Chapter 7
Migrant Entrepreneurs in Industry Cluster Formation and Innovation: The Case of Semarang, Central Java, Indonesia

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Abstract Industry cluster formation and innovation are vital to promoting local economic development. Industry clustering is commonly understood to have an endogenous dynamic effect, which can mask the exogenous origins and dynamics of clusters. This chapter presents findings from scoping research related to exogenous factors shaping innovation in micro and small enterprises' (MSE) cluster formation and development in Semarang, Indonesia, where the enterprises in most clusters are in survival level and informally organized. Our findings indicate the influence of individual migrant entrepreneurs and local government initiatives in shaping industry formation and dynamics. The progress and sustainability of informal MSEs cluster development are observed to be strongly influenced by these components.

Keywords Industry clusters · Exogenous factors · Migrant entrepreneurs

7.1 Introduction

The central importance of industry clusters as sectoral and spatial concentration of firms (Schmitz and Nadvi 1999: p. 1503) to local economic growth in the less developed country has been highlighted (Nadvi and Schmitz 1994). The concentration of businesses in clusters can promote knowledge diffusion for innovation and collective efficiencies (Schmitz 1997), though these external economies often require a measure of industry self-organization or policy intervention to foster 'joint action'. Indeed, without joint action, the advantages of industry clustering across the micro-, small- and medium-sized enterprises (MSE) and informal nature and status of businesses of

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the Global South remain unclear (Harris 2016; Moreno-Monroy 2012). Parilli indicated that the 'survival clusters' frequently populated the economy of developing countries. These clusters are consisted of the small and micro enterprises that have low technology, no division of labour, and produce non-standardised products for local markets (Parrilli 2007). As much as 90% of private enterprises and 60% of the workforce of Asian countries are composed of MSE businesses (Choe and Roberts 2011).

While in general the 'strength of weak ties' (Granovetter 1973), the value of external sources of knowledge (Bathelt et al. 2004) and networking (Pittaway et al. 2004) to established industry cluster development in the developed country is by now well appreciated, the relative contribution of endogenous and exogenous forces to industry cluster formation and innovation across the developing country is less clear. To what extent are exogenous actors important to generating the sorts of low-cost innovations found in developing country settings (Tiwari and Herstatt 2014). Previous research acknowledges that industry clusters in developing countries are commonly characterized by shortages of key entrepreneurial capabilities and typified by survivalist strategies (Knorringa 2002; Altenburg and Meyer-Stamer 1999). The importance of external influences on the business ecosystem and innovation among MSEs can usefully be explored further (Love and Roper 2015)—especially in developing countries where both formal public and private sector investments in innovation remain constrained. Indonesia would be a case in point. Numerous industry clusters are to be found at the village or kampong scale (Sandee and van Hulsen 2000) but they have had a very mixed record of growth, export success and productivity gains, despite the existence of policies to stimulate joint action (Phelps and Wijaya 2016).

This chapter explores how exogenous factors contribute to the sustainability of MSE industry clusters. It looks in particular at MSE industry clusters in Semarang, the capital city of Central Java Province, Indonesia. The research formed part of a larger cross-city study, where Semarang was selected to contrast with the Indonesian cities of Surakarta and Bandung, which are more celebrated for their endogenous creativity. Here, we draw on the scoping research used to identify new and important MSE industry clusters. We visited the 16 sub-districts of the city, since no published or unpublished official information was available on the exact number and distribution of MSE industry clusters. We produced a long list of 40 MSE industry clusters with or without any support from the government. From these 40, 7 industry clusters were selected as the most significant or promising on the basis of three key criteria, i.e. the total business numbers must exceed 10, have industry continuity, and be related to kampongs (or villages) in order to examine the role of social bonds in enterprise formation and innovation. We then conducted site visits and background interviews with key stakeholders of cluster development in the city, the industry cluster leaders and business members, and the local government. The total background interviews were sixteen talks with cluster stakeholders. We draw here on seven interviews with the recognized main stakeholders in each of our seven case study industry clusters. In Semarang City, industry cluster development is a part of a local economic development government programme that is coordinated by the Semarang Planning Board.

The selected industry cluster cases are detailed in Table 7.1 and their location is shown in Fig. 7.1.

This chapter starts with a discussion of the exogenous factors shaping industry cluster dynamics including specifically migrant entrepreneurs. We then introduce our case study city context before going on to summarise some of our key findings regarding the importance of actors and institutions external to industry clusters in their formation, development and innovation record. In conclusion, we summarize our findings and offer thoughts on future research regarding migrant entrepreneurs in the development of industry clusters.

7.2 Migrants as an Exogenous Factor in Industry Cluster Dynamics

The exogenous factors could influence the knowledge transfer processes through some modes i.e. the influences come from external agents directly, the internal actors got experiences from previous outside activities, and the utilisation of the external expertise sources by the internal change agents (Mol and Birkinshaw 2014). Schumpeter (1994: 83) described innovation as a process of creative destruction. Here, innovation can be understood as an interactive process of many actors with different resources of knowledge and competencies to solve problems (Bathelt et al. 2004). The process is often highly contextualized within given industry clusters—each with their different sources and accumulations of knowledge and techniques represented not only in formal research and development activities but also informal collaborations with partners, costumers and other businesses found along with segments of particular value chains (Cirera and Maloney 2017). These developed endogenously from within a given local context and developed as a result of exogenous resources and capabilities imported from outside, as well.

7.3 Endogeneity in Industry Cluster Formation and Innovation

The literature has presented several definitions of an industry cluster such as a 'sectoral and spatial concentration of firms' (Schmitz and Nadvi 1999: p. 1503), a 'geographic concentration of interconnected companies and institutions in a particular field' (Porter 1998: p. 78), or 'a grouping of like-minded companies (competitors) and talents in a specific geographic area' (Choe and Roberts 2011: p. 10). These in turn suggest proximity as a source of two potentially opposing advantages of industry clustering; cost reduction and knowledge spillover for innovation and productivity (Wolman and Hincapie 2015). The latter are typically manifest in the likes of product, process and marketing innovations.

Table 7.1 Summary details of industry cluster cases in Semarang

Name and location	Products	Established	Membership	Migrant entrepreneurship profile
Kampong Bugangan, downtown area	Metalworking cluster	1950s	60	• Origins: Kampong Bugangan is a business cluster that has existed since at least the 1950s by producing toys for the "Dukderan" local ceremony in Semarang City • Industry leadership: the current leader of the metal cluster is a migrant • Migrant entrepreneurship: Migrants makeup 27% of the total number of entrepreneurs and have been long established • Prospects: a sizeable cluster with cooperation between entrepreneurs, and a good relationship to the city government
Kampong Purwosari, downtown area	Milkfish cluster	1990s	15	• Origins: Kampong Purwosari produces milkfish in what was formerly an extensive area of fish ponds • Industry leadership: the female cluster leader, who is a nationally-renowned entrepreneur was a public servant who moved to Semarang from Jakarta. She has pioneered product, process and market expansion innovations and the national market for milkfish products • Migrant entrepreneurship: 29% of all entrepreneurs in the cluster are migrants • Prospects: local milkfish production is challenged by the encroachment of urbanization such that milkfish are now imported from elsewhere and with some entrepreneurs acting as importers of fish

(continued)

Table 7.1 (continued)

Name and location	Products	Established	Membership	Migrant entrepreneurship profile
Kampong Bustaman, downtown area	Goat cooking cluster	1960s	21	• Origins: Kampong Bustaman is a small, densely developed and populated settlement dating to the eighteenth century with a business based on goat slaughtering. Production of goat curry began in the 1960s by migrants from Kebumen and Kudus in Central Java province • Industry leadership: industry leaders are currently searching for opportunities to develop economic opportunities in the kampong, mainly through tourism • Migrant entrepreneurship: at this time the goat business in Bustaman only has 2 entrepreneurs, and 21 goat food sellers none of whom are recent migrants • Prospects: Bustaman village is a very densely populated village with about 114 households (366 inhabitants) occupying an area of just 0.6 ha which presents constraints on business development and the attraction of tourists
Kampong Tambak, coastal urban periphery	Smoked fish	1990s	30	• Origin: production of smoked fish in Kampong Tambak grew based on the fishing industry based there • Industry leadership: there is little in the way of leadership apparent with a reliance for sales on middlemen • Migrant entrepreneurship: there are no migrants involved in the cluster • These conditions make the cluster degraded, and local businesses are in a survival condition • Prospects: the industry uses traditional methods that have barely changed. The cluster is under pressure since the polluting nature of production is not compatible with the encroaching urban area

(continued)

Table 7.1 (continued)

Name and location	Products	Established	Membership	Migrant entrepreneurship profile
Kampong Siroto, urban periphery	Traditional snack	1950s	40	• Kampong Siroto is a suburban settlement of Semarang. Initially, the village was based on the production of traditional snacks from cassava that used local agricultural products • Industry leadership: business and product innovation in Kampong Siroto grew quickly after being influenced by a migrant businesswoman from Bandung who began snack food production in 2010–2016 recruiting local people as workers. Her lead has been followed by numerous locals with a new local business organization created in 2012 • Migrant entrepreneurship: local persons aside from the original migrant entrepreneur initiating snack production • Prospects: The snack business in Siroto village is now supported by the Semarang city government from 2016 for training in business management, production, and marketing, as well as the development of Kampong infrastructure
Kampong Kandri, inland urban periphery	Aquaponic cluster	2014	64	• Origins: Kampong Kandri is a very new settlement in the rural area of Gunung Pati sub-district in the southern periphery area of Semarang City • Industry leadership: the aquaponic business began with the arrival of a male migrant from Sumatra with previous business experience of the export of coconut fibre to China. With the collapse of this business, he learned of aquaponics technology from the internet • Migrant entrepreneurship: aside from the leadership shown by one migrant all others are locals • Prospects: the aquaponic 'business' is ostensibly a hobby business with 64 members in Kandri but with some networking among aquaponic enthusiasts at the national level. It has attracted tourists and as a result of the city government now supports it as a tourist destination

(continued)

Table 7.1 (continued)

Name and location	Products	Established	Membership	Migrant entrepreneurship profile
Kampong Malon, inland urban periphery	Natural dye batik	2010	40	• Origin: this batik business industry was initiated in 2006 in the downtown of Semarang downtown to produce a unique and new Semarang pattern. Due to complex problems in this location, the industry leader moved to Kampong Malon in the suburbs of Semarang • Industry leadership: the male business leader of the cluster was a bank officer from Jakarta, who, on bankruptcy, move to Semarang to start a batik business. This industry leader routinely teaches locals batik techniques with currently 4 batik production groups in Kampong Malon • Migrant entrepreneurship: aside from the migrant initiator of ten clusters all entrepreneurs are local • Prospects: the business is based on natural dyes that are produced in collaboration with local farmers and has also gained the attention of and support from city local government, NGOs and companies

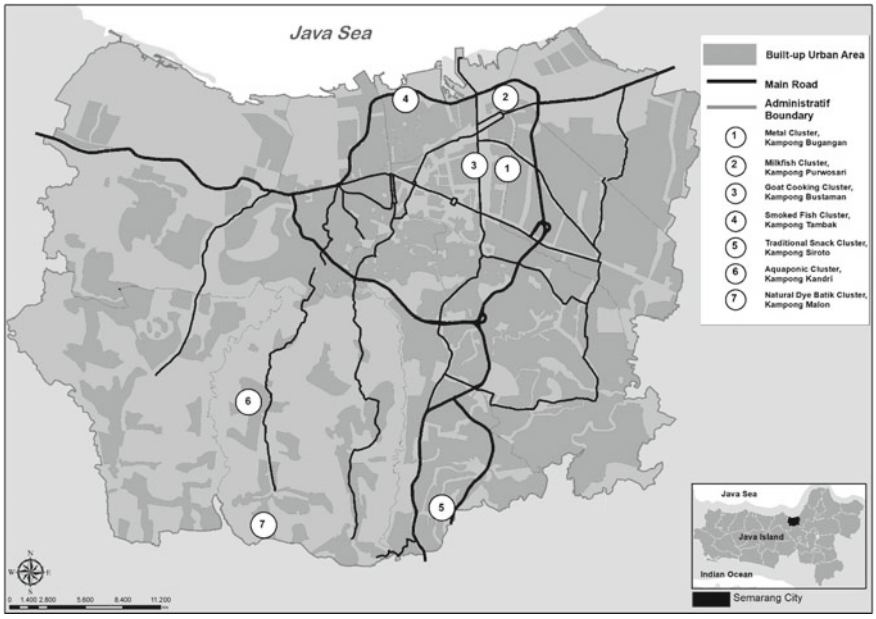

Fig. 7.1 Map of Semarang city and location of industry cluster case studies

However, these endogenous benefits of industry clustering cannot be assumed to be automatically available to, nor generated across, industry clusters (Schmitz 1995; Schmitz and Nadvi 1999) particularly so, where industry clusters are segmented in terms of business scale and strategy (Taylor and Thrift 1982), formality and informality (Phelps and Wijaya 2016), and, for our purposes, geographic origin and ethnicity of business owners. As such, policies designed to promote and develop joint action—as ostensibly exogenous stimuli—are often required.

7.4 Exogeneity in Industry Cluster Formation and Innovation

Granovetter (1973) introduced the idea of the 'strength of a weak ties' to highlight the vital role played by ideas and resources from outside of a given industry cluster in preventing industry stasis or over-specialization (Grabher 1993). This idea suggests that a person with many weak ties in a social structure could broker or bridge individuals within a social group and between social groups, facilitating the flow of ideas. Of note here in relation to our comments on social capital and migrant entrepreneurs below are that early innovators are often marginal players (Granovetter 1973) within local milieu because central or established actors tend to resist those innovations that jeopardize their present status and reputation.

Knowledge flows are an initial resource for innovation and can have codified and tacit forms as well as global and local reach. Many forms of codified knowledge have become near-ubiquitous and hence widely accessible. However, tacit knowledge is that which is embodied or transferred in practice and interaction. Proximity facilitates the development and transfer of tacit knowledge and hence it tends to be localized in industry clusters. Yet industry clusters are rarely entirely localized phenomena but instead exhibit varying degrees of buzz in global pipelines (Bathelt et al. 2004) while improvements in the performance of localized industry clusters are driven by the engagement of local and external actors (Molina-Morales et al. 2002). Indeed, institutional actors may themselves be the key in this regard. The institutions that commonly provide exogenous stimuli to industry clusters are governments and nongovernmental organizations (NGOs). Of note here in our study is that government at all levels has a significant role regarding industry clusters in Indonesia, especially to promote the technology transfer, because it has been the main training provider to enterprises in MSE clusters (Tambunan 2007), while provincial and local governments in Central Java have been particularly active in seeking to support industry cluster formation and innovation (Phelps and Wijaya 2016).

7.5 Migrant Entrepreneurs

Alongside formal and informal relations with businesses external to a particular industry cluster and policies of local governments discussed above, migrant entrepreneurs emerge as a key, if often underappreciated, exogenous channel fashioning new and transforming existing industry clusters. Indeed, quantitatively at least, migrant entrepreneurs have become an important flow and stock of entrepreneurs across parts of many cities and communities (e.g. Liu et al. 2013). Research has focused on some of the supply-side propensity for entrepreneurship among different groups of migrants and on differences in resources they can mobilize including those drawn from the mixed nature of embeddedness in localhost contexts (Rath and Kloosterman 2000), which can itself generate a variety of opportunity structures for would-be entrepreneurs. Here, there are likely important differences that the international migration from the less developed to advanced economies countries, may, on the whole, be characterized by more constrained opportunity structures, participation in low barriers to entry and low value-added industries and result in survivalist practices (Kloosterman and Rath 2001).

Yet this does not prevent significant contributions from migrant entrepreneurs in meeting unmet demands, generating social cohesion and urban redevelopment (Liu et al. 2013). And, indeed, both domestic and international migrants within and to the less developed countries may be less constrained than in countries with advanced economies. For sure, transmigrants in the first group economies may face ‘outsider’ constraints on entrepreneurship. Here, the widely invoked concept of localized social capital that private and public sectors might mobilize needs to be investigated critically rather than assumed given its double-edged aspect (Woolcock 1998). Social

capital might encourage strong trust and social bonds that strengthen the development possibilities of industry clusters (Humphrey and Schmitz 1996). Yet, the strong loyalty found in some communities could limit information about development opportunities or new ideas for innovation (Woolcock and Narayan 2000). Social capital can be the motive force behind many 'follower' entrepreneurs. At the same time, it can constrain entrepreneurial leadership and innovation and it is in such contexts that migrant entrepreneurs can play potentially important catalytic roles in the formation and development of industry clusters.

It is this latter scenario—of the contributions of migrant entrepreneurs—that by and large is the one we have to recount below in the case of several of the most important industry clusters in the city of Semarang in Central Java, Indonesia. In the industry cluster examples, we report on here, the role of migrant entrepreneurs in product, process and marketing innovation is clearly and strongly visible even if that role is shaped by local conditions, exogenous actors and institutions external to industry clusters.

7.6 Industry Development from Without: The Case of Semarang

Semarang city is a provincial capital in Java. Based on the national economic census of 2016, there are approximately 174,861 units of MSEs in Semarang (BPS (Statistics Indonesia), 2017), which amount to 95.7% of the total enterprises in the city. Approximately 61.7% of the enterprises are categorized as processing industries and trading, and the sector absorbs approximately 50% of total workers in the city.

The cluster research cases are located and formed in *kampongs* in Semarang city, where the kampong is referred to as a large number of spontaneous informal settlements (Winayanti and Lang 2004). The industry cluster cases in Semarang are, then, mainly populated by informal businesses that are closely connected to kampong settlements. The urban kampong has grown since the colonial era when the Dutch established modern cities in Indonesia. The kampong communities were mostly indigenous local people but could be formed from other ethnic groups such as Arabs, Chinese and Indians. Kampongs are often tightly knit communities with strong social bonds (Kustiwan et al. 2015), though, as we noted, the implications of such social capital for enterprise formation and local economic development are double-edged (Woolcock 1998). It is perhaps no surprise, then, that we found that this often presents a challenge since the local and informal nature of the business may hamper the discovery of new products, technologies and market opportunities (Molina-Morales et al. 2002) due to the close, if not closed, the relationship among the industry cluster members. Here, a number of actors and institutions play an important role in providing and accessing additional resources but also acting as conduits for exogenous sources of information valuable to the innovation process. These include government, universities and industry cluster leaders.

Despite these common bases in kampongs, the cluster cases we studied are varied and as scholars have emphasized this can mean that their growth experiences differ widely (Schmitz and Nadvi 1999) as a reflection of their time of establishment, formation history, location area, products, and how the firms interact in their respective industry cluster. The industry clusters are strongly influenced by aspects of demand. However, external access to resources and production management knowledge is also apparent as important shapers of the fortunes of individual businesses and industry clusters. Here, migrant entrepreneurs play an important role in promoting the product, technological and market-related innovation alongside government and other institutions as forces exogenous to industry clusters. Moreover, the sustainability of these industry clusters appears to have been supported by the innovations channelled or facilitated by external agents and institutions. For example, while migrant entrepreneurs were not necessarily the industry cluster leaders in the Bugangan metalworking, Bustaman goat cooking and Tambak smoked fish clusters (see Table 7.1), they nevertheless were present and in some instances were pivotal in the origin or past development of these long-established industry clusters. The government appears also to have had an important subsequent role in sustaining industry clusters.

7.7 Industry Cluster Formation and Evolution

Across the seven cases studied, the importance of factors external to the locality or kampong of the industry clusters concerned is evident in Table 7.1. This extends to the role played by migrant entrepreneurs either historically or in recent times. Three of our chosen industry clusters have existed for a long time while four were quite new. The older clusters had experienced cycles of ups and downs in business, as well as changes in products. For example, the Bugangan metal products cluster had originally produced traditional metal toys in the 1950s, changing to producing a kerosene stove in 1960 until the 1980s and today produces diverse metal tools and equipment from recycled materials and products. Significantly, the new clusters were mostly established due to the strong effort from individual entrepreneurs who initiated businesses employed and were patronized and, ultimately, were imitated by members of the community. To add to the role of migrant entrepreneurs to their formation or current leadership, the development of these industry clusters has been further facilitated by government support programmes.

7.8 Local Conditions as Opportunity Structures

The dynamics of industry clusters and their prospects also relate strongly to their respective locations. Here, it is important to recognize that entrepreneurialism including those of migrants comes to fruition in interaction with the demand and

supply characteristics found in host localities. In the case of the role played by business leaders in the milkfish, batik, metal and smoked fish clusters, innovations came in response to findings regarding local market opportunities. In the metal and traditional snack clusters, innovation was led strongly by local *demand* once the industry cluster had become established. Special requests by customers to make kerosene stoves and houseware machines initiated new product innovation (Interview 1: Businessman at Metal Cluster, Kampong Bugangan, 2 April 2017). Similarly, the customer demand regarding snacks influenced the creation of new products that were no longer purely cassava-based as at the outset (Interview 5: Businessman at Traditional Snack Cluster, Kampong Siroto, 3 April 2017). In these two cases, the innovation was derived mostly from the requests of loyal customers that already knew the businesses and products of the industry cluster. Here, then, customer requests stimulated a measure of product diversification and further development of industry clusters. Yet those same industries in those urban locations most favourable to exploiting significant demand are also those most constrained in their business operations (notably production) by the nature of their activities which increasingly are incompatible with urban planning and health terms. The emergence and evolution of those industry clusters at the urban periphery has been shaped by the supply of resources for production (e.g., traditional snack cluster in previous time mainly produces fermented cassava food of agriculture product). In the traditional snack and milkfish clusters, the first innovation by entrepreneurs was the result of the recognition of the abundant local *supply* of input materials in the surrounding area. In the case of others, there still may be issues of the compatibility of production with the peri-urban environment as with the Tambak smoked fish cluster (see Fig. 7.2).

Institutions and management have the fundamental function to support the existence of clusters. Initially, cluster institutions were established informally to support production functions that could also use the social networking of the kampong. Subsequently, more formal institutions were established among MSEs and in clusters in order to manage the formal activities and partners (i.e. when following local government programmes) (Interview 5). Here, institutions become facilities for the distribution and implementation of innovation. Even the cluster institution and management become part of collective innovation in cluster development.

Yet, the existence of advanced formal mechanisms is not always associated with the growth and development of clusters. Those MSEs with greater capabilities can simply become more focused on their innovative activities, while the remainder of MSEs can lag as can the collective activities of clusters. Notably, as capabilities develop and among those businesses with the most advanced capabilities, entrepreneurs tended to focus on their business such that industry cluster activities become inactive as was suggested in the case of the Bugangan metalworking cluster (Interview 1). In the Kampong Purwosari milkfish cluster, for example, there were many cluster-related activities when MSEs were still at start-up and in survival mode. Currently, the entrepreneurs already have the capacity and market access; thus, they tend to work independently rather than collectively in their businesses. Here, collective activities exist in the social field while they are instrumentally focused to

Fig. 7.2 Kandri aquaponic cluster

take advantage of government facilitation programs (Interview 2: Businessman at Milkfish Cluster, Kampong Purwosari, April 5, 2017).

7.8.1 Industry Cluster Leaders

Industry cluster leaders have a significant role in stimulating innovation within the industry clusters we studied. The formation and sustainability of seven case clusters were highly dependent on the cluster leader or champion. The leader typically shapes the industry cluster by the virtue of his or her perceptions of business opportunities. While leaders typically are among those with significant entrepreneurial capabilities and managerial skills, nevertheless the fortunes of entire industry clusters can be reliant on the capabilities of these individuals in ways that expose them to a narrow source of innovation.

While industry leaders need not be migrants, in our study, the leaders in five of the seven industry clusters investigated were indeed migrants or newcomers to the locality. Innovations made by industry cluster leaders (including migrant entrepreneurs) are then further widely adopted by and internalized within communities. Of interest here in terms of the potential vulnerabilities of industry clusters to the arrival and departure of migrant entrepreneurs is that in important instances several of these clusters have endured after well after the initial innovation made by migrant entrepreneurs or after they have departed.

7.8.2 *Institutions*

The government often becomes the most critical contributor to most industry clusters due to the breadth and monetary value of its support confirming Tambunan's suggestion that government could have an important role as source of technology transfer to the cluster (Tambunan 2007). University academics also contributed in different ways in the cases of the aquaponic and smoked fish clusters. In the case of the former (see Fig. 7.3), academics played an influential role to promote technology and disseminate the system in the cluster and the promotion local networking including connecting the industry cluster to the government (Interview 6: Businessman at Aquaponic Cluster, Kampong Kandri, April 3 2017). In the case of the latter, academicians were introduced to the businesses and provided a pilot chimney machine in order to reduce the health impacts of the smoking process (Interview 4: Businessman at Smoked Fish Cluster, Kampong Tambak, April 5 2017).

Semarang city implemented a programme of local economic development that supported the improvement of MSEs and cluster growth. The programme facilitated production and business capacity building as well as product marketing. More recently, the city implemented a thematic kampong programme that has an initial goal to improve the kampong settlement area and eradicate poverty. In its implementation, the programme improved local infrastructure, emphasized the kampong

Fig. 7.3 Tambak smoked fish cluster

uniqueness through local products and increased local economic development. The kampong thematic activities, in some cases, are related to clusters of MSEs (Interview 8: Officer of Economic Field of Semarang City Planning Board—Bappeda, March 6, 2017).

7.8.3 Migrants and Other Exogenous Actors and Institutions in Industry Cluster Innovation

Regarding the products, two types of product innovations were observed: product diversification and the quality and quantity improvement of products. These innovations are visible, and the result is observed in the input or output of products. The seven cluster cases initiate innovation in their products, especially to create product diversification. The Metal Cluster, Snack Cluster, and Milkfish Cluster are examples of clusters that create various product diversifications. Product diversification is mostly from the same raw material (except in the Snack Cluster) but has a different shape, size, taste, and function (Interview 1; Interviews 5 and 2). In the Siroto snack cluster case, there were knowledge spillovers from a key outsider entrepreneur who provided a new product innovation in a context where skills were lacking among local villagers and snack producers (Interview 5). In this case, the migrant entrepreneur has now moved after having initiated new products and production and having trained and employed people within the kampong. The earliest adopters of some of the ideas and techniques of this migrant entrepreneur have gone on to benefit the most and now lead the cluster since this key external actor has departed.

Otherwise, innovation continues among indigenous entrepreneurs in the absence of strong injections of new ideas from outside driven often by resource constraints or changes in demand and regulations. Desires to improve value added through maintaining and increasing the quality and quantity of inputs has resulted in producers in the milkfish cluster now importing raw milkfish from third party suppliers (Interview 2). Product innovation to improve the number of products is also observed in the metal cluster where all businesses produced kerosene stoves in large amounts, such that the metal cluster in Kampong Bugangan became the largest centre of kerosene stoves in Central Java in the 1970s–1980s (Interview 1). This rise to prominence as a centre of kerosene stoves took place against a backdrop of traditional wooden stoves being replaced by kerosene stoves.

The government, in most cases, has become the most supportive agent in cluster business improvement. Even so, government policy can sometimes negatively affect the sustained innovation among MSEs in industry clusters. At the same time as government programs seek to improve the sustainability of innovation by way of capacity building, strengthening access to capital and the improvement of managerial skills, shifts in regulations can produce significant periods of stress on businesses and have profound effects on the prospects of industry clusters. The metalworking cluster (see Fig. 7.4) in our study provides a good example. On the one hand, government

Fig. 7.4 Bugangan metalworking cluster

policies on waste sorting treatment into organic and inorganic promoted the demand for dustbin products which the cluster was able to serve. On the other hand, policy implementation requiring energy conversion from kerosene into liquid petroleum gas meant that kerosene stove production decreased rapidly and came to a complete cessation in 2007.

Regarding technological innovation relating to processes, two types of innovation were observed: the production processing technique, and the usage of superior tools. The change of processing technique is identified in the batik cluster, in which the business champion—a migrant entrepreneur—initiated an innovation when using a natural colouring batik technique. His strong ideological motivation to compete in an environmentally friendly or fairway in a contemporary context where much use is made of chemical dyes is used (Interview 7: Businessman at Batik Cluster, Kampong Malon, April 4, 2017). Here, both awareness of natural degradation and the potential market associated with natural techniques stimulated this industry leader to innovate in terms of production processes. Further minor process innovations have followed including an improved cold-printing technique to enrich the quality of batik patterns produced.

In another case, some businessmen in the milkfish cluster have used a steam pressure cooking to maintain the taste and nutrition of their milkfish products in the cooking process coupling this to the use of vacuum machines for packaging, so that the products could also have a longer shelf life and a larger nationwide export

market (Interview 2). Here, one leading female migrant entrepreneur has achieved a measure of national fame and recognition for her particular brand of products as a result. Another example of the goat-cooking industry cluster new equipment is often provided directly or by way of partial financial support by the government. Businessmen in the goat cooking cluster mostly slaughtered the goats by themselves in their house or areas immediately surrounding with obvious effects on the local environment and potentially health. In order to improve the environment quality, the local government provided a new slaughterhouse near to the kampong industry cluster and the associated machinery (Interview 3: Businessman at Goat Cooking Cluster, Kampong Bustaman, April 4, 2017).

Individual business persons and academics also support the adoption and use of superior equipment. In order to improve the efficiency of production (producing a greater amount in less time), some businesses in the Siroto snack cluster now use simple equipment shared among themselves including an oven, mixer, blender and rice cooker where previously foods were handmade with traditional tools for cooking (Interview 5). In the case of the smoked fish cluster, academics suggested and provided chimney equipment tools to improve the process to make it healthier for people. These tools can support the businessmen in the smoked fish cluster to increase the quality of the product and help create a case for sustaining an otherwise quite polluting industry cluster (Interview 4).

Marketing is critical to industry clusters composed of MSEs, yet these businesses typically have a limited capacity in this regard relying on direct sales to the customers or reliance on intermediaries where the intermediaries can be an important force in the segmentation of businesses in industry clusters. The MSEs in our industry clusters had several means to promote and gain customers. First, there has been innovation in product diversification related to the promotion of tourism. The examples here would be the Bustaman goat-cooking cluster, the Kandri aquaponic cluster and the kampong Malon batik cluster. The development of tourism in each case was promoted by the local government, NGOs and corporate social responsibility programmes from the private sector. The businessmen in the aquaponic and batik clusters initiated the development of tourist attractions after the implementation of the 'thematic kampong' programme by the local government of Semarang (Interviews 6 and 7). The programme led to an increase in tourism activities in these two clusters. The tourism activities in the Bustaman goat-cooking cluster in Bustaman were initiated by Histeria, a local NGO in Semarang (Interview 3). Supported by the kampong residents themselves, Histeria was able to promote tourism activities as part of and alongside a neighbourhood improvement programme with the help of private enterprise, after it was included as part of the thematic kampong programme by the government. This result reveals that the role of government and outside stakeholders affect the diversification product of the tourism form.

Second, the government has made a significant contribution to facilitating marketing innovation. One recent innovation is the use of online marketing as in the case of the batik and snack clusters (Interviews 7 and 5). This marketing was started by local entrepreneurs after several courses on the internet and computer technology training carried out by the government. The entrepreneurs created online product

marketing through various third-party websites, the proprietary platform Facebook and their own online shops. Online marketing proved one option for MSEs to sell their products directly to the end user (Interview 5) with business leaders typically organizing the online marketing for all products of cluster members (Interview 7).

The third type of marketing innovation is the licensing of products in Milkfish Cluster and Traditional Snack Cluster. In the case of Milkfish Cluster, the leader proposed the National Product Standard (SNI) for the Milkfish products after participated in training programs by the government (Interview 2). After the products gain an SNI licence, the cluster gets more access to supply the distributors, some outlets and large souvenir shops. The product licence could increase demand. The case of the Traditional Snack Cluster is similar; some businesses proposed Licensing for Home Industry Food. After has the licence was obtained, the businessmen could sell the certified products to more markets (Interview 5).

The fourth type of marketing innovation is cooperation or costumed orders. Some clusters were successful at increasing demands by creating special products based on customer requests. Due to the small-scale production, the MSEs have flexibility in production. The willingness and ability of each cluster to create a special request promoted cooperation with some institutions and customers. In the case of the Bugangan metalworking cluster, the businessmen could fulfil special requests by a customer to create specific houseware machinery products. After the first production, they also could further produce similar products and sell the products in the local market (Interview 1). A similar case was observed in the traditional snack producing cluster of Kampong Siroto where the businesses received special orders from customers and, based on this, they produced similar products and sold them in the common market or to customers (Interview 5). The case of the Kampong Malon batik cluster differs since some government and private institutions proposed cooperation with the cluster to create a special pattern that symbolizes the institutions. Because each pattern represents the identity of an institution (Interview 7), so the business cannot replicate a similar pattern for other customers. In the case of the Purwosari milkfish cluster and the Tambak smoked fish cluster, the cooperation with the loyal distributor or outlet agents creates consistent demand from the customers (Interviews 2 and 4).

7.9 Conclusion

Much of the extant theory of agglomeration or clustering holds that localized industry development is primarily an endogenous process to the point where it can become circular in argument (Phelps 1992). Similarly, the extant literature also highlights the extent to which innovation is closely related to localized or endogenous demand and supply as the opportunity structures that entrepreneurs work in and are often constrained by (Srinivas and Sutz 2008). Yet, as we saw in the case of Semarang, it is actors and institutions external to industry clusters that have had an important part less in the recognition and more in the further exploitation of these opportunity structures.

In this sense, development possibilities and innovations remain aligned significantly to the local contexts in which economic activities are embedded. Important questions remain here as to the mechanics of how—even with the action of external influences—industry clusters can truly mobilize the strong sense of weak ties that is said to deliver long-run industry cluster sustainability and patterns of innovation that amount to more than what Geertz (1963) some time ago described as 'involution'.

Exogenous influences become critical factors in deepening and broadening patterns and processes of innovation and the further development of industry clusters as a whole. Being strongly embedded in their kampongs, and without exogenous influences—notably from migrant entrepreneurs—industry clusters often tended to be stagnant relaying on particular traditions and practices. Yet, important generalizations regarding the constraints on migrant entrepreneurs notwithstanding (Kloosterman and Rath 2001), the contributions of migrant entrepreneurs to local enterprise formation and employment found here suggests that future research might usefully begin to explore the relative extent and severity of these constraints in different advanced and less developed economies settings.

The same informality and local social capital of the kampongs we studied also ensured that innovations were rapidly adopted at scale generating significant growth in local employment and basic business skills. The challenge is, then, one of how to further sustain innovation and the development of industry clusters given these one-off spurts of locally embedded growth in employment and business numbers. While this remains perhaps the challenge relating to the development of industry clusters in the less developed countries, there is some evidence that other exogenous influences—notably from government and NGOs and other private actors in the CSR space—have exerted an influence on the further development and innovation record of industry clusters. As such our cases do suggest that the likes of government policy can be important in stimulating joint action for innovation in, and the further development of, industry clusters even if this likely remains more modest and more challenging than has been presented in early advocacy (Schmitz 1995; Schmitz and Nadvi 1999).

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