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# FRESH TOMATOES: IDEAS TO BUILD A PRODUCTIVE ECO-SYSTEM<sup>1</sup>

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## INTRODUCTION

During the last years production of fresh vegetables in Albania had an important growth due to the increase in the number of Ha using Greenhouses technologies. Many of the new investments came from former expats who spent a few years working abroad and came back -in some cases because of the crisis in Greece - with money and some experience in the field. However, although exports showed an important growth (in tomatoes, for example exports doubled from 2013 to 2011!), the sector has not been able to definitely take off and be a relevant player in the international market. The problem is not only that the share of Albania in the European trade is almost negligible but also that diversification didn't happen, quality has not improved and as a consequence the prices that Albanian producers get is very low - the lowest in Europe for some products like tomatoes. In this context, Albania has been focusing on the regional markets (probably not consciously but as a consequence of not having established a commercial relation with higher-end markets and not having a proper quality produce to offer), has been excluded from the best markets and has not improved the productive methods, practices, etc. Given this situation the building of new capacity was not necessarily a success: local markets started to be oversupplied and production losses are very high as a consequence.

In this report we analyzed the value chain of the fresh vegetables sector, focusing on the production of tomatoes. We detail the problems of the whole value chain (from the production to the marketing), pointing out the "missing links" that are preventing Albania to become a major tomato exporter in the European market. We find that there is a huge potential for the country - in terms of the natural conditions and also in terms of competitiveness -, but it is very difficult to be reached without making a re-organization of the sector to make it more integrated and give the proper incentives to solve simultaneously all the problems.

We found that in order to improve the general productivity of the sector it is not necessary to make huge capital disbursements. Although some of the constraints are clearly money-related, most of them are organization-related. What the propose in this report is a method to re-organize the sector in a way that makes it easier for the economic agents to vertically and horizontally integrate and transform the sector into a "factory", where every participant has its defined role and work is

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<sup>1</sup> This report was prepared as a result of a our work in the Ministry of Agriculture, Food and Consumer Protection in Albania during the summer of 2014. Some of the conclusions are based on our field trips to different regions of the country. A more detailed methodological explanation of our work can be prepared upon request.

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divided with specific roles. The role of the Government is twofold: first, to facilitate the organization of this model, find the actors that can lead the change and provide them the incentives to coordinate. Second, to provide all the public goods that are now missing or incomplete (not only in terms of infrastructure but also in terms of marketing, negotiations, etc). In the next sections we explain with detail the constraints and missing links we found throughout the value chain of tomatoes and propose a new model to solve them. We show that with little organizational changes, Albania could increase its tomato exports by four times in a few years.

## MARKETS AND TRENDS

The first question to ask before analyzing the problems of the productive value chain is if there is a relevant market which could potentially be interesting for Albanian producers and exporters. In other words the question is if it makes sense to invest time, money and efforts to solve the problems of the sector (or a particular product, in this case) given the size, prices, growth and trends of the market where Albania could eventually become a player. If not, then the best decision would be to forget about this product and try to focus on those that have a better potential in terms of growth, size competitiveness, trade accessibility, etc.

There are many variables that are relevant to analyze how attractive is a product/sector in terms of the market potential:

- **The market size.** In a small market, gaining share is very difficult. On the other hand, in a big market taking a very small part of the share could represent a big portion of the production for a small country like Albania.
- **The market growth.** Even if it is a big market if it is shrinking (or stagnant), it is more difficult to gain share and probably the competence will reduce prices in the future.
- **The market prices.** Naturally, a market will be more attractive when prices are high. However, it is not only about average prices, but also about the gap between the high-end market prices and the low-end market prices. A huge gap means an opportunity.
- **The clients.** One of the most important parts of the analysis is understanding who are the potential clients, not only the main importers but also those that are growing the most.
- **The competitors.** A market which is very consolidated (just a few players dominating the whole market) is very difficult to access, because the barriers to entry are very high. Also, a market which is fairly atomized represents an opportunity, especially for small producers (like Albania), where a very small share of the world market represents a big share of the local production. Also, it is important to understand the characteristics of the main players, for example their costs: if the market is dominated by high-cost producers then there is a potential advantage for low-cost countries like Albania.
- **The role of Albania.** If the market was big and Albania was a big player, then the potential would not be very promising. Small adjustments in the margin could be done to slightly increase productivity or gain a small amount of share, but no "explosive" growth could be expected, unless the market itself had "explosive" perspectives. Similarly, if prices were high and Albania was getting a good price, then the potential would be limited to the possibility of increasing the market share. This is precisely the difference between analyzing a mature or an infant sector (from the perspective of Albania): from a well-developed product one

could expect a marginal growth, whereas from an undeveloped (but potentially profitable) product one could expect an explosion, if policies are correctly applied.

What is the current situation of the fresh tomatoes industry in this regard? Is there any potential for Albania to grow? First of all, a relevant market must be defined. Tomatoes are perishable vegetables which cannot be profitably trade to very distant locations. For this reason, trade is most of the times regional (CommTrade Database): USA imports 99% of its production from its neighbors (Canada and Mexico), Brazil imports 100% from Argentina, Australia 99% from New Zealand, etc. In this sense, Albania is in a very good position because its location is very central. The higher-end markets of Europe (Germany, Switzerland, Netherlands, France, etc) are no more than 2,200 Km away by land (in the case of Amsterdam, the most distant location). New trendy markets (for example) like Ukraine are less than 1,500 Km away. Given this criteria, a reasonable delimitation would be Europe (eastern, western and central) plus "Eurasian" countries like Russia, Ukraine, etc.

### **THE MARKET SIZE, CLIENTS AND TRENDS**

According to the last figures of the CommTrade database (2012), imports of tomatoes in Albania's relevant area sum approximately 3.6 Million Tn per year and represents about 2/3 of the world total imports.<sup>3</sup> As figure 1 shows, growth in volume has been steady at a fairly high rate of 4% per year CARG in the last eight years.

Interestingly, the market has not been growing evenly among the players. Out of the 100% growth since 2005, Russia alone explains about 62%. As figure 2 shows, most of the growth has been explained by a bunch of countries. The traditional markets, although are very relevant in terms of size, has not been growing as much as the new markets, particularly in the Eurasian regions.

What is the situation of Albania *vis-a-vis* the market trends? Figure 3 shows the main regional importers and the main Albanian clients. It is clear that right now Albania's target are basically the neighbor countries, which are not very relevant in regional terms. Figure 4 shows the countries which contributed to most to the growth of Albanian exports. Again, we see an increasing participation of countries who are not part of the fastest growing importers in the region.

### **THE COMPETITORS**

Figure 5 shows the share of exporters in our relevant regional market. Two conclusions are evident from this graph: first, the market is dominated by high-cost developed countries. Netherlands and Spain take 55% of the share and only two of the top 10 exporters (which represent virtually 100% of the exports) can be considered developing countries. Second, Albania's share is close to 0%. It is not only almost inexistent in term of the European market, but also it is very low comparing to its main competitors, like Macedonia.

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<sup>3</sup> More specifically, we include the following countries in our analysis: Germany, Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Ireland, Italy, Netherlands, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Turkey, Ukraine, Georgia, UK, Macedonia, Bosnia & Herzegovina, Montenegro, Albania, Serbia and Kosovo.



## **THE MARKET PRICES**

Figure 6 shows some of the relevant import prices of the fresh tomatoes regional market. Taking the most important importers, the average import prices (which vary a lot throughout the year) range from a minimum of \$/Kg 1.29 in Russia to a maximum of \$/Kg 2.21 in Switzerland. How does this compare with the prices received by Albania?

Figure 7 shows that Albanian tomatoes are paid less than 60% of the price received by higher-end markets. It ranges from about \$ 0.45/Kg to \$/Kg 0.72 in the best case. To be more specific, Albania receives the lowest average price for its fresh tomatoes in Europe and Asia.

## **THE ROLE OF ALBANIA**

To sum up and finally answer our original question (is there a relevant market for Albanian fresh tomatoes?), we observe at least three signs of market attractiveness. First, Albanian share is almost inexistent, which means that the limit to growth in terms of quantity is very far. In other words, given that the share is almost 0%, there is almost 100% of the market to gain. Second, Albania is the most lagged country in terms of prices of the region which means that there is a lot of space to grow in terms of prices. A small increase in the price (let's say, about a 30% increase, to be competitive against Macedonia) could have a tremendous impact for Albania. Finally, Albania has been relying in the worst markets in terms of quality/prices/size/growth, which means that there is a high potential in terms of redefining the targets to get better contracts and perspectives.

The existing markets represent a clear opportunity. The potential is so evident that the obvious question is why Albania could not take advantage of this potential. What are the limits to growth?

## **UNDERSTANDING THE CONSTRAINTS**

There could be many reasons to explain why Albania cannot take advantage of the current opportunities in the markets of fresh vegetables and, in particular, of fresh tomatoes.

A reasonable first hypothesis could be that Albania is just too inefficient to play a significant role in the world markets. If the natural conditions are not good enough and the yields are not high enough then probably part of the puzzle would be solved. However, this does not look the case. Figure 8 shows the average yield (specifically for tomatoes) of Albania comparing to the relevant competitors (in this case Macedonia) and to the technological frontier (advanced countries like France, with a relevant role in the market).

Interestingly, Albanian tomato producers are clearly less efficient in terms of yields than the most advanced European players but that's certainly not the case when comparing to some of the countries that have been growing very fast in the last years. Data from FAO indicates that in 2011 - last year with available and comparable data - Albanian yield was virtually identical to the yield of Turkish producers (approximately 330,000 Hg/Ha) and slightly higher than Macedonia. Moreover, this numbers are not adjusted by technology (greenhouse, open field, etc) and intensive production

in Albania is very low when compared to other countries, which means that this figures are probably biased against Albanian yield.

A second hypothesis - closely linked to the first one - could be that production in Albania is not cost-effective, meaning that costs are too high given the level of productivity. This hypothesis sounds very logical, given that - as we just analyzed - Albanian producers are still far from the frontier in terms of yield. After all, FAO numbers show that the yield in Albania for fresh tomatoes is about a third as big as the yield in a competitive market like France. However, this analysis needs an additional component to be realistic: the cost of the productive factors.

Making a proper comparative analysis of the production costs in different countries is fairly complex for many reasons. First, knowing the cost structure of the different productive units worldwide is not an easy task. Not only because the data is not easy to gather but also because productive units in some countries (like Albania) have a very high variance and representativeness is thus difficult to get even within a country. Second, given that the productive factor intensity in each country is very different (some countries - like France - have a very capital-intensive sector and some others - like Albania - have a very labor-intensive sector) analyzing individual factor costs could be misleading. For example, even if the cost of capital is very high in Albania (probably much higher than in France, Spain or Netherlands), that does not mean that productive costs in Albania are higher than in other countries because Albanian farms are not intensive in capital at all.

Having this caveat in mind, a very basic and broad indicator is the labor cost and a good way of making a proxy of the unit labor cost is analyzing the wages *vis-a-vis* the physical productivity. Figure 9 compares this two variables using World Bank and FAO data for 2013 and shows that the Albanian average wage is very low compared to the main producers but also compared to Macedonia and Turkey. Moreover, although we already know that the average yield (of tomatoes production) is relatively low the wages are even lower. To take an example, the average wage of Albania is about 14% of the average wage in France, whereas the physical productivity (yield) represents approximately 35% of the productivity in France.

The evidence - although is not very specific - does not seem to indicate that the main problem is related to productivity. On the contrary, it is true that Albania has a lot of space to increase productivity<sup>4</sup> but even with the current level of inefficiency the country has managed to export at prices which are - as we have seen - very low comparing to the rest of Europe, including Macedonia.

But if there is a big and growing market, a lot of potential to growth for Albania and the main problem is not about productivity, then what is the main constraint that is limiting the country to take advantage of the potential? A third hypothesis is that the main reasons to explain the stagnation of the fresh vegetables production/exports in Albania are related to the industrial organization of the sector: individually, the different parts of the value chain are potentially productive but there are gaps all throughout the value chain ("missing links") that stop the sector to take off. From a different perspective, the idea is that - if the value chain was properly connected - then very small changes would generate an explosive growth, but those changes cannot be materialized as long as the links are not strong enough.

No sector can grow properly if any link of the value chain is broken including demand-side links (relation with clients, marketing, etc) and supply-side links (relation with suppliers, production

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<sup>4</sup> Ways of increasing productivity will be analyzed in detail in a subsequent section.

practices, technology, etc). A super-productive technology is useless with no marketing. Similarly, there is no point in having potential demand if supply cannot be organized properly.

## IDENTIFYING THE MISSING LINKS

A useful approach to the value chain analysis is to first understand if the problems are related to the supply-side, the demand-side or the interaction/connection between demand and supply.

### **MISSING LINKS: THE SUPPLY SIDE**

According to data from MACPF (2014) on average the differences in the yield of the farms that produce tomatoes in Open Field and Green Houses is about 50% to 100%. Also, about 15% of the production comes from Green Houses. Given the big productive gap between Green House and Open Field facilities and the relatively low proportion of Green Houses, it seems reasonable to think that there are two very different broad ways of increasing productivity: growing "in the margin" (or "within" the farm) - which means improving the yield of the current productive facilities without changing the technology -, and growing via a "structural change"- which means drastically increasing the proportion of Green House facilities without necessarily affecting the "within" productivity. This two ways can be combined: simultaneous policies can be designed to improve the "within" productivity (for example, increasing the quality of the seeds to get a better yield, disregarding the type of technology used) and also to induce investment in Green Houses (for example, via flexible credits).

Although this two ways of increasing supply are very closely related it is useful to make the theoretical distinction for two reasons: first, because depending on the stage or maturity of the industry/sector/product policies should try to stimulate one or the other method. An industry that is in the frontier (or very close) of the available technology may need some "within" policies to make small improvements in the margin. On the other hand, if it is very far from the technological frontier, "structural change" kind of policies are usually better because they tend to generate huge productivity changes just by adopting the state-of-the-art technology, basically because the gap is very big. The second reason that makes this distinction useful is that - depending on the case - many times reforms "in the margin" can be done without making extremely big capital expenditures, whereas the "structural change" may require capital disbursements.

In this section we analyze the factors that are constraining the system in both ways: some of the missing links clearly affect the incentives of the farmers to invest in "structural changes" (building new infrastructure) but also that reduce their incentives to make progress without changing the technology. In our visits to the field we identified - broadly speaking - five big issues in terms of supply side constraints: Technical Skills, Access to Working Capital, Infrastructure, Access to Investment Capital and Logistics/Collection Points.

### **Technical Skills**

According to official Data (MACPF Statistical Yearbook, 2012), more than 60% of the farmers have not finished High School. Moreover, less than 30% have some agricultural educational background.

This picture is consistent with the pattern we found in the field: formal education in agriculture was virtually inexistent among the interviewed farmers, except for the biggest ones.

Although we found farmers with vast experience working in the field, the lack of technical education was evident for many reasons. To begin with, good practices are not followed or even known in most of the cases. The answers to very basic questions about plant treatment were usually incorrect/imprecise or directly unknown: the amount of pesticide needed in each case, the frequency of plant treatment, the type of chemical or seeds needed to optimize production and yields were absolutely unknown except for two big and trained farmers. The possible reasons to do soil analysis were also ignored, except for these two farmers. In this conditions, the main advisor is the local pharmacist - who is not necessarily the right person to ask. The farmers end up following their own experience/common sense and following their own perceptions based on trial an error.<sup>5</sup>

Farmers in our sample tended to complain a lot about the quality of the seeds, the pesticides and the inputs in general, but they didn't really know what they were buying or how they should use this lack of technical knowledge has its consequences. It is difficult to assess quantitatively and with precision how much productivity could be enhanced just by improving the practices and knowledge of the farmers. However, from our visits we identified three basic and evident consequences from this problem: (i) seed performance tend to be very low for the farmers with less knowledge, (ii) also productivity (yield) tend to be lower for them (about 15/20% lower from our calculations), (iii) losses due to too-bad-quality also are considerably higher and (iv) in general average quality is not good enough to export most of the production if the farmer don't follow reasonable practices. As a consequence, the average price for them tend to be between 20% and 50% lower.

Not having technical skills is very problematic because the final product of this kind of farms is not good enough to reach high-end markets. Even if the market was there and if it was profitable to invest in better quality inputs, most of the farmers would not do it because they don't have a clear idea of how to do it. Buying better quality pesticides is not a smart decision if it is not properly applied. Seeds could be good or bad depending on the soil/weather conditions, which should be known by the farmer (or by the advisor).

### Access to Working Capital

According to our visits, small farmers (< 1 Ha) tend to spend between 40% and 50% of their costs in chemicals (pesticides, fertilizers, etc) and seeds. A medium/big farm usually has enough financial support (rarely from the financial system but more likely from his/her own savings) to buy the

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<sup>5</sup> An interesting example two illustrate this comes from one of our visits to the field near Tirana. A young farmer with a reasonably big piece of land (about 2 Ha) who had got back to Albania about three years ago (from Greece, where he had worked in a greenhouse producing tomatoes and other vegetable), was investing his savings in new greenhouses, taking advantage of his experience (and savings) brought from abroad. He had no technical education at all, although he was smart and entrepreneurial. He had had a bad experience with local seeds and he really wanted to improved his quality and productivity, so he started to import the same seeds he used to work with when he was in Greece. He thought he knew that those seeds were good because he had had good results in Greece, so he was basically following his instinct: he had tried local seeds with bad results and he also had tried Greek seeds with good results, so the action plan looked obvious to him. However, he did not really know what kind of seed he would need in his own field, he didn't know if the seed that worked in Greece would work in his soil and - most importantly - he didn't know why the local seeds had resulted so bad. He didn't even know if it would be possible to buy seeds (local or imported) as good as those that he brought from Greece, but in a local pharmacy, with a proper quality control and probably a better price.

required inputs before the production process finalizes. The situation is very different for a small farm (the most representative case), who barely makes enough money to afford a decent life for the family. A farmer producing on a 0.2 Ha farm will make between \$ 3.000 and \$ 5.000 per year (considering an average year, with no natural disasters and a reasonably healthy market). An average family of 4 (MACPF Statistical Yearbook, 2012) would easily spend almost all of this to live during a year, leaving a small amount to invest in the production process of the following year. Even a medium farm may struggle to get the required amount to buy the correct amount and quality of the inputs if the previous season/year was not good enough.

Taking the previous constraint (lack of skills) together with this one the result is disastrous. A farmer with no cash would probably try to buy the cheapest inputs in the pharmacy and would try to make them last as much as possible. The local pharmacist in many cases is the one that actually gives some credit to the farmer and thus the farmer is somewhat obliged to buy him the inputs (considering that no one else would sell inputs with no immediate cash). The farm will end up buying bad quality inputs (which, in some cases can be even uncontrolled inputs) and harvesting bad quality products. Many of the interviewed farmers did not even realize the consequences of their actions in terms of quality and yield, they just tended to complain about the quality of the inputs without noticing that their "cash-saving" strategy may be the problem.

Unfortunately this problem is not only with unskilled farmers. Even a skilled and knowledgeable farmer who has no commercial relation with any bank (which is true most of the cases) and not enough liquidity will end up buying the wrong inputs, having a bad harvest and selling its production at a low price because of the bad quality.

Why do we call this a constraint to growth? Because a land which could be potentially profitable, which is managed by a farmer who is knowledgeable enough will be forced to produce in an unproductive way (for example, buying cheap inputs knowing that a profitable decision would be to buy better inputs and have an even better output) just because of financial reasons and because the financial market is incomplete.

### Infrastructure

Unfortunately the time constraints did not let us do a proper assessment of the general infrastructure conditions of the country, especially in terms of water availability (at the 1st, 2nd and 3rd channels) and the roads to and between the plots. However, just a few visits were enough to realize that there is an evident infrastructure problem.

All the productive plots we met had at least two conditions: (a) water was easily available (usually pumped and in some minor cases from gravity) and (b) the access to the farm was reasonably easy for a small/medium track. At least 20% of the farmers we met - and that were successfully exploiting some part of their lands - had also unproductive plots. This means that at least to some extent they had the knowledge, the experience and the land to increase their production but still they didn't do it, because of the poor infrastructure conditions (plots uphill with difficult access to water or plots only accessible by walking).

In particular, the problem with the access to water seems to be even more complicated because the current investment scheme does not provide the right incentives. The capital stock at the 1st (source) and 2nd (main distribution) channels doesn't look terribly bad. However, because the 3rd channel (from the main distribution tubes to the farms) is not directly managed by the Government

(it is managed by private local associations formed by local farms), investments are just not enough. The associations in charge of the local infrastructure are not necessarily efficient and there are no proper mechanisms of enforcement to collect funds from the farms. A farm that does not need abundant water could be in the same association of another one which needs more water. A farm with reasonable access to water could be in the same association of another one that is uphill and that needs better infrastructure. The incentives of these different types of farms are not aligned and the associations are not developing a proper mechanism to make the incentives compatible for everyone. The result is the under-investment that we perceived in many regions.

A detailed assessment of the current infrastructure problems should be conducted as soon as possible. Otherwise, other complementary policies could be useless: what would be the point of giving a subsidy to build a greenhouse to a farmer who has a farm (or a plot) with no roads? In the best case, those farmers would be excluded from the subsidies schemes and in the worst case would make unproductive investments.

### Access to Investment Capital

Less than 10% of the farmers in our sample had access to the banking system. Many of them could not have access because of the formal requirements (collateral, for example) but many others just didn't have any interest or even knowledge about the functioning of the financial market. Only big farmers usually get the credits (and with rates above 14% Effective Annual Rate, according to our interviews).

As a result, 100% of the farmers we met who had a greenhouse facility used (at least partially) his savings to complete the investment. In most of the cases, farmers that spent some time abroad were those that could invest the highest amount in their greenhouses. The problem when the financial markets are not complete is that it perpetuates the inequality between the farmers and, because most of the farmers are small and informal, it ends up being a real constraint to growth for the sector as a whole.

Naturally, this problem cannot be solved without simultaneously tackling the other problems. As it was stated previously, there is no point in lending money to a farm that cannot be productive because of the lack of skills or the lack of proper infrastructure.

### Logistics and Collection Points

A very important part of the value chain (especially when it is linked to the external markets) are the Collection Points. They work basically as centralizers: buy produce from farmers and sell it abroad. Because of the nature of their business, they tend to work locally because they buy mainly from those that they trust (they have an idea of the quality of the produce, for example) and they also tend to work in real time. They receive daily orders from abroad and rapidly mobilize their network of farmers to gather all the product needed to "fill the container". Typically, farmers have their own transportation (or, if not, they hire the service) to take their produce to the collection point. The collector clean, sort and package the produce and deliver it as soon as possible.

The collectors usually don't have long term contracts, they usually don't sell always to the same clients or countries and they try to do the operation as quick as possible. The consequence of this is that distant farmers are excluded of the export circuit. Even if they have good quality produce,

collectors will prefer local farmers and thus the motivation to increase their production (or their quality) is very limited.

In this context, the main logistic problems regarding collection point are that their collection capacity is scarce comparing to the amount of production and that the capacity is not so evenly distributed regionally.

Because of this, many of the farmers we met had struggled to find markets for their production. In the last five years the production of tomato increased drastically and the collectors didn't fully accompanied this growth. Thus many regions were over-supplied, prices went down and for many farmers harvesting all the production was not profitable, especially for those excluded from the exports market.

Not having enough storage (and cold storage) capacity is not completely a "supply side" problem, is more a coordination problem: supply cannot match demand because the logistics in the middle are not working properly. As a consequence of this coordination issues, the proportion of lost production is too high (about 20% on average according to our sample) and the distant farmers don't have incentives to invest in greenhouses.

### **MISSING LINKS: THE DEMAND SIDE**

Even if the supply side constraints could be solved, any policy with a building capacity objective would be worse than useless if demand is not also increased. Giving subsidies to build greenhouses would probably generate more capacity (and a bigger supply) but what would be the point with a local market already saturated? Better than design policies to directly increase the amount of production is to design policies that aim to (a) generate the right incentives for producers to invest and increase their capacity and (b) facilitate the required public goods and improve the functioning of the markets which are failing (like the financial markets). The best way of tackling with (a) is by increasing the demand and opening new markets, getting better prices, better and more stable contracts, etc. In this regard, we identified three main issues which are now clearly affecting the "demand-side" of the value chain: market connections, certifications and standards and post-harvesting facilities.

#### **Market Connections**

As we stated before, collectors don't establish long term relations with their clients. Sales are usually "spot" and clients are not always the same, they vary a lot within and across collectors.

In most of the cases collectors don't have the knowledge or expertise to find and establish good connections with the foreign markets. They usually don't have a deep knowledge of the market they are working in, the market prices, potential clients, trends, etc. They don't know about marketing strategies (usually they just wait for the call of the importers without actively seeking new and better markets) and don't have a clear idea of how to penetrate higher-end markets in terms of certifications, procedures, etc.

For a collector, not having market connections makes him impossible to plan demand and, because of that, it cannot guarantee a long term contract to the farmers and thus is unable to ensure the

quantity and quality of the products. This way a "chicken and egg" type of problem arises: to be able to establish long term relations with clients, collectors must be sure that they can easily get a stable flow of good-quality produce to offer and fulfill the requirements of the contracts. At the same time, for the farmers to have incentives to increase the quality and quantity of their supply, they should be sure that they will be able to place their production at a reasonable price, which right now is not the case because the collectors cannot offer that kind of certainty given the nature of their business. This trap makes impossible to the collectors to find higher-end markets to sell.

As a result, collectors end up being stacked in very low-end markets, getting lower prices and not being able to establish more long-term relations with the farmers who, at the end of the day, don't have any incentives to improve their work in the farm.

### Certifications and Standards

To increase demand from better markets, there are some conditions that must be fulfilled. Although this is an obvious statement, knowledge about the level of standards (in terms of packaging, labeling, etc) to enter higher-end markets is not complete among collectors. In our sample, all of them perfectly knew what they needed to sell to the markets where they already had clients (mainly in the Balkans) only one had a more precise idea of the kind of certifications/standards that could be asked to have to enter the EU markets.

Moreover, the facilities to fulfill all these requirements are not complete. An example of this are the laboratory analysis. The requirements in terms of required analysis vary by product/country and, in all the cases, it is not enough to have the facilities to perform the analysis. It also has to be accredited, otherwise some markets will require their importers to perform a new accredited analysis to reconfirm the results, doubling the cost and effort. In the case of Albania, the picture is mixed: depending on the product there are (a) analysis that cannot be performed because the facilities are not available, (b) analysis that can be performed but are not accredited for example by the EU and (c) analysis that can be done and that are good enough to enter some high-end markets.

Finally, there are some standards that are fairly easy to fulfill (meaning that they don't need costly infrastructure or complicated laboratory analysis) but that are extremely important to access to some high-end markets. The norms GAP (and EuroGAP), for example, are not "country" requirements (in the sense that the EU does not impose this standard as a *sine qua non* requirement to enter the region) but are required for any high-end retailer who is willing to pay a higher price just to be sure that their products are good enough for their clients. Because of the structure of the agricultural production in Albania, getting this certifications is very hard. First of all because production is so atomized and uncoordinated that the traceability of the product is complicated. Collectors buy from very different farmers and don't impose any kind of control over them. Moreover, because of this lack of coordination and integration, paying for the certification can be very costly for each individual productive unit.

The consequence is clear: collectors end up being stacked in lower-end markets. Regional markets are less attractive but also the requirements are lower. Albanian exporters get the lowest prices of Europe, precisely because they cannot certify that they have a good quality produce. Because the collectors get a very low price, farmers also get a low price and incentives to increase quality or quantity are scarce.

## Post-Harvesting Facilities

As we already stated before collection capacity is not enough. Relatively distant farmers are excluded from the export district. This problem becomes more complicated because the cold storage capacity (especially for tomatoes and other fresh vegetables) is very low. The impossibility to separate supply and demand (buying from farmers and selling to importers at different moments) worsen this problem because even the farmers that are close to the collection points have to wait to sell their produce precisely the same day that the collector received the order, which is not necessarily the optimal time for the producer to harvest. Farmers don't have any kind of post-harvesting facility (some of them may have an empty room at most) and thus they have to sell the produce immediately after harvesting. If the local price is very low they just let the tomatoes get rotten unless they can offer their products to collectors, but this has to coincide (in terms of time) with the orders received by the collection points from abroad. When the temporal coincidence doesn't happen production gets lost, not because the quality is not good enough. Not even because demand is not high enough but just because demand and supply are not temporarily aligned. A big portion of the 20% of lost we found in our sample is due to this kind of problems.

This simultaneously reflects a cause and a consequence of the problem. Signing long term contracts with importers require a relatively stable flow of produce to offer, which also requires enough cold storage capacity. Also, because there are no long term contracts and because collectors do a good job with their own real time business model, there is no need to invest in cold storage capacity. All this also affects production: distant farmers would have incentives to increase yield and quality if they had collectors as clients. Collectors with cold storage could easily rely on distant farmers because they could temporary separate supply from demand. But - again - none of this makes economic sense if collectors don't have a planned demand from abroad which right now is impossible as the contracts they handle are short-term/spot contracts.

In addition to this there is another very relevant problem. Not having the possibility of separating supply and demand makes impossible for the collector to do arbitrage. A highly variable market (like tomatoes and fresh vegetables in general) requires the ability to stop selling when the price is low and sell when it goes up (which may happen in a couple of days). This is impossible without having the possibility of keeping the produce safe at least for some days.

## REACHING THE ROOT OF THE PROBLEM

At this point it should be clear that there are many "missing links" both in the "supply-side" and "demand-side" of the tomatoes value chain. It is important to remark that this problems cannot be solved in an isolated way, bottlenecks must be solved simultaneously. What is the point of building capacity if no new markets are available? What is the point of improving quality if there is no demand for better quality or if no one is willing to pay a higher price for it? Increasing supply is costly and requires effort and time. Doing it without having the counterpart from the demand side is a bad idea when the problem is analyzed with a general equilibrium framework. The result would be a reduction in price, more losses and poorer farmers. In other words any investment - or policy aimed at increasing capacity, like giving subsidies to build greenhouses - would be an unprofitable one in private and social terms, unless new and better markets are also facilitated.

This is also true within the "demand-side" and "supply-side" groups. For example, subsidizing farmers who don't have proper infrastructure doesn't look like a wise decision. Facilitating better

infrastructure to farmers that don't have the skills to produce in a more productive way won't have the desired results. Similarly, facilitating the conditions to get the required certifications and quality standards won't be very useful if collectors are still unable to find new clients, new markets and establish more convenient relations.

An interesting feature of the problems we described is that there are no structural problems in the sector. In other words, there are no particularly serious problems with the natural conditions, the availability of water, the cost of inputs or even the productivity of the farms. Even with all the restrictions Albanian farmers are fairly competitive and exports have more than doubled in only three years. When structural conditions are not the problem and a sector with high potential cannot manage to definitely take off the roots of the problem are usually related with organizational/coordination issues and this is not the exception.

There are disconnections all throughout the value chain and thus potentially productive units don't have incentives/means to reach their potential. There is no vertical or horizontal integration, each unit acts isolated and without any coordination which generates losses of productivity that could be avoided (lost production, lower quality, unstable flow of supply, etc). At this stage, Albanian producers don't need a shock of technology or capital accumulation but a way of reorganizing production, connecting actors and let them specialize.

Think of a collector that has a poor connection with his clients abroad and sells on a spot basis. He will call each day his network of farmers who will deliver their produce (of decent quality, otherwise it could not enter even to the regional markets). The farmers may have enough production to sell because casually they haven't had to do the harvesting before. Or they may not have the product available because they already harvested and sold it (probably at a lower price than the export price), given that the possibility of harvesting and keeping the produce safe for a couple of days is not available. If that is the case, then the collector will have to call other farmers out of his network and he probably won't be sure about the quality of their produce because - after all - those producers are occasional exporters who don't invest in improving the quality because they are not really inserted in the export market (which is the only one that usually requires better quality). If we analyze thoroughly this hypothetical example we will be able to notice that value can be easily created in many stages of the productive/commercial process but it is not basically because of the disconnection between the actors. If the collectors had a more stable relation with their clients, they could plan demand and their network of farmers would be able to respond to the demands with more certainty. In addition, they would have all the incentives to have good quality products, because the final demand would come from the export market.

None of this improvements implies a big capital disbursement and still value could be created for everyone in the value chain. This is just an example of how problems with agriculture in Albania are related to the industrial organization of the sector. Policies thus have to aim at improving the coordination between all the actors of the value chain and make the sector function as a factory. But how can this be achieved?

## SOLVING THE COORDINATION PROBLEMS: THE ECO-SYSTEM MODEL

To simultaneously solve all (or at least most of) the problems of the sector, policies have to encourage coordination among players. As we mentioned earlier most of the problems can be solved just by improving the industrial organization of the sub-sector and solving some key market failures to capture the latent value that already exists. One could think in many organization models to integrate the players vertically or horizontally. In this case we propose a particular type of model that proved to be successful in many countries, particularly in some regions of Latin America. We call it the "Eco-System Model" and it is a model that encourages the specialization of the actors and the vertical integration of the productive units. <sup>6</sup>

The model is formed by three main actors that interact among them constantly: (a) Originators, (b) Farmers, (c) Government. Each Originator is the leader of a small productive eco-system, formed by one originator and a network of farmers supported by the Government. Figure 9 illustrates the relation between each of this actors and the role of each one of them in this model. As it can be seen the model encourages specialization: originators are in charge of providing knowledge, management and capital, farmers' role is to provide land and labor and the government provides public goods. Think of each eco-system as a small factory where the Originator is the head and the farmers are the productive workers. The Originator will not produce but lead and manage the productive process. The farmers will not have to worry about the management (marketing, supply chain, coordination, etc) but only about the production itself.

More specifically, each actor has a particular well-defined role:

### Originators

The originators are the head of each productive eco-system. They have five particular tasks:

- **Commercial.** This is one of the main roles. The Originator has to centralize the sales of its system. Farmers shouldn't worry about the marketing of their products because the Originator should be in charge of this. Where are the best markets? Where are the trends? How can prices be negotiated? What is the best way of promoting the products? What are the requirements to enter to each market? All this questions must be answered by the Originator. In other words, the Originator is in charge of the commercial strategy of its eco-system.
- **Logistics.** Because the Originator centralizes sales it also has to centralizes the purchases and storage of the final products to sale. This means that the Originator has to manage a centralized cold storage facility where the farmers can leave their produce. Given that the Originator is the one that will lead the commercial process it also has to manage the logistics of the storage: deciding for how long to storage the produce, do price arbitrage, etc.
- **Production Management.** Part of managing the commercial strategy implies also managing the productive process, including the production, varieties, times, distribution, etc, according to the planned demand. How produces what and when? What kind of products are needed in each season? What fields are more suitable for which kind of product? These coordination must be done by the Originator.

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<sup>6</sup> For a more detailed description of how this kind of models work, see "Los Grobo: Farming's Future?" Case.

- Supply Chain Management. The Originator must be in charge of getting good prices and good quality inputs by centralizing the purchases. This includes buying seeds, pesticides, fertilizers, etc. The farmer is the one that has to actually use the inputs but the Originator has to provide them with the right inputs.
- Technical Advisory. Related with the previous point, the Originator has to provide specific technical support to farmers, which includes soil analysis (to know what to produce, what kind of chemicals to apply, etc), production instructions (treatments, inputs to use, good practices, etc) and supervise their usage. Again, the farmer is the one to actually apply the pesticides but the Originator is the one that gives him the right amount, the right input and the right instructions to get the optimal final product.

## Farmers

The farmers are the producers of each eco-system, the providers of land and labor. They have three particular tasks:

- Production. Working in its own land, the farmer is the one that actually produces. He/she receives instructions from the Originator, also receives inputs, technical advises. At the end of the production process takes the production and delivers it to the storage of the eco-system.
- Accountability. Each farmer is in registering each part of the productive process (inputs, practices, treatments, etc). This part is crucial because it is the input received by the Originator to plan the production, to organize it, to make the traceability possible, etc.
- Standardization. Apply all the practices and standards needed to get the certifications required by the Originator.
- Investments. Although this may vary, usually the farmer is the one that should be in charge of doing the investments in greenhouses installation and maintenance. The Government in some cases (or even the Originator) can contribute but - generally speaking - taking care (and contributing with) the land and its main facilities is the responsibility of the farmer.

## Government

The Government is in charge of providing public goods that cannot be get by the private actors (an Originator cannot negotiate free-trade agreements or improve the public infrastructure, for example). It is also in charge on solving market failures that are constraining the private actors' growth.

- Infrastructure. General infrastructure issues must be solved by the Government. This is particularly important in terms of roads and irrigation (at the three levels).
- Funding. Both Originators and Farmers may need access to financial instruments that are not currently generally available for everyone. Facilitate credits to farmers and originators (for example to build Greenhouses or cold storages) is also a Government task. There are many instruments that can be used to make improvements in this matter. Guarantees, credit through public (or development banks), subsidized rates or even private-public partnerships with a call option for the private party are some of the options.
- Market Access. Probably the most fundamental duty of the Government is to facilitate the market access to Originators. Reduce trade barriers, negotiate free-trade agreements, green

lines in the Custom, promote Albanian products abroad, generate links with other markets, etc.

- Training. Another important role of the Government is to provide training. Not only to farmers but also to Originators: work with them in the marketing strategies, to understand the regulations, the certification process, the markets and their trends, etc. Showing the farmers and the Originators how this model could work, how it works in other countries is also a way of training them.
- Certifications. Finally, the Government should be in charge of guiding the process of enhancing the quality level of the products and getting the certifications needed to enter high-end markets. This includes physical infrastructure (laboratory infrastructure, for example) but also guidance to the farmers and originators to implement good practices, provide financial support if needed, negotiate with the certification institutes and the EU to get accreditations, etc. GAP and EUROGAP are two basic standards that should be a priority to implement in the country.

How does this work in practice? How could this model solve all the problems we described? Given that problems are mostly related with coordination it is natural to think that a model that forces the vertical integration would be very helpful to solve this problems but let's analyze an hypothetical example to understand this with more detail.

One could imagine the eco-system as a big factory. Suppose this "factory" is formed by one Originator - the head - who has a network of 100 farmers (let's say of 1 productive Ha each, although it could be smaller or bigger). The Originator would have the proper logistics facilities (in particular, cold storage facilities) and would centralize the purchases of every farmer of its network. The Originator has its own Commercial Department in charge of planning the commercial strategy of the factory: finding new markets, signing long term contracts, analyzing where is the potential and doing the marketing. Having a relatively big size - the production of 100 Ha of greenhouses for example - his job is much easier than the job of a farmer or even a consolidator.

Having a proper Commercial Department and getting more stable contracts the productive system is ready to plan its production accordingly. As we detailed, one of the problems of the farmers was that they don't really have an incentive to produce a good quality produce because there wasn't a good and stable demand from higher-end markets but we solved this with the commercial strategy. A second problem for the farmers was that, even if they wanted to produce more and better products they didn't have enough working capital to invest at the beginning of the season. What can do the Originator about this? Provide inputs. The Supply Chain Department of the firm will buy seeds, pesticides, fertilizers, etc through a centralized unit (that also can negotiate better prices) and give them to the farmers to produce exactly the quantity and quality they need according to the commercial strategy. Farmers will not need to save cash anymore and thus the results should be better.

However, even those farmers that got enough savings to buy the proper inputs may have the problem of lack of knowledge and skills. This is way the Originator will not only provide inputs but also technical assistance through the Technical Advisory Department. One or two full-time agronomists can help a lot to assist the 100 farmers of the "factory" helping them with the treatment of the plants, the products used, the way of producing, what and when to use the inputs,

etc. With no working capital constraints or lack of knowledge restrictions the production should be bigger and with better quality.

What happens once the harvesting time is arriving? The Commercial Department centralized the strategy to sale the products but in order to be successful the "factory" has to own a proper (cold) storage facility. Once the farmers harvested their production they take it to the facility where the Storage Department will receive it and prepare it to deliver to the clients when the Commercial Department trigger the order. A fundamental part of this process is that the Commercial Department would be able to arbitrage prices (selling when it is convenient in commercial terms) and also the loss of production due to rotten produce would be minimized.

For this process to be successful the Originator must be good at getting better markets and sale prices and part of this will depend on the possibility of getting certifications. Having one Originator leading an absolutely controlled network of 100 producers who are following instructions and using the inputs provided by the head of the "factory" it will be easier to track all the steps of the production process, it will facilitate the traceability and it will make simpler the fulfillment of the requirements to eventually get certified. Products will be standard, quality will be absolutely known (from the input to the final product) and - if needed - the cost of certifications can be split between many farmers.

None of this should be taken literally. There is no need to have a structure like the one described with a Commercial Department, a Supply Chain Department, etc. However, conceptually it illustrates the main idea of this model: there must be an actor that leads the productive process and centralizes the management to solve the coordination problems that are delaying the improvement of the sector.

## THE ROUTE OF POLICY

What is the role of the Government in this scheme? We already detailed what is the role of the Government within the model, but what can it do to actually encourage the implementation of these eco-systems? There are basically two groups of policies where the Government should focus on: (a) Identifying the suitable actors and promoting the model and (b) Filling the gaps in the provision of basic public goods.

### Finding the Actors

- Identify potential productive clusters and farmers. A good idea would be to create a pilot model to test its effectiveness and encourage the rest of the producers/collectors to copy the idea once they see that it works. The Government can help this to happen by identifying the best potential actors and areas to launch the pilot. Where are the better soils (in terms of natural conditions, connectivity, proximity, infrastructure, etc)? Who are the most skilled farmers and potential originators? The Government through their Extension Offices have some knowledge of the best candidates, the most entrepreneurial collectors (who may be potential Originators) and the most knowledgeable farmers to make a good selection.
- Actively seek potential Originators and train them. Teach them what they need to be part of the model. Show them how it works, how it worked in other countries and what they need to do to make it happen in Albania. Take them abroad to visit originators in other countries

and teach them the successful cases. Train them to eventually run the model and spread their knowledge to the farmers and other collectors.

- Train the farmers. Show them the good practices, take the farmers of the pilot model to visit productive farms abroad (Turkey, Spain, Italy), explain them the model.
- Look for FDI and encourage local-foreign partnerships. Originators need to work locally but also need to have very strong foreign connections, market knowledge, experience trading with high-end markets, etc. It is a perfectly suitable environment to negotiate partnerships between local actors that know how to deal with local farmers (current collectors are the natural candidates) and traders from abroad who have a more thorough knowledge of the market and who have more connections with importers, retailers, etc, in high-end markets. An example could be a partnership between a retailer of a developed market and a collector in Albania. The retailer has the market knowledge (including requirements, standards, etc) and the collector knows how Albanian farmers work and eventually how to form a business eco-system like the one proposed.

### Public Goods: filling the gaps

- Improve Infrastructure. Especially in terms of roads and water provision it is the role of the Government to provide good quality infrastructure that is absolutely essential to produce agricultural goods. One of the problems is that there is no detailed assessment of the infrastructure problems<sup>7</sup> which is vital to make targeted policy. Creating secondary roads, for example, could be fundamental to fit out a new productive area which is currently unavailable for commercial purposes. However, not knowing with precision where are the problems will make any policy ineffective or, in the best case, would benefit only those farmers that are currently in the best condition.
- Claim markets, no money. Sometimes the barriers to find a new market are not easily overcome by an individual private company. It is not the role of a private actor to open new markets, overcome commercial barriers and negotiate trade-agreements. Albania receives (and will receive even more) valuable help from the EU but right now claiming markets is more important than receiving money and the Government is in charge of negotiating the opening of better market for Albanian products.
- Get accreditations, make the certification process easier. Improving the laboratory facilities to make all the relevant analysis available in the country and get the needed accreditations from the EU (and other regions if necessary) is the first step to start a process of improving the quality and the standards of the Albanian agricultural products. Negotiating with the main certification institutions (GAP, EUROGAP) to open branches in the country and helping the collectors/originators and farmers to start the adaptation of their methods/practices to fulfill the certification requirements is also the role of the Government.
- Crave an inter-ministry task force. Many skilled are needed to make this model work: seeking FDI, promoting marketing, managing donors funds, finding the best actors, providing funding through the financial market (or public/development banks), negotiating trade-agreements, training originators and farmers, etc. An inter-ministry unit to generate,

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<sup>7</sup> In one of our interviews we were told that a survey on the irrigation issues was already conducted but the results were not available at that moment.

train and follow the eco-system should be created using the best resources of each government ministry/department.

## REACHING THE POTENTIAL

Solving coordination issues would help to boost production of tomatoes (and in general of fresh vegetables) without implying a huge investment. To make a quantitative assessment we make a broad estimation of the potential growth in terms of production of exports of fresh tomatoes specifying the assumptions we are using in each case (which are fairly conservative).

In the chart 10.1 we observe that the total exports in 2014 are expected to reach almost \$ 10 M (about 27 thousand Tons). Total production will be about 168 thousand Tons. In Charts 10.2 to 10.4 we analyze what could happen with these variables if particular small changes are applied. Suppose Albania makes the needed transformations in its organizational structure and the Government negotiate small shares of High-End markets. In particular, suppose Albania can get 1% of the fresh tomato imports of Germany. *Ceteris Paribus* (meaning that nothing else changes, including prices, average quality or productivity), demand would be increased by about 7% in real terms, which in turn implied that exports would grow 53% in volumes. How would it be possible to meet this new demand? Just by increasing in only 10% the number of Ha with Greenhouse facilities (which requires an approximate investment of no more than \$ 6 Million) and reducing by 2/3 the current losses due to lack of demand.

What if, in addition to this new demand, Logistics are improved and cold storages are built to reduce post-harvesting losses? Again, 2/3 reduction in those losses (which represent no more than 3.5 thousand Tones, less than 3% of total current production) would imply a 3% additional increase in production and a 15% increase in exports (in real terms). Finally, what would happen if practices are improved in order to get better and certified quality of the products and inputs? Suppose the impact of this is (a) an increase in the export price which takes it to the same price that today Macedonia gets for their tomatoes (which of course is notably lower than the price that the top producers like Spain, France or Italy get), (b) a small increase in the yield of 20% and (c) a reduction of approximately 50% in the losses due to bad quality produce. The result of just improving the organization of production and apply better practices would be an additional 14% increase in the volume of production and an additional 60% increase in the volume of exports and 135% in the value of exports.

If the three assumptions were taken all together, the increase in production would be of 26% in real terms. Exports, in value, would be more than three times higher.

## CONCLUSION

As it happens in many different industries in Albania the production of fresh vegetables has a huge potential in terms of its natural conditions (weather, geography, labor cost, etc). However, due to the lack of organizational capabilities in the private sector and the lack of certain key public goods, farmers and collectors are far from reaching their potential. The good news about this is that, first, given the almost inexistent role of Albania in the international market and its big potential, there is a big and reachable space to grow. Second, given that the main constraints are not money-related issues but organizational/integration problems, the solution doesn't need impossibly big amounts of capital. Instead, changes in policies towards re-organizing the sector to build an integrated eco-system are needed urgently.

Because the main constraints are not necessarily money/capital restrictions (and if they are the amounts are not too big) policies that only aim at increasing production by giving subsidies will not be successful unless they are part of a more integral policy package which focuses on the re-structuring of the sector. As we stated before, building capacity without changing the quality of the products, the practices applied and, fundamentally, the marketing strategies to open new high-end markets, would result in an over-supply of the market (something that has already been happening during the last years).

Also because of this, there is no point in solving individual constraints of the value chain separately if the whole system is not fixed. Good quality of the production is desirable only if someone will demand better quality and pay a higher price for it. Thus only improving quality is a bad and costly idea. Similarly getting better markets will be impossible if production is not re-organize in a way that makes it possible to have a constant flow of good quality produce to offer. This kind of logic applied to all the "missing links" of the value chain that we pointed out: if farmers were absolutely acknowledgeable and had a perfect idea of how to do their job but still didn't have enough capital to invest in good quality inputs at the beginning of the season then the result of the process would be as bad as it is now. Even if they had money and knowledge, nothing could be done if, for example, trucks don't fit the roads to access their farms.

Solving all the problems simultaneously is usually difficult and even more in this case because the different actors of the value chain are absolutely disconnected. There is no vertical or horizontal integration and, because of that, no one has enough incentives to improve their business (improving quality, for example) unless the other one also improves (building cold storage facilities, for example). At the same time this also represents an additional challenge for the Government because designing specific policies for different actors that are not communicated is especially costly in terms of organization and implementation. For this reason what we propose in this paper is to think only in two broad set of policies: (a) Instead of making interventions for each specific missing link design one big policy to integrate the actors and then let them have the incentives to solve the coordination problems. The model we propose has that particular purpose: make them work together and re-structure the sector to have an integrated eco-system. Once there, the coordination problems will be solved by the private actors like in a factory. (b) Intervene particularly to provide the public goods that cannot be provided by the private sector and that are needed for them to be competitive: infrastructure, trade agreements, financial markets, etc.

As we showed before, small changes in the organizational structure of the sector would imply big changes in terms of productivity, quality and market access. Without having to invest impossible amounts of capital the sector could become a relevant player in the market of fresh vegetables. The role of the Government is to give the right incentives to make that industrial re-organization happen.

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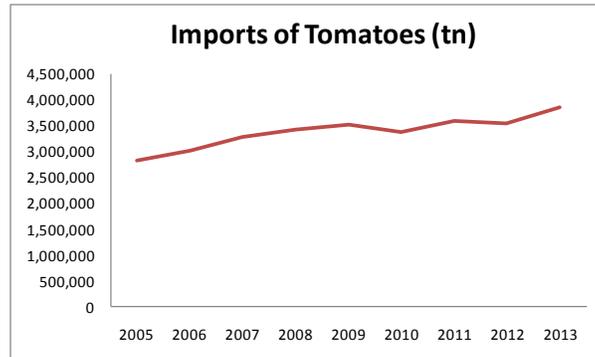
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## CHARTS AND FIGURES

**FIGURE 1 - IMPORTS OF TOMATOES IN ALBANIA'S RELEVANT MARKETS\***

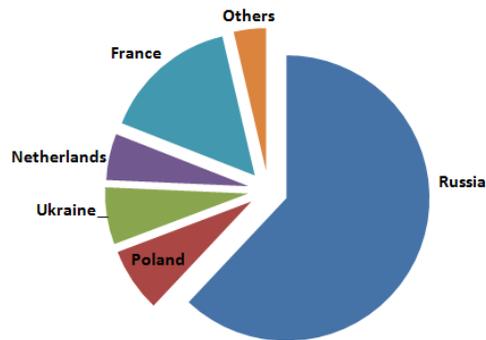


Source: Comm-trade

\*Includes: Germany, Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Ireland, Italy, Netherlands, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Turkey, Ukraine, Georgia, UK, Macedonia, Bosnia & Herzegovina, Montenegro, Albania, Serbia and Kosovo.

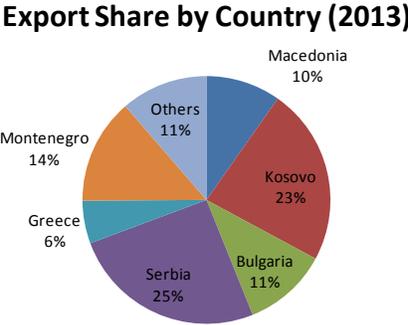
**FIGURE 2 - TOMATOES- CONTRIBUTION TO EXPORT GROWTH IN EURASIA - MAIN COMPETITORS**

Contribution to Import growth of Fresh Tomatoes Eurasia (in volume, 2012-2005)



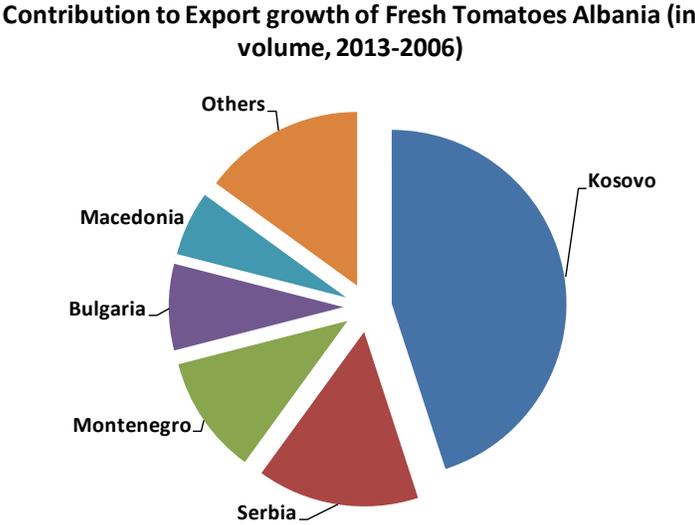
Source: Comm-trade

**FIGURE 3 - ALBANIA - TOMATOES EXPORTS SHARE BY COUNTRY**



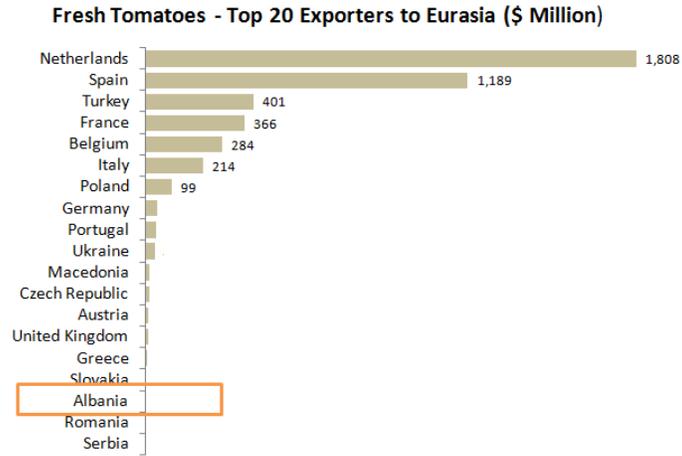
Source: Comm-trade

**FIGURE 4 - TOMATOES- CONTRIBUTION TO EXPORT GROWTH IN ALBANIA**



Source: MACPF

**FIGURE 5 - EXPORT SHARE IN EURASIA OF MAIN COMPETITORS**



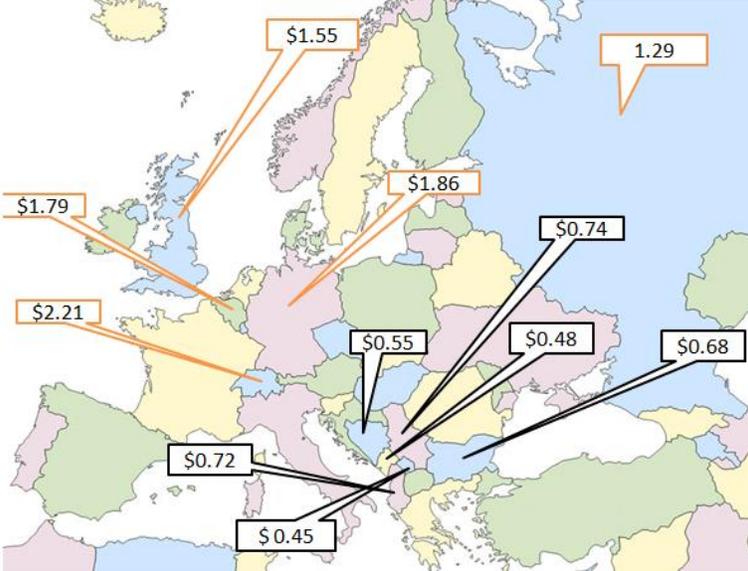
Source: Comm-trade

**FIGURE 6 - TOMATOES - PRICE OF IMPORTS \$/KG (REGIONAL)**



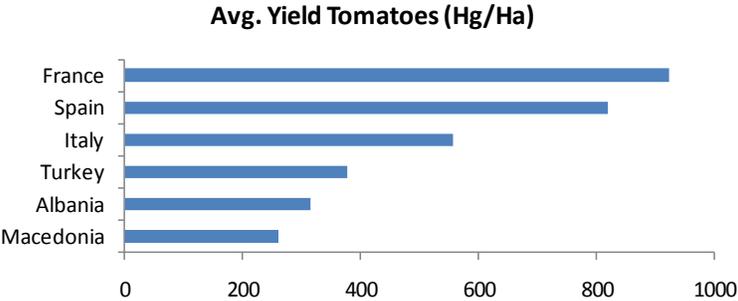
Source: Comm-trade

**FIGURE 7 - TOMATOES - PRICE OF IMPORTS \$/KG (REGIONAL/ALBANIA)**



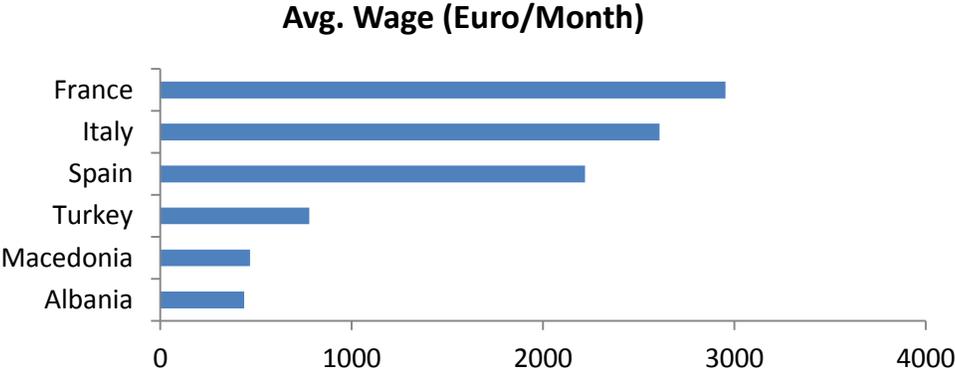
Source: Comm-trade

**FIGURE 8 - TOMATOES - PRODUCTIVITY**



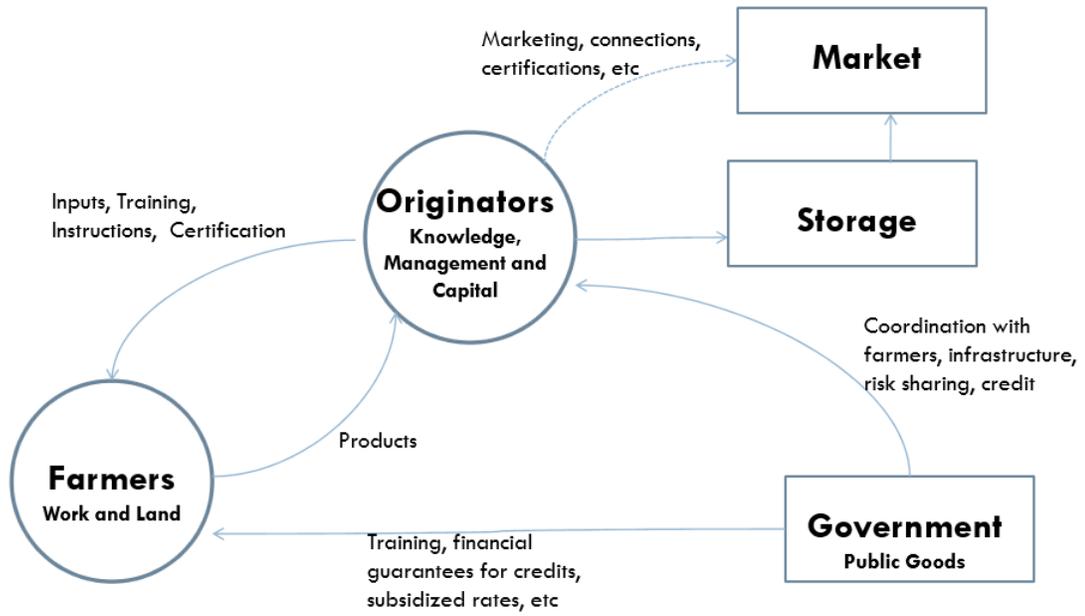
Source: FAO

**FIGURE 8 - TOMATOES - COSTS**



Source: FAO

**FIGURE 9 - THE ECO-SYSTEM BUSINESS MODEL**



## **FIGURE 10-1 - EXPECTED IMPROVEMENTS**

	<b>2014 Exp</b>
<b>Open Field Production</b>	
Total Ha Open Field	4,450
Yield OF (Tn/Ha)	30
Quantity Produced (1 Season, Tn)	133,500
Quantity Lost (Tn)	40,050
Quantity Sold Local Market (Tn)	93,450
<b>Green House Production (all types of technologies)</b>	
Total Ha Green House	800
Yield GH (Tn/Ha)	80
Quantity Produced (1 Season, Tn)	64,000
Quantity Lost (due to quality)	5,120
Quantity Lost (due to post-harvest bad practice)	4,480
Quantity Lost (due to lack of demand)	4,480
Quantity Sold Local Market	32,000
<b>Total Net Production Local+Export (Tn)*</b>	<b>168,330</b>
<b>Total Exports (Tn)*</b>	<b>26,880</b>
<b>Price Export Market (U\$/Kg)</b>	<b>0.36</b>
<b>Total Exports (U\$)</b>	<b>9,676,800</b>

**FIGURE 10-2 - EXPECTED IMPROVEMENTS**

	<b>2014 Exp</b>	<b>1% share Germany</b>
<b>Open Field Production</b>		
Total Ha Open Field	4,450	4,370
Yield OF (Tn/Ha)	30	30
Quantity Produced (1 Season, Tn)	133,500	131,100
Quantity Lost (Tn)	40,050	39,330
Quantity Sold Local Market (Tn)	93,450	93,450
<b>Green House Production (all types of technologies)</b>		
Total Ha Green House	800	<b>880</b>
Yield GH (Tn/Ha)	80	80
Quantity Produced (1 Season, Tn)	64,000	70,400
Quantity Lost (due to quality)	5,120	5,632
Quantity Lost (due to post-harvest bad practice)	4,480	4,928
Quantity Lost (due to lack of demand)	4,480	<b>1,408</b>
Quantity Sold Local Market	32,000	32,000
<b>Total Net Production Local+Export (Tn)*</b>	<b>168,330</b>	<b>181,098</b>
<b>Total Exports (Tn)*</b>	<b>26,880</b>	<b>39,648</b>
<b>Price Export Market (U\$S/Kg)</b>	<b>0.36</b>	<b>0.36</b>
<b>Total Exports (U\$S)</b>	<b>9,676,800</b>	<b>14,273,280</b>

**FIGURE 10 - 3 - EXPECTED IMPROVEMENTS**

	2014 Exp	1% share Germany	Improve Logistics and Cold Storage
<b>Open Field Production</b>			
Total Ha Open Field	4,450	4,370	4,210
Yield OF (Tn/Ha)	30	30	30
Quantity Produced (1 Season, Tn)	133,500	131,100	126,300
Quantity Lost (Tn)	40,050	39,330	37,890
Quantity Sold Local Market (Tn)	93,450	93,450	93,450
<b>Green House Production (all types of technologies)</b>			
Total Ha Green House	800	880	880
Yield GH (Tn/Ha)	80	80	80
Quantity Produced (1 Season, Tn)	64,000	70,400	70,400
Quantity Lost (due to quality)	5,120	5,632	5,632
Quantity Lost (due to post-harvest bad practice)	4,480	4,928	1,408
Quantity Lost (due to lack of demand)	4,480	1,408	1,056
Quantity Sold Local Market	32,000	32,000	32,000
<b>Total Net Production Local+Export (Tn)*</b>	<b>168,330</b>	<b>181,098</b>	<b>186,906</b>
<b>Total Exports (Tn)*</b>	<b>26,880</b>	<b>39,648</b>	<b>45,456</b>
<b>Price Export Market (U\$S/Kg)</b>	<b>0.36</b>	<b>0.36</b>	<b>0.36</b>
<b>Total Exports (U\$S)</b>	<b>9,676,800</b>	<b>14,273,280</b>	<b>16,364,160</b>

**FIGURE 10 - 4 - EXPECTED IMPROVEMENTS**

	2014 Exp	1% share Germany	Improve Logistics and Cold Storage	Improve Practices and input quality
<b>Open Field Production</b>				
Total Ha Open Field	4,450	4,370	4,210	4,210
Yield OF (Tn/Ha)	30	30	30	30
Quantity Produced (1 Season, Tn)	133,500	131,100	126,300	126,300
Quantity Lost (Tn)	40,050	39,330	37,890	37,890
Quantity Sold Local Market (Tn)	93,450	93,450	93,450	93,450
<b>Green House Production (all types of technologies)</b>				
Total Ha Green House	800	880	880	880
Yield GH (Tn/Ha)	80	80	80	96
Quantity Produced (1 Season, Tn)	64,000	70,400	70,400	84,480
Quantity Lost (due to quality)	5,120	5,632	5,632	2,112
Quantity Lost (due to post-harvest bad practice)	4,480	4,928	1,408	1,690
Quantity Lost (due to lack of demand)	4,480	1,408	1,056	1,267
Quantity Sold Local Market	32,000	32,000	32,000	32,000
<b>Total Net Production Local+Export (Tn)*</b>	<b>168,330</b>	<b>181,098</b>	<b>186,906</b>	<b>212,567</b>
<b>Total Exports (Tn)*</b>	<b>26,880</b>	<b>39,648</b>	<b>45,456</b>	<b>71,117</b>
<b>Price Export Market (U\$S/Kg)</b>	<b>0.36</b>	<b>0.36</b>	<b>0.36</b>	<b>0.54</b>
<b>Total Exports (U\$S)</b>	<b>9,676,800</b>	<b>14,273,280</b>	<b>16,364,160</b>	<b>38,403,072</b>