon, bioenergy products, dried fruits, among others). This project took 12 months to be done, from January 2007 to January 2008 and involved about 20 firms which contributed to the developed models, since several analytical frameworks had to be developed. Those firms were also potential

investors for the region. Timely and accurate information on business opportunities in areas considered in the project was the advantage firms had to collaborate supplying the researcher specific information about their business. In another words, it was offered to several firms the opportunity to actively participate in a business opportunity analysis done primarily by PENSA researchers, with their help supplying information. Before reporting the case and the implementation phase, the framework will be explained in the next section.

3. Integrated and sustainable agribusiness projects method

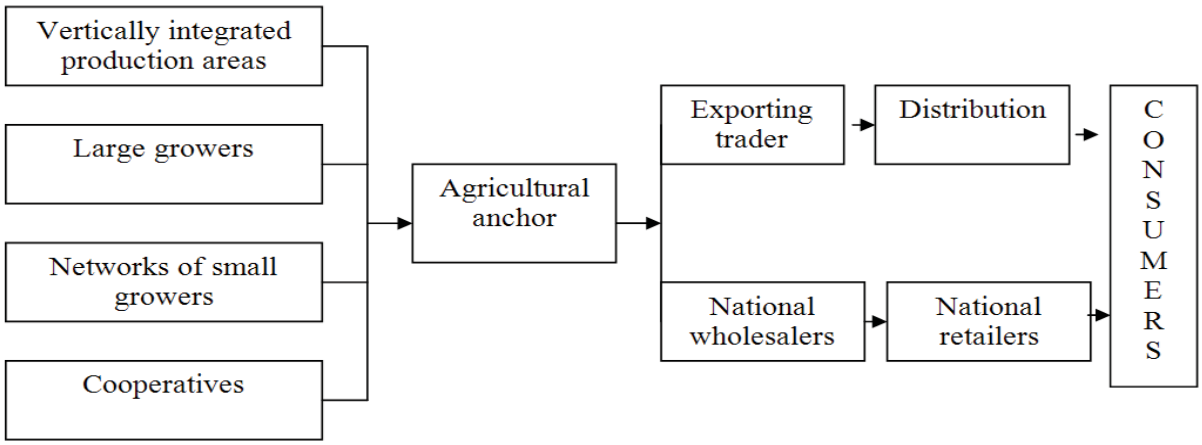
The process of developing an integrated and sustainable agribusiness project is composed of a sequence of steps and some dimensions; these are showed in Figures 1 and 2, respectively. The final goal is having the right investor coordinating a food processing investment at a chosen region. This investor is called here to be an anchor firm and will coordinate its supply chain with different sources, which includes local smallholders, but also other possible arrangements like vertically integrated production or large growers.



Source: Authors.

Fig. 1. Steps toward building a sustainable and integrated agribusiness project

The following figure shows the idealized food chain built with the proposed method. Also, the four fundamental dimensions are highlighted.



PROJECT	for INCLUSION	of NETWORKS	of SMALLHOLDERS
♦ Rigorous analysis ♦ Rigorous marketing analysis ♦ Organization scheduling implementation ♦ It is made for profit attainment ♦ Cost control ♦ Innovation ♦ Continuous search for competitiveness ♦ Quality refinement	♦ Job creation ♦ Social development ♦ Regional development ♦ Working conditions ♦ Environmentally friendly ♦ Fair trade ♦ Organic ♦ Other niches	♦ Inter-organizational enterprises ♦ Chain and network perspective ♦ Technological transfer ♦ Coordinated and integrated system ♦ Common certifications	♦ Small farmers ♦ Family structured ♦ Forming cooperatives ♦ Forming associations ♦ Government participation ♦ Public bank participation

Source: Elaborated by the authors.

Fig. 2. The integrated and sustainable agribusiness framework

The aspects showed in Figures 1 and 2 will be explained in detail in the next sections.

3.1. The project management dimension. In order to think at attracting an agribusiness firm, it is important to think in terms of viability project and attractiveness. A rigorous analysis has to do first with the technical feasibility about the activity which one intends to attract to a specific region. It is known that food processing depends of varieties and environmental adaptation. Frequently it requires different models of estimating agricultural and industrial investments and costs. The first question to be answered is *what food and fiber may be technically produced in such a region? Are there important technical and operational constraints?* Viability analysis are done into this direction in such a region as the Brazilian Semi Arid region, a very dried and warm region, dependent of irrigation, by Embraba Semi Arido (Brazilian Agricultural Research Center), that tries to bring different cultures in order to diversify economic activities (Embrapa, 2006).

The second question is related to the market condition of the product to be produced. Insisting into products with many competitors and no clear competitive advantage is clearly a mistake. It is important to understand the demand behavior, quantitatively and qualitatively. Therefore, the second question is: "*Is there a market and how does it function for the products we may produce?*". It is important at this point to have a diagnosis of the existent chain, where it is main located in the country and how it has performed.

The third question has to do with which anchor firms might be interested in investing in this region? What defines an anchor firm is its status of residual rights owner. In a certain strictly coordinated system it is the firm that leads production. It has the control over the demand information and it drives business throughout the whole chain (Verhallen et al., 2003). For instance, a firm called Chiquita. This multinational firm places its supply sources all over the globe, with relatively lower investments on fruit production but high on distribution and commercialization assets and capabilities. It knows precisely interesting marketing windows and suppliers' production seasons matching them efficiently. Chiquita has clearly a leading position among

players involved in its business. This firm is an example of a potential anchor firm that indeed participated in the project.

In fact, an anchor firm has considerable brand image or superior costumer contact. According to Sauvé (2005) discussing the roles of two leading semi processed vegetables firms in France, these companies compose the "strategic center". Their role is to create value for their partners, define rules and build competences, while they establish a network structure and strategy. These roles help identifying who is the strategic center, or agricultural anchor in certain network. Firms like this should be primarily the candidates for being invited to the analysis of this "new business opportunity" and join the preparation phase.

If there are investment opportunities which are technically viable and show a market need and feasibility, then there is nothing better to an investor than a good simulation of an enterprise, which he knows well, for the candidate region. This information will facilitate for attracting the firm. Thus, the fourth question is: "*Is this activity financially attractive for an investor?* As an example Trombim e Neves (2007) showed as a citrus project could be feasible in a new citrus frontier in Brazil. For answering this question the chosen potential anchor firms could and should collaborate with information to enhance the analysis accuracy. It is fundamental to get their involvement in the very beginning.

3.2. The integration dimension. Many enterprises fail not for the right answers for the questions placed above, but for a lack of a holistic view, considering chain coordination and integration aspects. There are other fundamental questions which must be made and have little to do with technical, market or financial analysis.

A firm when is based in one region must competitively buy from suppliers and sell to distributors and final consumers. The way the firm will govern the relationships with these agents will be fundamental for its development. Brazilian agribusiness has showed countless examples of conflicts among chain participants, and companies and even whole industries disappear from a region as a result.

According to Farina et al. (1997) the governance structure is the form a firm chooses to govern a transaction with another part. This may range from vertical integration, contractual arrangements and spot market. Talking about sustainability, it is expected that the model has a long-run orientation searching for ongoing relationships and wealthy distribution.

The challenge for the anchor firm must be to coordinate supplying transactions with smallholders. It has to be clear that different governance modes when seen from a social perspective have different consequences. Vertical integration creates jobs, salaries, taxes, exports and might transfer knowledge from the firm to the employees by means of training programs, which in fact, employees may become entrepreneurs later on. As an example of this supplying strategy in regions such the ones which have been considered in this paper is Del Monte in Assu, State of Rio Grande do Norte in Brazil.

Buying from large growers based in the region also generates the benefits listed above, except for the quicker technological transfer due to the fact that there are some independent producers and more employees linked to them. As an example of this strategy there is *Intermellon at Mossoro*, which exports melons, also in the Rio Grande do Norte State.

Buying from smallholders and cooperatives may be even better in terms of wealth distribution and development, once there are a larger number of rural families involved in the production activities. As an example of this strategy is Caliman. This firm coordinated the insertion of people from "movimento dos sem terra" (an organization that aggregates landless people and fight for land redistribution in the country). These producers have access to special credit conditions from the Brazilian government (PRONAF – Familiar Agriculture National Program) and the firm takes advantage of it.

It is also needed to advance discussing when a governance model is feasible considering existing or estimated transaction costs. If we ignore relationship conflicts, transaction costs, information asymmetry and opportunistic behavior following the basic transaction dimensions from Williamson (1985), we would say with no doubt that best for a processing firm is to concentrate in its core business. For instance a fruit juice producer has to concentrate on juice production instead of growing fruits. But it is well known that real market characteristics force firms to try to better control supply activities. The idea of inserting smallholders into the business model has to be carefully evaluated. Therefore, we may add a fifth question to our method: *Considering estimated transaction costs is it feasible to settle relationships with existent smallholders?*

If it is too costly dealing with smallholders, if they are not trustable, there will be a trend for consolidation and later to vertical integration clearly (Azevedo, 1996).

A possible form and a key research agenda is the public incentives and advantages for the projects that insert the larger number of producers. It is still an interesting verification point of how it may affect the efficiency and competitiveness of the whole system against social benefits created by the incentive.

This will not be sustainable if this is an artificial incentive which will end up hiding operational and transaction inefficiencies. Therefore, carefully made contractual models are a good viability analysis point. Interesting quasi-integration contracts as the ones used in the poultry and pork chains in Brazil are good examples of vertical and horizontal coordination forms that despite contextual problems seem to survive and succeed in the international markets. The sixth question to the method is: *"How to nurture a better coordination mechanism between the small grower and the agricultural anchor avoiding a future vertical integration as a future supplying strategy?"* Neves (2003) suggested a framework for contract building and revision with risk simulation aspects. Contract theory has given several contributions to the design of contracts with relationship incentives and a cooperative equilibrium, as commented by Barzel (2001).

3.3. The business dimension. At the questions above several pre-requisites were placed for the implementation of an agribusiness project. It has to be clear that all the agents have to generate profits above their capital cost. Regarding smallholders, their income must be high enough to keep them motivated and committed to the activity. This is the basis for the long-term orientation of the chain and economic sustainability. Important issues to be considered regarding economic viability are farm sizes and product prices. They have to accommodate these conditions. One of the Brazilian Government mistakes at redistributing land ownership in the country was the size of the farms. This was too small to fit a competitive production and generate money sufficiently to keep people there, for instance, with farms of around 4 hectares what in certain regions would just allow subsistence agriculture (Codevasf, 2006).

It is important to mention the need for innovation and quality improvements that any chain has to have. The seventh question to the public agent is: *How to motivate competitiveness throughout the chain*?" The attraction of research centers, universities, technical consultants are some of the important initiatives simultaneously.

3.4. The sustainable dimension. Giordano (2003) writes on the broadness of the concept of sustainable: "The most interesting of all is that it will not focus just on products, but environmental friendly production systems. It has to do with another phenomenon occurred for the last years focused only on environment to a more wide concept, more subjective and more complicated, in which the environment makes part of it.

According to Giordano (2003) sustainable is defined as the following. It has as synonymous the word bearable, hence a certain environment has a capacity of sustainability or support, determined by a group of factors". The authors say that sustainability comprehends three different components which are: the environment, the economic development, and the equal wealthy distribution for everyone. For the United Nations:

- Sustainable development is "the improvement of life quality of the humanity respecting the support capacity (sustainability) of ecosystems".
- The sustainable economy is the "product of sustainable development with the maintenance of the natural resource production base".
- The sustainable society is the one that could "continue to develop, adapt and increase knowledge, organization, technical efficiency, and wisdom.

Machado Filho and Zylberstajn (2003) showed socially responsible organizations and corporative governance to be close related to the creation of value for the organizations themselves. Therefore, the final question is*: "How to incentive the sustainable development at the proposed chain?"* It is important to motivate national and international environmental certification processes because they help preparing the firm and the region to attend environmental criteria and later on to open markets. The government agent must act like a facilitator in this process. It is important for the company to invest in the communities located where the production investments will be made and promote social insertion in poor communities.

4. Cases of integrated and sustainable agribusiness projects

In the following table, some data is presented regarding firms that have competitive business models and insert smallholder into their supply chain. These firms helped the authors to understand the challenges for implementing such a diverse supply chain and refine the proposed method. The cases are Agropalma, Brasil Ecodiesel, Calimaan, Intemellon and Pindorama Cooperative. Information was collected regarding the products they are producing, the time of the relationship, small growers responsibilities, firm responsibility, the familiar payouts, the size of the farms, among other information.

Table 1. Cases of integrated agribusiness projects

Case	Product	Farm size and familiar payouts	Grower responsibilities	Anchor responsibilities
Agropalma	Palm oil, biodiesel	10 ha From R$15 to 20 thousand per year per family (about US$8 thousand)	Produce Make available the land Access to special funding	Technical assistance Buying commitment of all production in the long run at an agreed price
Brasil Eco-diesel	Biodiesel from castor plant Biodiesel from soybeans	For the castor plant: 25 ha, being just 8 ha for the castor plant. The rest used for subsistence R$18 thousand per family (about US$10 thousand)	Produce Make available the land Access to special funding	Offers services center(healthy care, education, cultural and recreational center) Offers land property for production Committed to buy all small grower production Seeds Basic inputs Basic agricultural equipments Technical assistance for the small growers
Calimann	Papaya	27 families share 48 ha Between R$ 600 to R$ 1.200 per adult per month (about US$ 250 per adult)	Land (small grower from the "MST – Movimento Sem Terra) Money Workforce There is an incentive system for following the required agricultural procedures	Technological package Technical assistance Control and supervision Basic input
Intermellon	Watermelon Melons	Producer of 8 ha It reaches R$7 thous/month (around US$4 thous.)	Land Production	Technological package Technical assistance Finances agricultural inputs
Pindorama	Sugar cane Coconuts Passion fruit Pineapple Acerola Milk	From 5 to 30 ha Payouts are around US$400 per hectare per month	Produce in the farm for at least 2 years the products the cooperative is interested in and if everything is all right renew the contract	Land with "renting free contract" since the land is explored following the cooperative criteria

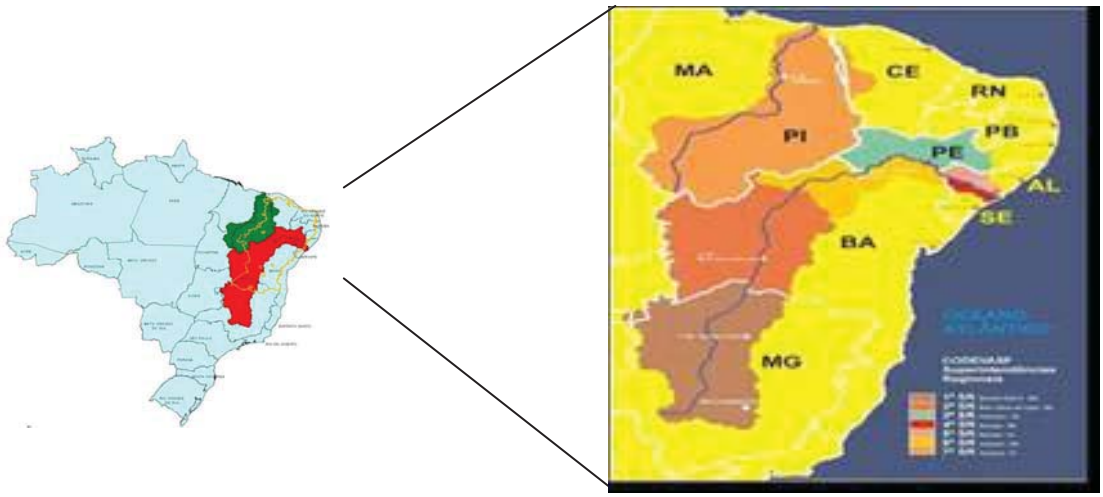
What are the aspects from these cases that helped designing a framework to replicate these models elsewhere?

- Different concomitant governance modes and one of them is composed of small growers: the firms have a vertically integrated area but slowly increase the small growers contracting proportion, according to the acquired experience.
- Most of them make use directly or indirectly of cheaper interest rates given to small growers by official banks in the country. This is already something that when used smartly has made a difference.
- A long-term perspective: it is clear a long-term view in these projects, once the anchors more and more diminish their presence in agriculture activities and focus on downstream activities.
- Strong presence of the firm at coordinating contracts and monitoring the smallholders area with some of them establishing contracts with quality incentives.
- Strong social vision is present in the projects. It is important to notice that the social appeal is not just a nice speech. These companies are proud to have these projects and their organization culture supports these activities.
- In cases where smallholders own the land, there is clearly an advantage to the anchor firm related to less fixed capital invested in land.
- Training and technical assistance are very strong in all cases. The absence of it is actually the main reason why the critics say governmental programs for land distribution fails. The lack of grower capabilities and non-sufficient governmental support has been critical for that. In this cases the private agents brings to them these responsibilities and surely they are in a better position to offer those since they are in the same market and have experience the following market requirements for food products.
- Long-term contracts following some characteristics of quasi-integration contracts are presented.
- Credit facilitation: one of the biggest challenges for smallholder is the obtainment of credit for financing investments and production. In this case the presence of a well known agribusiness firm in the arrangement makes much easier for them to obtain credit. In some cases the firm acts like an intermediary for giving the credit and it is paid when production is shipped. It definitely decreases interest rates for the small growers when going to banks. When giving credit directly to the smallholder, experience has shown that in general there is a high chance of just increasing their grower bankruptcy.

After these insights from existing private initiatives PENSA worked together with Codevasf to attract agribusiness firms to base their production in some of the irrigation projects Codevasf manages.

5. The project for implementing the method together with Codevasf

Codevasf (Development Agency of São Francisco and Parnaiba Rivers Valleys) is a state owned agency associated to the Brazilian Ministry of National Integration. Its influence area represents 640 thousand km^2 in Brazil. One of its main development strategies is providing irrigation for the Brazilian Semi Arid region. The total potential irrigation area accounts for 360 thousand hectares, and it has implemented about 110.000 hectares so far, in 25 irrigation perimeters. Another 100.000 hectares is going to be implemented in 2008 (Rabobank, 2005).



Source: Codevasf (2008).

Fig. 3. Location of São Francisco and Parnaíba Rivers Valleys

Public Private Partnerships (PPP) will be used by Codevasf to implement new irrigation perimeters. This resulted in a new business model. The operation and maintenance of common irrigation facilities will be done by private firms. The agricultural area inside the perimeter will be subjected to public bidding for agricultural anchor firms, which will lead production inside the perimeter, either producing or renting the land for contracted smallholders, and will coordinate the agricultural chain towards insertion into agribusiness. On the other hand, the Brazilian government will assign the right for exploring the land for renewable periods that ranges from 25 to 50 years, and will offer several alternatives for financing the project.

PENSA (The Agribusiness Intelligence Center of University of São Paulo) and Codevasf established a partnership for the development of Integrated and Sustainable Agribusiness Projects, in which 9 business opportunities where analyzed at the São Francisco and Parnaiba Rivers Valleys containing full agricultural and processing financial analysis, logistics analysis as well as financial evaluation. The elicited chains and a summary of their results are showed below.

The team prospected about US$500 million for the considered area, being about 40% of it for industrial investments (juice, ethanol, slaughterhouses, etc.) and 60% agricultural and animal production. The higher investments in the agricultural and animal production related to industrial plants is justified by the size of the areas and mainly the need to irrigate them using drip systems. The projects considered about 150 thousand hectares of production areas.

Once the products were defined by the technical and market analysis, the researchers of each of the 9 project teams prepared business proposals estimation investments, costs, revenues and financial analysis with several scenario analysis. Concomitantly potential investors were contacted to support the analysis, confirming data and contributing with refined and current information. The way to get their commitment was to promise them prompt access to all the information we would be preparing and showed them this would help analyzing a new business opportunity. There were confidential agreements that specific firm information would not go public. However, if they at the end did not implement the project we would be free to offer it to any interested firm (without opening the firm confidential information).

The table bellow shows some figures related to the results of the project. These are prospected numbers. The investments are under implementation with some companies still taking the final decisions.

Table 2. Potential results of the implementation of the method

Chain	Agribusiness participating firms	Job creation	# of integrated smallholders	Total tax generation/ (thous R$ yearly, industrial and agricultural)*	Extra revenues for ag-inputs and logistic firms (thous R$ yearly)*
Banana	Chiquita Inc. (USA), Noboa Inc. (USA).	1550	13	R$1053	R$7.100
Pineapple	Itaueueira (BRA)	1600	16	R$1.086	R$4.200
Ovines	Agrosavana (BRA)	1535	152	R$1.600	
Dried fruits	Bauducco (BRA)	1570	Nd	R$216	R$642
Processed vegetables	Green Way (USA), Itochu (JAP)	3580	156	R$3.600	R$27.000
Palm trees	Agropalma (BRA)	9.100	340	R$24.100	R$5.000
Jatropha	FMC (USA), Ateon (USA)	20.000	1250	R$51.300	R$20.000
Poultry	Mauriceia (BRA), Seara-Cargill (USA), Frango de Ouro (BRA)	700	40	R$9.700	R$1.200
Lemon	Itacitrus (BRA), Cutrale (BRA)	1200	108	R$4.380	R$ 24.000
Total		40.835	2.075	R$92.655	R$89.842

Source: Elaborated by the authors.
Note: *US$ 1,00 was worth R$1,80.

An interesting part of the project was to define a business model for the smallholder that met all the criteria discussed above. It included a technological package, a farm size and mainly an estimated income (with some range of variation), that the family would take out of it. The following table just gives an idea of the size of the farm and the approximate level of expected income. Other crops were included in this analysis as well.

Table 3. Farm size and smallholder income

Products	Size of the farm	Estimated mensal income for smallholders family (in Reals)*
Banana	19 ha	1.508,75
Pineapple	17 ha	1.558,33
Lemon	37 ha	1.513,00
Sugar cane	33 ha*	1.523,00
Citrus	35 ha	1.537,00
Cotton	20 ha	1.586,00
Semi processed vegetables	7 ha	1.585,00
Palm oil	25 ha	1548,48
Jatropha	28 ha	1.582,76
Poultry	1 ha	1.378,00
Ovines	3 ha (irrigated)/50 ha (for pastures without irrigation)	1.666,00

Source: Elaborated by the authors.
Note: * US$ 1,00 is worth R$1,80.

It is important to mention that for the implementation of the projects there were given to the firms an option to vertically integrate some of the areas (this was calculated for each case) and it was by "right to use the land for 20 years, automatically renewable if everything went right. Several other details of the project will not be mentioned here for a space matter, but may be obtained with the authors.

Implications for managers

This section brings several implications for managers in food chains and governmental leaders. Four implycations will be highlighted here. Inserting smallholders into food value chains is a way of building sustainability around the world. This is an important global concern and although image might not be the main firm's concern, there are important positive image implications from that. Besides, staff morale increases since they belong to the firm's sustainable initiatives. Hence, the project should be communicated properly.

Second, managers of private firms have to insert the dimensions discussed in this section when presenting to government decision makers to negotiate important incentives for their investments or important joint actions in areas like educational programs for training smallholders. It is important for managers to fully understand the government concern on development and think of how to integrate their efforts with existing governmental efforts.

Third, more specifically for government leaders, this paper showed a project for investment attraction using a different methodology. It hired a consulting group to prepare a first business plan for potential investors in the region. It is a way to motivate investors towards coming and investing in the region. This is much superior method than just highlighting generally local comparative advantages related to some competing locations and use communication tools like advertising. Particularly for Codevasf this showed to be a more active form of interacting with business people and with better results.

Fourth, there is no doubt that the method presented may enhance business planning activities inside a firm in general. Many different concerns were brought and several questions (as the ones in Figure 1) that the manager may reflect on. Using these questions as a check list will empower the business plan and give them a holistic perspective.

Conclusions

This article has presented a method for improving business plans and that is used by development agencies and governments for attracting agribusiness firms. Some emblematic cases were presented in order to show real cases and how they contributed to the authors bring some ideas for the project implementation.

The experience in trying to implement these "designed chain" was very rich. It gave to the project teams the real notion of what were the difficulties in working the tie between agribusiness and smallholders. These also helped the group to think of a solution once there were successful cases. Especially in developing countries, projects like this are fundamental because they bring to small and poor holders options to improve their activities. It is important also for the agribusiness firms which need to develop and diversify their suppliers all over the globe.

Especially for Brazil a country that has witnessed the increase of large scale monocultures like sugar cane or soybeans, this kind of project may alleviate unemployment and migration from traditional cultures which were pushed by expansion of large scale commercial crops. There is a need for inclusion, without any ideological view, but with a sustainable and competitive reasoning. It is impossible to ignore it and not to think of how smallholders may prosper in countries like Brazil.

An interesting research agenda is discussing what should be the role of the State motivating the creation of such arrangements. Some will say that the role of the State is simply guaranteeing good institutions for market development. Other, however, will say that, more than that, there is a need to motivate more inclusive models with more assertive policies. In fact, it is a good research topic for Brazil in a moment when biofuels are booming.

References

1. Azevedo, P.F. Integração Vertical e Barganha. São Paulo: USP, 1996 Tese de Doutorado em Economia na Faculdade de Economia, Administração e Contabilidade.
2. Banco Mundial. Brasil: Agricultura Irrigada na Região do Semi-Árido Brasileiro: Impactos Sociais e Externalidades, abril de 2004.
3. Barzel, Y. (2001). A Theory of Organizations to Supersede the Theory of the Firm, Working Paper.
4. Bernardi, L.A. (2003). Manual de Empreendedorismo e Gestão. São Paulo: Atlas, 1ª ed., 314 p.
5. Chiavenato, Idalberto; Sapiro, Arão (2003) Planejamento estratégico: fundamentos e aplicações. Rio de Jeneiro: Elsevier.
6. Clemente, A. (2002). Projetos Empresariais e Públicos. São Paulo: Atlas, 2ª, ed., 341 p.
7. Cook, M., Chaddad, F.R. (2000). Agroindustralizaton of the Global Agrifood Economy: Bridging Development Economics and Agribusiness Research, Forthcoming in Agricultural Economics.
8. Davis J., Goldberg R. (1957). "A Concept of Agribusiness", Harvard University, 167 p.
9. Farina, E.M.M.Q., Azevedo P. F., Saes, M.S.M. (1997). *Competitividade: Mercado, Estado e Organizações*. São Paulo: Singular, 285 p.
10. Glaser, B. G. Strauss A.L. (1967). *The Discovery of Grounded Theory: strategies for qualitative research*, Chicago: Aldine-Atherton.
11. Strauss A.L., Corbim J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Newbury Park, NJ: Sage Publications.
12. Giordano, S.R. O Sistema Agroindustrial dos Frutos do Cerrado: O Agribusiness do Pequeno Produtor, Série Estudos Temáticos 003/97, 21 p.
13. Giordano. S. (2003). Marketing e Meio Ambiente, chapter in Neves, M.F., Castro, L.T. Marketing e Estratégia em Agronegócios e Desenvolvimento. Atlas, 369 p.
14. Lambin, J.-J. (2000). *Marketing Estratégico*, 4ª ed. Portugal: McGraw-Hill.
15. Machado Filho, C.A.P., Zylbersztajn, D. (2003). Responsabilidade Social Corporativa e a Criação de Valor para as Organizações. Working Paper No 03.024.
16. Neves, M.F. (2003). Marketing and Network Contracts (agreements), *Journal on Chain and Network Science*, Vol. 3, No. 1.

17. Rabobank (2005). São Francisco Valley Integrated Fruit Production – An Interesting Alternative for New Investments.
18. Saes, M.S.M., Souza, M.C.M., Otani, M.N. (2001). Actions to Promote Sustainable Development: The Case of Baturité Shaded Coffee, State of Ceará, Brazil. FAO (Food and Agriculture Organization of the United Nations) São Paulo, March, 36 p.
19. Sauvée, L. (2001). Strategic interdependence and governance: empirical evidence with two agri-food networks in the fresh and processed vegetable sectors in France. In: V Congresso Internacional de Economia e Gestão de Redes Agroalimentares, Ribeirão Preto.
20. Verhallen T. et al. (2003). Demand Driven Chains and Networks, in Campst et al., *The Emergin World for Chains and Networks*, Amsterdan: Reed Business Information, 467 p.
21. Trombin, V.G., Neves, M.F. Proposição de um método para analisar a viabilidade da implantação de uma cadeia produtiva em um novo local: o caso da citricultura no Pólo Petrolina-Juazeiro, 2007. Dissertação de Mestrado Faculdade de Economia Administração e Contabilidade de Ribeirão Preto, Universidade de São Paulo.
22. Williamson, O.E. (1985). *The economic Institutions of Capitalism*, USA: Macmillan, 450 p.
23. Yin, R.K. (2001). *Estudo de Caso: Planejamento e Métodos*, Porto Alegre: Bookman, 2ª ed., 205 p.
24. Zylbersztajn, D. Papel dos Contratos na Coordenação Agro-industrial: um olhar além dos mercados. XLII Congresso Brasileiro de Economia Rural, Ribeirão Preto.
25. Zylbersztajn, Décio, Farina, Elizabeth M.M.Q. (1999). Strictly Coordinated Food Systems: Exploring the Limits of the Coasian Firm, *International Food and Agribusiness Management Review*, 2, pp. 249-265. Web sites: www.ifama.org/conferences.
26. Embrapa. Empresa Brasileira de Pesquisa Agropecuária, Available at http//:www.embrapa.gov.br.
27. Codevasf: Companhia de Desenvolvimento dos Vanes do São Francisco e Parnaíba: www.Codevasf.gov.br.