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## CHAPTER FOUR

### LOCAL FOOD QUALITY AND LOCAL RESOURCES

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#### Abstract

*In recent times, the concept of “local food” has come to attention in academic and political discourse about food, usually closely linked to the growing debate on Alternative Agro-Food Networks. However, the meaning of “local food” it is not yet consolidated and two main meanings can be identified. The first refers to the relationship between consumer and producer: local food is food produced by firms located in places close to the final consumer. The second meaning is focused on the product and the resources used in its production process. Both these (non opposing) meanings often share “alternativeness” in the vision of food production and consumption, contrasting the dominant model of the globalised mass food chains. Both definitions use insights from new theoretical approaches to resources and space to emphasize the role of actors and the relevance of organizational proximity and local institutions in enabling the deployment of opportunities offered by local specific resources to local competitiveness.*

*This paper explores the relationship between local food quality and local resources, starting from a discussion about the concept of local resources in economics, and exploring the different meanings of local food quality in the current debate about food.*

#### 1. Introduction, aims and methodology

In recent times, the concept of “local food” has become one of the most popular both in academic and political discourse about food, and is usually closely linked to the growing and more general debate on Alternative Agro-Food Networks.<sup>1</sup> However, the meaning of the expression “local food” it is not yet consolidated (Brunori 2007).

In fact, two main meanings of “local food” can be identified. The first refers to the relationship between consumer and producer: local food is food produced by firms located in places close to the final consumer. Food is therefore procured essentially by local sources through a wide set of marketing channels, such as direct sales, farmers’ markets, community-supported agriculture, solidarity purchasing groups, public procurement, and also through modern channels (Dunne et al. 2010). In this definition, the focus is placed mainly on the physical proximity between producers and consumers, which is as short as possible (Mathjis et al. 2006).

The second meaning is focused rather on the product and the resources used in its production process. Here, local food is conceived as food with strong roots in a specific geographical place which gives the product its identity. The focus here is rather on the nature and specificity of the resources used in the production process.

These meanings do not conflict, and often share ‘alternativeness’ in the vision of food production and consumption, contrasting the dominant model of the globalised mass food chains (Fonte and Papadopoulou 2010).

Since the 1990s, the link between local food and local resources has emerged as critical issue in the debate on economic, social and environmental sustainability of food systems, although to date there has been little theoretical and empirical analysis. Local food is often advocated in literature as a means for reducing negative environmental impacts in the perspective of food miles (Pretty et al. 2005; Coley et al. 2009), but also considering origin products and their environmental links (Larson 2007; Thévenod-Mottet 2010). Some authors underline the role local food can play for keeping traditional production systems alive, especially those systems based on small and medium enterprises, and located in marginal areas (Bérard and Marchenay 2004; Barham and Sylvander 2011).

However, the need for a more critical attitude has been proposed by some authors (see, for example, Harris 2010), in order to take account of ambivalent aspects of the role of place in alternative food networks, and by extension the link between local food quality and local resources.

From a methodological point of view, it is necessary to develop interpretation frameworks and empirical analysis on specific aspects in order to accumulate experience and avoid harmful generalizations. This is the path that this chapter intends to pursue, with specific reference to the issue of animal agro-biodiversity. It aims at exploring the relationship between local food quality and local resources, and is structured in three parts.

The first part discusses the concept of local resource in economics and explores the different meanings of local food quality in the current debate about food. The two above mentioned dimensions of local food quality emerge: the first related to the physical proximity of producer and consumer (“local food” quality), the second focused on the way local specific resources are incorporated into (and determine the quality of) the product by means of the territorial anchorage of the production process (“local quality” of food). Both views use insights from new theoretical approaches to resources and space to discuss the role of actors and the relevance of organisational proximity and local institutions in deploying opportunities offered by local specific resources in competitiveness. Quality characteristics related to “local” allow activation, preservation and evolution of local resources, but failures in resources and markets can affect the way local resources are managed and renewed.

The second part is focused on Origin products, and presents an ideal typical “virtuous quality circle” linking local resources, products and markets in a self-sustaining relationship capable of renewing local resources. A key role is played by Geographical Indications, the potentialities of which are explored with reference to the European Union protection system.

In the third part empirical evidence on animal production will help to identify theoretical issues relevant for scientific debate and the development of place-based supporting public policies and private, collective enhancement strategies.

## **2. Food and resources: what is the meaning of “local”?**

### **2.1 Local resources: a missing concept?**

The concept of local resource is often absent in standard economics, or reduced to simple site specificity, or a “location” of a generic (standard) resource. Specific qualities of resources apart from the location are often not taken into account. Localised resources are more and more exploited on the basis of generic knowledge. Economic progress is accomplished by a process of replacement of “local specific” by “standardised resources” in production processes. In the case of food production, this is particularly evident for genetic vegetal and animal resources (OECD 2008), as well as technologies and know-how.

Recent theoretical and empirical approaches however are leading towards a re-consideration of the role of “place” and resources specific to a well defined geographical space.

In the globalisation process of the economy, local factors and local specificities are fundamental elements upon which the competitiveness of countries [and regions] depend and therefore represent important areas where practitioners and policy makers require a sophisticated and advanced toolbox to intervene (Capello 2009).

New theories and approaches have re-evaluated the role of local resources (e.g., *Marshallian districts* in Italy, *Systèmes localisés* and *Milieux innovateurs* in France) (Pecqueur 2006; Requier-Desjardins 2009). Production processes are not only considered as place-based in a world of homogeneous resources, but also “locally situated”, meaning that places are characterised by resources recognised as specific and able to influence the output of the production process, not as much as for their production cost, but rather for the quality of goods produced.

At the same time, these approaches widely recognise the complementarity between material resources and local knowledge, skills, relational abilities and cultural values orienting human attitudes specific to different places because they are built over time and not easily transferable and applied to the same processes in other places. Indeed, only these intangible factors (which are resources, too) can transform local resources into assets capable of creating value on the market. Some authors refer to this process of transformation of resources into assets, and of the territorial capital into heritage (patrimony), as “territorial anchorage” of resources and goods (Requier-Desjardins 2009). Territorial anchorage can be supported by specific policies, managed mainly at local level.

It is the complex net of relationships between resources and actors that matters: each territory has to be seen as a bundle of relations between a place/space and a population of actors, and their boundaries are necessarily fuzzy given that each actor keeps up relationships on different spatial scales. A territory is not a closed entity, but a “localised thickening” of relations (Becattini 1989).

Only organisational proximity can transform geographical proximity into a success factor. As underlined by institutionalist approaches (Hodgson 1998), local institutions and local rules (both formal and tacit) allow a better coordination between local actors and act as interface between “local resources” and “actors”.

To summarize, location advantages for firms derive not only from spatial location and physical proximity, but mainly from relational and institutional proximity. The quality of local resources and the way they are used can therefore affect the quality of the good produced in each specific place. Other relevant factors influencing the re-emergence of “place” in a wider sense are the new consumer environmental and social concerns, which make necessary a reconsideration of the role of local resources in a wider perspective. Much literature emphasises and analyses the “dark side” of a-spatialised (globalised) production methods. With specific reference to food production there is concern over the environment (pollution, loss of biodiversity, soil erosion...), social problems (exploitation of labour, loss of local cultures, abandonment of rural areas...) and economic problems (unfair distribution of value...). The potential positive contributions of more localised food systems are coming to the fore.

There are clear links with the somewhat controversial concept of multifunctionality (OECD 2000; Van Huylenbroek and Durand 2003). There is recognition of positive and negative externalities related to modern production methods.

Agriculture and food are a special field of analysis for issues related to place. Aspects such as microclimate, soil characteristics, local knowledge, consumers’ knowledge are not easily transferable. Today the role of place and local specific resources (genetic resources, knowledge, etc.) is widely recognised in multidisciplinary approaches. This is true not only with regard to technical issues, production processes and management systems, but also with regard to food quality, which allows for product differentiation (e.g., origin products, Geographical Indications). The French concept of “terroir” (Casabianca et al. 2011) summarises the special contribution of place to food quality: natural and human factors are closely connected thanks to a long-term process of mutual adaptation that transforms their nature.

## 2.2 “Local food” quality and “local quality” food

At the same time, increasing market differentiation and the emergence of the controversial issue of “quality” due to market and regulation failures is leaving more and more room to new quality attributes, some closely related to place.

Modern consumer theories inspired by Lancaster (1966) allow for recognition of multidimensionality of (food) quality: not “quality” of food, but food “qualities” coming from different subsets of product characteristics. Local resources (tangible and intangible) play a great influence over food qualities and consumers’ perception, and many product attributes can be related to local resources, such as intrinsic material and immaterial characteristics, extrinsic characteristics (effects that production process exerts on society and environment), and service characteristics.

Local food quality is the result of the combination of many quality characteristics, some of which are place-related. In order to set up some reference points in our discussion, two ideal typical typologies of *local food qualities* can be identified on the basis of three main dimensions: the role of local specific resources, the importance of territory for giving the identity to the product, and the type of target markets (see Table 1).

The first typology can be referred to as “*local food*” quality. Quality is based on the proximity between producer and consumer: physical proximity (“local food”) is a food quality attribute per se entailing other extrinsic and intrinsic characteristics. This “local food” quality typology is a result of criticism of “industrial food” and global supply-chains in their different expressions, and shows an interest in fairness and cleanliness of food (processes and products) and towards more authenticity and freshness. Re-spacing effects are not side-effects of consumers’ choice; they are the very effects some groups of consumers are interested in. These effects are recognised as closely related to the building of re-connected modes of food provision: it is not only physical proximity that matters, but also organisational, social, political, and cultural proximity between producers and consumers.

The second typology can be referred to as “*local quality*” food. In this case we can speak of a food quality specifically related to a specific place, thanks to the incorporation of natural and human resources of that specific place into the final product. We can speak of “Origin Products” as products originating from a delimited territory where a noted quality, reputation or other characteristic of the good is essentially attributable to its geographical origin and the human or natural factors there. The special role that local resources play in building this kind of “local quality” is emphasised in Geographical Indication (GI) products, where the geographical name of the place of production (or another name linked to that place) identifies the product on the market. GI products are origin products named with a “geographical indication”.

Markets of Origin products and GI products are not only local, and often a global niche market perspective is necessary to attract consumers interested in specific characteristics and equipped with information, knowledge, and consumption experience to recognize and assess them. The use of a GI as identifier becomes increasingly necessary as a market grows in order to identify the product coming from that specific place as “different” from any other.

## **2.3 Local food quality and local resources**

There are important differences between the two ideal typical typologies in the role of local resources.

In the “local food” quality typology, local resources play no specific role with regard to product specificity, except for their location. Re-localization of food production-consumption chains is envisaged as an opportunity for mobilising local resources and re-activating local economies, stimulating local development processes and preventing degradation in land use around towns or in local rural cultures.

This re-localization is often blocked where production stages in the supply chain or specific skills are lacking. Erosion of local competences, a side-effect of the spread of a-localised models, is one of many factors hampering re-localization of producer-consumer relationships.

In the “local quality” food typology, specific local resources are necessarily mobilized and embedded in local specific production processes, as otherwise no specific place-linked quality can be revealed in the product. The use of specific local resources allows for a “local quality” of food. Local specific resources, including human skills and know-how, are normally shared by numerous firms and other actors inside the territory, and present some features of common goods.

In both the typologies, food quality comes from the “local” nature of resources employed, although “local” may have different meanings. Local resources, in particular when very specific, can however often be considered as less efficient than the competing standard resources. This is why they are increasingly threatened by extinction. But if we move away from strictly technical terms (technical efficiency), the evaluation of inefficiency may not hold. A broader vision of consumer needs sees them interested not only in price but it also takes account the growing importance of segments sensitive to other product quality attributes (preserving traditions, protecting environment, enhancing social relations) and costs and benefits of these. At the same time, it is thanks to the quality characteristics related to “local”, and recognition on the market by big segments of consumers, that local resources can be activated, preserved, and improved.

In both the typologies (“local food” quality and “local quality” food) problems and failures emerge. On resource markets, failure can be caused by a lack of knowledge and skills, lack of organisation and coordination between actors in managing common local resources or in network building. On goods markets, failure can be caused by poor recognition of “qualities” of food in producer-consumer relationships, sometimes as a result of unfair.

These failures are particularly frequent in the case of origin and GI products, the focus of the following sections.

## **3. Origin products and Geographical Indications: a controversial field**

### **3.1 The Origin product and its “virtuous circle”**

The specificity of Origin Products (OPs) comes from their strong link to their territory of origin. There are three dimensions characterizing OPs: the specificity of local resources used in the production process; the history of the product and the production and consumption tradition; and the collective dimension, including presence of a shared knowledge at the local level (Barjolle et al. 1998; Bérard and Marchenay 2004; Casabianca et al. 2011).

The valorisation of OPs is increasingly seen as a powerful tool to enhance, preserve and develop local specific resources, with more expected positive effects on rural development than other kinds of food products. To date, little empirical analysis has been carried out on the positive or negative contributions OP systems may make in these dimensions. Academic studies often refer to an “ideal-type” of OP system, a sort of idealized “virtuous OP system”, capable of attaining a fairly high number of beneficial effects (Belletti and Marescotti 2011).

The specificity of local resources determines the peculiarities of product quality attributes, stemming from the “physical” environment where the product is produced, and particularly the paedo-climatic environmental and genetic resources. Nevertheless, natural resources express their potential through growing, breeding, handling and processing practices, managed by local people with their skills. Moreover, there is also a tradition of consuming specific to the place of origin; how and when to eat the product, how to prepare, cook and serve it, and how to evaluate its quality.

By definition, specific local resources are not easily transferable to alternative uses without some loss of productivity. At the same time, they offer opportunity to differentiate the product on the market, and internalize values connected to the place. They allow enhancement, remuneration, reproduction and renewal of local specific resources.

The OP should therefore be considered as a social construct. On the basis of a set of local resources, the behaviour and strategies of individual and collective actors construct the OP over the course of time. The product

has to be “validated” by the outside, through the market and/or through public support schemes, which pay for resources and allow local actors to reproduce these resources. In this way, a “virtuous” circle is activated (Belletti and Marescotti 2011); the process is able to close and effectively achieve the reproduction and renewal of the resources used in a “complete” production process.

The ability to create value from an OP via the market mechanism, and the allocation of this value between different firms participating in the supply chain, have a territorial and a collective basis.

As well as specific local resources, the territorial basis is provided by the name of the product which contains a geographical reference. This geographical name is used as the main communication leverage to market the product to consumers. It uses long-term reputation acquired through repeat purchases and the maintenance of the promise of quality (Belletti 2000).

The collective basis is given by local actors’ long-term contribution to the definition, evolution and maintenance of the link between the product and its territory. They thus gain the exclusive right to use the geographical name of the product. Value creation by the OP should be conceived of as a local qualification process, or a social construct. By this construct, local actors (producers and other stakeholders) manage the link between product quality and territory, and reach a dynamic agreement on how to link the product to society (consumers and, more in general, citizens) on the basis of certain conventional rules (De Sainte Marie and Casabianca 1995; Tregear et al. 2007).

Thanks to its deep roots in the local context, the functioning of the OP production system implies direct economic effects connected to the marketing of the product, and indirect effects on the stock of territorial capital.<sup>2</sup> Other local and non-local production systems may also benefit from this accumulation of capital, thus conditioning the quality of life of the local community in a way that goes beyond the actors directly involved in the OP production process.

The activation of a virtuous circle may be hampered by obstacles and failures related to three main areas:

- a) Technology. The availability of technologies that are alternative to the traditional ones (due also to the success OP gains on the market) may increase the opportunity cost of using local specific resources. These may thus be replaced by more generic ones, loosening the link between the OP and the locality. In the same way, if local firms are not sufficiently aware of the role and need to use traditional production technology, they may fail to transmit this information to younger generations. So specific resources have to be replaced by generic ones.
- b) Collective action. Because of the collective nature of OPs, the activation and development of the qualification process should be made through collective action. But lack of skills and information, conflicts between actors, the co-presence of different and even divergent actors’ interests and aims about the valorisation, may lower levels of coordination among local actors towards a common qualification process. Moreover, power imbalances and a lack of democracy among actors can lead to uneven gains and tensions inside the local production system.
- c) Market failures. Failures of the market mechanisms can undermine the remuneration of the OP specific resources. These failures can occur both on the consumer market as a result of limited and asymmetric information, and on the intermediate market as a result of imperfect competition. As a consequence, unfair imitations of the OP can crowd-out the “original” OP and generate unfair value distribution between supply-chain firms. In addition, not all values incorporated in the OP can be successfully communicated to consumers. The higher the existence option values<sup>3</sup> expressed by the OP (e.g., linked to a specific local breed), the more difficult full remuneration of OP values.

All these failures threaten the effective reproduction and renewal of specific local resources.

### **3.2 Geographical Indication protection and the link between product and territory**

Geographical indications, defined as identifiers of the product expressed by geographical names or other words or symbols very specific of their territory of production, are but one of the tools that may allow the qualification of the OP both inside the local production system and on the market. In many legal systems, GIs are recognised and protected against misuse and fraud by means of legal instruments and in some cases by special protection schemes.

The concept of Geographical Indication is defined in the TRIPS Agreement (Art. 22.1) as follows:

Geographical indications are, for the purposes of this Agreement, indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.

The main question here is: what is the role of local resources in the wide and fuzzy concept of “geographical origin” cited in TRIPS? The concept of “geographical origin” varies depending on different national cultures, as well as on different conceptions of “food quality”. Analysis therefore needs to be “contextualised”. The European Union, with its big component of Mediterranean countries (France, Italy, Spain) can be considered one of the most “complete” interpretations of the concept of territory around the world.

European Union Regulation 510/2006 provides for a legal protection of Geographical Indications from imitations and abuses on the market. The Regulation introduces a distinction between Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI).<sup>4</sup>

For a PDO there must be an objective and exclusive link between product quality and its geographical origin. For a PGI product, the link with the geographical area does not need to be “essential or exclusive” but has to be causal. In this sense, it is sufficient that the features or the reputation of the product are ‘attributable’ to the geographic origin.

Actors interested in applying for a PDO or PGI registration have to demonstrate the (more or less strict) link between the quality characteristics of the product and its place of origin. Moreover, and more important, actors present the Product Specification (PS), which sets out the conditions that producers must respect to in order to gain PDO or PGI recognition. The PS has to contain all the technical information regarding the product and is the reference point for assessing that producers using registered names are complying with the rules.<sup>5</sup>

### **3.3 Geographical Indications and the role of local resources**

Notwithstanding the clear and apparently strict rules that require the demonstration of a (more or less) strong link between quality characteristics of the good and its place of origin, and the reference to “natural and human factors”, no more is specified about the nature of resources to be cited in order to obtain a PDO or a PGI.

In the case of PGI, it is sufficient to demonstrate a certain reputation of the name of the product in association with its place of production (or, at least, a part of the production). In the case of the PDO, where the link is closer and determines the very quality of the final product, reference is made to natural and human factors without any other qualification (“*essentially or exclusively due to a particular geographical environment with its inherent natural and human factors*”). It is therefore left to local actors to provide evidence and select which (if any) human or natural resource affect product quality.

In theory, according to the terms of the Regulation, an application for PGI status may be made in the absence of local resources, if there exists a reputation inherited from the past.

Moreover, the way the Regulation has been implemented at single Member State level across the EU varies widely in terms of the procedure set by national authorities and documentation required from applicants (Sylvander 2004). There are many differences regarding how to demonstrate the link, supporting evidence and admissible resources. This flexibility has led to various interpretations of the link product-production process-local specific resources, only made more various by the fact that implementation procedures have changed over time in single Member States.

In this context, much of the link between product quality and local resources has come to be defined by local actors themselves. On the basis of local production traditions and knowledge, it is they who set out the conditions of production and the kind, quantity and quality of local specific resources in the Product Specification (PS).

This is a very delicate and complicated issue, as stakeholders participating in the building up of the PS may display diversified if not conflicting interests about how to shape the rules. PS are becoming increasingly “loose” as regards the way and extent local resources are incorporated. Stakeholders usually justify their choices citing market opportunities, lowering production costs, making flexible the production process, use of alternative technologies, improvement of organisation, or even the exclusion of rival firms from PDO/PGI on the basis of some principle of legitimacy.

Depending on the way all these different interests are mediated in the PS, the link between the product and local resources is strengthened or weakened.

## **4. From “local quality” food to activation and reproduction of local resources: the example of genetic resources**

“Local quality” food can be considered as a driving force for orienting local resources mobilized by the supply chain. Actors gathered around the product are impacting on the management of associated specific resources, and this impact needs to be analyzed in terms of resources renewal and ability to close the virtuous circle.

The incorporation of a resource in the production and enhancement of “local quality” food can have several consequences on the future life of the resource itself. “Local quality” food is a strong factor affecting the way activities are located, as well as the characteristics, the quantity, and even the nature of resources. As an example of such issues, we focus on genetic resources and changes when these are included in a “local quality” food dynamic (Verrier and Bouffartigue 1993; Lambert-Derkimba 2007).

#### 4.1 Local breed as a local resource

In a very general meaning, a “breed” refers to a group of domestic animals, originated and maintained by man and having a clearly defined set of characteristics. The classification of breeds is frequently based on the size of the population concerned: “main” breeds have a great number of animals while “minor” breeds present less animals and “endangered” or “rare” breeds have difficulty maintaining genetic stock.

Very few official definitions are available of “local” breed, although the term is often used to identify a less common genotype. Traditional use of localized genetic resources has led to the term “heritage” breed; these are traditional livestock breeds bred before the drastic reduction of breed variety caused by the rise of industrial agriculture (see [www.sustainabletable.org](http://www.sustainabletable.org)).

Heritage animals were bred over time to develop traits that made them particularly well-adapted to local environmental conditions. Breeds used in industrial agriculture are bred to produce big quantities of milk, gain weight quickly, or yield particular types of meat within confined facilities. Heritage breeds are generally better adapted to withstand disease and survive in harsh environmental conditions, and can be better suited to living on pasture.

These livestock breeds also serve as an important genetic resource; when heritage breeds become extinct, their unique genes are lost forever and can no longer be used to breed new traits into existing livestock. Therefore, by keeping heritage livestock breeds, sustainable farmers not only maintain variety within livestock populations, they also help to preserve valuable traits within the species so that future breeds can endure harsh conditions.

There is no official definition or certification for “heritage” animals, but for a livestock breed to be truly heritage, it must have unique genetic traits and also be raised in a traditional farming and breeding system. Heritage animals are well-suited to traditional breeding farms since they are able to survive without temperature-controlled buildings and the constant doses of antibiotics administered to the commercial breeds raised in a standard breeding system.

“Local breed” (or “regional” breed), may mean a heritage population well described and managed, with individuals mainly located in the same area (in general its native area), although a few individuals may be bred in another areas (Audiot et al. 2005a). Many heritage breeds are also “local” breeds because their performance is insufficient for competing with selected or more specialized breeds (Verrier et al. 2005).

Such local breeds are often included in the product specification (PS) for GI products in order to specify their anchorage in a territory (Roncin 2000). This inclusion may be compulsory for all the breeders wishing to produce according the rules, or compulsory for a certain proportion of the flock in the production unit or at the GI level (Lambert-Derkimba et al. 2006). Empirical case studies may produce useful observations to supply our theoretical framework with relevant questions on how to close the virtuous circle, and on the consequences of closing the circle for renewing local resources.

#### 4.2 Recovering local breeds through local food dynamics: some case studies

##### *“Camembert de Normandie” cheese and Normande cattle breed*

Camembert de Normandie is a well-known PDO French cows’ milk cheese from Normandy. It has been heavily industrialized in recent decades and big changes have occurred in the genetic structures of the herds. As farmers had no particular requirements, the local cattle breed, Normande, very famous for the high quality fat content of the milk, has become much less common nationally and also in its native area where it has been progressively replaced by the Holstein, more productive and with lower production costs (Vissac 2001).

Recently, the local PDO body, in agreement with French INAO,<sup>6</sup> decided new requirements on the proportion of Normande cattle milk for PDO Camembert de Normandie. The same occurred for the three other PDO cheeses of Normandy: Livarot, Pont l’Evêque and Neuchâtel. The PS have gradually obliged farmers to re-introduce or to reinforce the numbers of Normande breed in their herd. Increasing proportions over time are defined at PDO level. These measures are obviously ensuring that the local breed does not decrease or disappear. The local breed is confirmed as a pillar of “local quality” food and not only for the picture on the label.

Not all local actors agreed with this vision of the local food. The main tension concerned not so much the use of the local breed, but focused on the issue of raw vs. pasteurized milk for cheese production. Some actors



wanted to combine all possible elements into a very coherent orientation of the local food (increase of local breed proportion and exclusive use of raw milk). Others were more interested in the collective reputation of the cheese, where marketing would use the Normande without there being any requirement for it to be present in the herd. They wanted to reduce production costs and health risks by using filtered or pasteurized milk. In this battle, the crucial point was the intermediate market and the requirements for cow milk to be used for these cheeses. Finally, the PDO body received an agreement from INAO on the increasing proportion of the local breed and the obligation to use raw milk. Genetic resources here were considered as part of the strong territorial anchorage of the product, and the decision is giving new importance to the Normande breed in the new PS.

#### *The Gascon pig breed and Bigorre dry cured pork*

This breed is one of the last surviving local pig breeds in France. Seemingly doomed to disappearance in the 1970s, it was saved over the following twenty years by a national program with public support. All over France, breeders helped to rear the breed and ensured its survival. In the 1990s, with other animals scattered over France, a nucleus was re-localized in a traditional area in the French Pyrenees, on the basis that Bigorre was the “cradle” of the breed (Sans et al. 2011).

This relocation was part of a local food dynamic trying to create a new supply chain around the use of this particular breed. The strategy was based on the breed as a main differentiation factor and, after several years of constant effort, application was made for a PDO “Noir de Bigorre” for fresh pork meat and cured products. (The pig has a black coat.)

There were several consequences. The breed was relocated, but the processing knowledge for producing dry cured hams was not. So local processors are using basic industrial knowledge to create a completely new product based on the ancient breed. This hybridization needs to be analyzed in terms of requirements made of the animals. Carcasses and back fat content, characteristic of the breed, are not well accepted.

Another important issue concerns the breed. The local dynamic is splitting, with two associations for managing the breed at national level (Audiot et al. 2005b). The pigs located in Bigorre are oriented by the PDO application and managers are selecting a type of pig more in line with the Iberian model. They have introduced new criteria in order to achieve this objective. It can be assumed that the PDO application is modifying the genetic resource and adding new interpretations of tradition. The rest of the breed maintains the previous orientation, and the diversity required by conservation programs, but there is no longer any contact between animals from the two different colonies, officially for health reasons. As a consequence, there are now issues to be resolved for breed governance and management at national level.

#### *Corsican pig breed and Corsican dry cured ham*

This breed is another French local pig breed, but its history is different. Still bred in its native area, it is the basis of an extensive livestock system where rustic animals go out to feed in natural forests on acorns and chestnuts. Over the decades, it has been object of several crossbreeding attempts without any collective breed management being tried. The processed pork products are well known in this tourist region. Strong demand for the products supports farmer income in the mountainous parts of the island.

During the late 1990s, the breed was saved by a regional association (Casabianca et al. 2000) and was officially recognized in 2006. On the basis of this success, an application for PDO status for “Corsican” dry pork products was sent to the French INAO. This necessitates the exclusive use of the local breed as an element of territorial anchorage. This requirement is a strong motivation for saving the local breed. Farmers are encouraged to re-enforce its numbers in the herds in order to conform with future PDO requirements. Today numbers are rising, even though the PDO application is not yet completed.

Some effects are already observed as in particular the question of name and property rights: in order to avoid any confusion (Corsican pig could be reared out of the PDO specification for Corsican products), Corsican pig breed had to be renamed as “Nustrale” when “Corsica” has been dedicated to the product on the market for reputation reasons. Such obligation has been observed in several cases and we must notice that tensions can appear among the local actors between the name of the breed and the name of the product to be protected. In this case, the modification has been possible because breed managers are also interested in PDO application and agreed for changing the name.

Another effect concerns animal characteristics and, as a consequence, the criteria for breed management. Some breed managers consider slow growth as a main characteristic of the breed while PDO promoters are more interested in volume and production costs (Lambert-Derkimba et al. 2011). So the criteria of the breed became a crucial question. As in the previous case, the PDO application is shifting the criteria and transforming the breed management.

Finally, thanks to the PDO application, the breeders’ market has increased at regional level, with a huge new demand for the breed. The low level of supply is having negative effects on breed management, the number and the price of the certified animals. This intermediate market is an indicator of the closing circle where a local resource is activated and improved by the PDO project.

### 4.3 Elements for discussion

Genetic resources, such as a local breed, are not permanently localized resources, and can always be re-localized in other places. Spatial dynamics are affecting genetic resources because the management depends heavily on the effective location of the animals. Normande cattle are revitalizing in their area of origin where the breed was losing position. The decision of PDO cheese managers and the French authorities has given a role to breed managers in “local quality” food decision-making. Reallocation of a resource is modifying the local governance and the decision making. As a consequence, the Normande cow, so beautiful on the label with its photogenic coat, is clearly interpreted as a symbol of the territorial anchorage of the cheese.

Within the local food chain, only a fraction of the producers promote a complete vision of the cheese, including in particular raw milk (with associated knowledge for managing the process) and the local cattle breed. They are moving towards closing the circle. The producers who were against this orientation stopped producing the PDO cheese as a consequence of the French INAO decision, but have remained powerful in the cream and butter PDO, which uses mainly pasteurized milk from Holstein cows. So in the same area two kinds of PS for PDO products co-exist. The PDO cheese actors are trying to close the circle and the local breed is one of the more visible elements of circle closure. The PDO butter and cream actors are benefiting from the strong reputation of the production place but they are not activating or renewing any local resource. In this case, closing the circle creates conflicting trajectories and increasing tensions.

The relocalization of one colony of the Gascon pig breed is giving new opportunities for the breed in the area. But at the same time, this movement is bringing new risks for breed governance. On one hand, the products are benefiting from a collective identification with the geographical name Bigorre. On the other hand, outside the area, products from the breed are still sold directly using the name of the breed. The same resource is under tension as the breeders no longer constitute a single community. The case of the Noir de Bigorre PDO application can be seen as a reinvention of tradition (Hobsbawm 2006), the breed being re-localized without local practices. But the knowledge originally associated with the genetic resource has been lost. In the new location, cognitive resources on breeding practices and processing procedures are lacking. This set of resources, material, symbolic, and cultural is a system. So spatial dynamics cannot always ensure the coherence of such a system, and knowledge must be considered in full as a local resource.

The example of Corsica provides another useful lesson: the way of enhancing the resource is modified by the local food dynamics. This enhancement has led to tensions between managers and users of a resource. Who is legitimised to plan the future of a local resource? In this case, local food actors have power over the resource thanks to their connection to the market and the strong social capital they provide. The food project is becoming more important than the breed project.

This transformation is also modifying time references. The breed and inter-generation transmission is a long-term project while the food is more influenced by a short-term dynamics and shifting market sensitivity. The PDO is activating the local resource and may also affect its long-term orientation.

So the use and enhancement of local resources in the Origin Product process of GI protection can have many controversial effects, with different outcomes affecting the closure of the virtuous circle. The circle can usually be closed by regulating the intermediate markets of raw material produced by livestock activities. The characteristics of the milk or the meat to be processed are a key point. Using a local breed often necessitates new rules to give new added value to the raw material, in particular because local breeds may be unable to compete with with more productive breeds (Hauwuy et al. 2006).

And closing the circle is transforming local resources. The back effect on the resource itself is quite clear in most of the cases (Lambert-Derkimba et al. 2010). Including the local breed in a PDO system has huge consequences on the breed, on the criteria for its management and on the functioning of the breeders market.

## 5. Conclusions

The critical issues identified by comparing the theoretical model with the empirical evidence on genetic resources can be seen generally in cases of activation of tangible, intangible, symbolic and cultural local resources in the valorization processes of Origin Products, an expression of “local quality” food.

A central issue relates to the connection between resource activation and their transformation into assets. In this process, downstream actors in direct contact with the final food market are benefiting from a higher stock of social capital (Shorthall 2008) than raw material producers. Upstream, farmers are more directly linked to the management of local specific resources. These resources are subject to appropriation by several types of actors, raising issues of ownership and governance. It can happen that resources are governed by the logic of the market logic, and become unable to maintain their own nature and orientation.

This process of resource activation also leads to a process of selection. Because the relationships between the local food project and the resource managers are unequal, there are risks of exclusion. These risks are more

evident in the case of protected GI products because of the need to formalize rules in the Product Specification. If the use of one rare resource is mandatory in the Product Specification, this becomes a way to eliminate actors who are less endowed or face problems in compliance with the rules. In a more general view, the valorisation of Origin Products may have perverse effects when the required resources are not fully available for all potential actors. In such cases, activating and renewing local resources through the origin food system does not systematically lead to moves towards closing the circle and making it “virtuous”.

A set of priorities for further research needs to be defined in the field linking local food dynamics and local resources.

Cognitive and relational dimensions have to be addressed more clearly when local food quality is studied as a way of activating local resources. More attention should be paid to how local actors build up heritage; there needs to be a focus on inter-generational links, particularly regarding biodiversity and local knowledge resources.

Considering the lack of theoretical advances in this field, a special focus could be put on the legitimizing process of the managers of common goods as well as the “drivers” of a local food system. Capturing a name for exclusive, even if collective, use is a big responsibility and the way the owners are validated for such exclusivity should be studied in more depth. More attention is needed on the empowerment of local actors through collective action and institutional support in the local food and origin food dynamics.

As a final issue, the distinction we introduced between “local food” quality and “local quality” food should be analyzed in a wider view, considering if these two categories are in competition on the market, and if and to what extent complementarities could be developed.

In conclusion, the theoretical model of the Origin Product virtuous circle shows that for “local quality” food, activation and renewing of resources are key factors in enhancing public interest and justifying the intervention and support of public authorities. The way specific local resources are incorporated (and codified) in the Origin Product process could be the major element for closing the circle and ensuring that it is virtuous for the sustainability of the “local quality” food system.

Two main issues are emphasized in the chapter.

The first deals with the role of public authorities and policy-makers in balancing the interests of each type of actor. In particular, in the case of registered GIs, the Product Specification needs to be drawn up under transparent decision-making on the trade-offs. It needs to be acceptable by all parties and should not discriminate against actors in an unfair mechanism. This means giving room to opposing voices. The need for democracy is at the core of the Origin Product system.

The second issue is the importance of collective action for ensuring cohesion at local level and managing the Origin Product, the registered GI (if any) and the specific resources as a (local) common good. Different, even divergent, interests can of course exist, so building up consensus among local actors and generating shared strategies is a real necessity. Here too, public authorities can support local actor coordination for example in defining rules for GI recognition in the interests of the public good.

## Notes

1. See for example Goodman (2004), Brunori et al. (2010), Watts et al. (2005).
2. Territorial capital can be defined as the set of assets of different nature which characterize territories. Assets are given not only by natural resources and private / public fixed capital stock, and human and cultural capital, but also by social, institutional and symbolic capital (Camagni 2008).
3. Existence and option values are part of non-use values, as they do not require utility to be derived from direct use of the resource. In the first case the utility comes from simply knowing that the resource exists; in the second one the utility is given by the preservation of the option to benefit from the resource in the future (Pearce and Turner, 1990).
4. The definitions of PDO and PGI are given in Article 2 of Regulation 510/2006. They are as follows:  
'Designation of origin' [PDO] means the name of a region, a specific place or, in exceptional cases, a country, used to describe an agricultural product or a foodstuff a) Originating in that region, specific place or country; b) The quality or characteristics of which are essentially or exclusively due to a particular geographical environment with its inherent natural and human factors; and c) The production, processing and preparation of which take place in the defined geographical area.  
'Geographical indication' [PGI] means the name of a region, a specific place or, in exceptional cases, a country, used to describe an agricultural product or a foodstuff: a) Originating in that region, specific place or country; b) Which possesses a specific quality, reputation or other characteristics attributable to that geographical origin; and c) The production and/or processing and/or preparation of which take place in the defined geographical area.
5. The Product Specification is the determining factor in obtaining registration. As such, the Product Specification must comply with a set of rules stipulated in Article 4 of Regulation No 510/2006 and must include: The product name; A description of the product, including raw materials and “physical, chemical, microbiological or taste characteristics”; The definition of the geographical area; Evidence that the product in the market bearing the PDO/PGI originates in the defined geographic area; A description of how the product is obtained including relevant information on production, processing and packaging methods; Details of the link between the geographical area and the product’s quality, reputation or characteristics;

Names and addresses of bodies verifying compliance with the specification; Any specific labelling requirements; and, Any requirements laid down by Community or national provisions.

6. INAO is the French public institution in charge of the first step of recognition process for GI applications.

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