



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2016; 2(2): 634-637  
www.allresearchjournal.com  
Received: 23-12-2015  
Accepted: 26-01-2016

**Dr. Nirmal Kumar Betchoo**  
Université des Mascareignes,  
Beau Plan, Pamplemousses,  
Republic of Mauritius

## Competences in the cluster and beyond: A study of the Mauritian industry

**Dr. Nirmal Kumar Betchoo**

### Abstract

The cluster notion is an important one in understanding the development of the industrial sector in the Republic of Mauritius. The industrial zone, set up in the 1970s, was an imaginative idea of the founding fathers or industry captains of a developing economy. This research analyses the notion of cluster and states that competences were developed through the harnessing of skills, knowledge, human capital and location. These created the concept of 'high value-added' to the Mauritian economy and ensured its success in the initial teething years of industrialisation. Through this starting point, the cluster concept might be questioned on its relevance today as Mauritius aims to develop 'smart cities'—a similar concept to that of India developed by the Indian PM Shri Narendra Modi. The researcher states that the creation of the smart cities in Mauritius will be an extension of the initial cluster concept which is technically 'revamped' and supported through a formula aiming to crystallise ideas regarding the upcoming form of the cluster.

**Keywords:** cluster, competences, technological diffusion, value-added, future.

### Introduction

Mauritius was essentially agricultural back in the 1960s with the predominance of sugarcane cultivation all over the country and tea cultivation on the Central Plateau of the island. Too much focus on a monocrop culture usually asked for diversification but that was often too limited to agriculture. The need to create a Free Zone could be an inspiration that the founding fathers of industrialisation got from successful examples in Brazil, Mexico and emerging economies of that time like Indonesia, Turkey, etc. Since technology was making inroads within the economy, it was necessary to think of how efficiently it could be used in industry that was so far limited to cane production, a few bottling plants and small-sized industries. In Mauritius, the Export Processing Zones Act came into operation in 1970. Since then, Mauritius has developed into one of the world's most successful export processing zones (Diamond & Diamond, 1998) <sup>[4]</sup>. In the 1970s Mauritius took its lead from Hong Kong and Taiwan, launching a tax free zone to entice foreign investors to set up textile, clothing and jewellery factories aimed at the export market (Interpress, 2005) <sup>[6]</sup>.

### Initial Development: Plaine Lauzun and Coromandel-Two industrial zones

Shimy (2008) <sup>[14]</sup> states that the strategic location decision is driven by market potential and the growth of the market share; the proximity to the customer base; the quality and cost of labour, the quality of the transport network, and the incentives offered. Back in the 1960s, the idea of setting up a Free Zone was felt by the government. Two locations were selected in that they could also act as a business cluster. Plaine Lauzun in Western Port Louis was ideally located at a few kilometres from the city centre and the port. Coromandel—a Tamil origin name—was another location within the reach of Port Louis and it had sufficient labour in its periphery that could be absorbed in the Free Zone. Free zones are developed to support economic reform; to act as "pressure valves" to alleviate growing unemployment; to serve as experimental labs for the application of new policies and approaches; and to attract FDI (Shimy, 2008) <sup>[14]</sup>.

The concentration of economic activities in a particular location may result in cost saving economies of scale, location economies, to micro enterprises in the cluster. These location economies are external to micro enterprises but internal to the cluster and help to increase the competitiveness of micro enterprises in a wider market through knowledge diffusion,

### Correspondence

**Dr. Nirmal Kumar Betchoo**  
Université des Mascareignes,  
Beau Plan, Pamplemousses,  
Republic of Mauritius

specialisation, social cohesion and collaboration (Schmitz and Nadiv, 1999) <sup>[13]</sup>. The objective behind a Free Zone was to have industries operated by local entrepreneurs who could benefit from low or no tax on imported goods or raw materials, the facility of producing locally through inducements offered by the government including the accumulation of profit through tax incentives. In the 1960s or early seventies, excise duties existed but there was no other major corporate tax which meant that exports were fairly attractive despite weak government support in a pre-industrialisation phase. The Free Zone integrated the region with the global economy by creating goods for export, attracting foreign currency, and providing opportunities for companies outside the free zone to trade with international firms (Meneren, 2005) <sup>[7]</sup>.

### **The Infancy of the Free Zone**

Zafar (2010) <sup>[18]</sup> states that Mauritius benefited from the sugar protocols, the government also recognised early on the advantages of diversification. As a result, it relied heavily on EPZs but ensured that there was no anti-export bias. Mauritius has also proven very adept at embracing new sectors, particularly light manufacturing, offshore banking and financial services, and service-related information and communication technology (ICT). It has adapted and transformed its ethnic pluralism into a tangible economic force. The Free Zone operated in a sketchy framework since such a sector was just being created. It employed people from the urban areas and their periphery but could only attract low-skilled labour. Most employees came from less favoured economic backgrounds and had the opportunity to flee unemployment that was a growing spectre at that time. Compared to the sugar sector where labour was abundant but could claim decent pay with structured unions, the Free Zone operated in dire conditions with a relatively low output, lean production structure and long hours of work. Moonien (2015) <sup>[8]</sup> reports that, according to Poncini, at the time, innovation was regarded as crime. It created shifts in mindset that tolerated favoritism.

Incidentally, wages were meagre in this sector and broadly weaker compared to those offered elsewhere. This is where the term—Zone Franche, Zone Souffrance—was uttered both by politicians and activists. This also called for a better concern regarding the fate of employees within the sector and was also a source of inspiration for freedom fighters and idealists at that time. In an opposing manner, the manufacturing boom has largely been responsible for this economic turnaround. Incentives in the form of tax holidays, exemptions from import duties and from some aspects of the regulatory regime, as well as preferential credit, were provided to foreign and domestic investors who would specialise exclusively in exporting (OECD, 2006) <sup>[9]</sup>. The volume of EPZ activity expanded rapidly in this conjuncture.

### **The Cluster Concept**

Clustering is the phenomenon whereby firms from the same industry gather together in close proximity (The Economist, 2009) <sup>[16]</sup>. The Department of Training and Workforce Development, Australia (2013) <sup>[3]</sup> defines clustering as the process of grouping competencies into combinations which have meaning and purpose related to work functions and needs in an industry or enterprise. By sticking together, firms are able to benefit from such things as the neighbourhood's pool of expertise and skilled workers; its easy access to

component suppliers and its information channels. As such, Jose Poncini was a born entrepreneur with experience in the jewellery sector (Betchoo, 2015). He created his own business within the Free Zone and launched the Micro Jewels company that dealt with re-creating jewellery for export using ruby mineral extracted from expensive watches and related accessory. One local writer recently explained that such mineral was pierced and transformed into jewellery that could be exported to Europe.

Similar ideas burgeoned in the Free Zone. For example, razor blades were created locally under subcontracting at Mirro Verre. Small components of electronic production were also set up. Alongside, one could note the development of alternate industries like 'Subana' formed with the trio Sookur, Baichoo and Nundlall family in 1970. The Dookhun family launched locally-made Blendax Chlorophyll under a German licence and later promoted the first egg-based shampoo known as Shamtu. Credo deodorant spray was later developed and became a luxury for early adopters. Prince Industries developed Colgate Palmolive toothpaste. There was also the creation of Maucob to an industrial level with its highly popular orange and coffee sweets.

However, Porter (1998) <sup>[10]</sup> states that location should no longer be a source of competitive advantage in an era of global competition, rapid transport and high-speed telecommunications. The world's increasingly global businesses should by now be above and beyond geography.

### **Innovation in Creation**

Brands (2014) <sup>[1]</sup> states that sustainable process-driven innovation transforms ideas into vital intellectual property, intellectual property into revenues, and revenues into increased stakeholder value. While the creation of the idea is important, the creation of value for the customer is equally paramount. The different companies operating at Plaine Lauzun and Coromandel were examples of a high level of creativity. Small and highly differentiated industries promoted innovation with products that could be consumed locally and exported as well. This two-way traffic emerging from industrial development allowed Free Zone captains to further develop his business in a related area. Reinhardt (2015) <sup>[11]</sup> explains that low-cost innovations, defined as new products or services that organizations direct at consumers who have a lower willingness-to-pay, enable firm growth and help drive societies' prosperity. In this way, Adamas Company was opened some time later to meet the needs of a newly-developed industry known as tourism and also promote the sales of high quality watches and jewellery under a duty-free concept so far limited to travellers only. As an example, Poncini's company could afford selling Oris, Tag Heuer, Breitling along with the less expensive and youth-targeted Swatch around the 1980s.

### **The Need for Technological Diffusion**

The creation of the Free Zone called for technological diffusion. Diffusion is the "process by which an innovation is communicated through certain channels over a period of time among the members of a social system". An innovation is defined as "an idea, practice, or object that is perceived to be new by an individual or other unit of adoption" and "communication is a process in which participants create and share information with one another to reach a mutual understanding" (Rogers, 1995) <sup>[12]</sup>. In a labour-intensive environment, this was initially difficult. Since society was

traditional in structure with informal occupations like tailor, hair dresser, butcher, fish monger, labourer, etc. as traditional jobs, it became important to utter the need for technological use in industry. This was a biased perception at that time when the fear that machines could replace man and that the worker would become servile to technology created some apprehension.

Regarding technological diffusion, Hobijin and Comin (2008) [5] comment that most Sub-Saharan countries have failed to grow at above average rates despite their low initial per capita income. This performance is consistent with the long lags in technology adoption like 30 years for the telegraph, and 10 years for the telephone. However, due to the overall decline in adoption lags, the difference between the lags of Sub-Saharan African countries and the average adoption lags for these technologies are much shorter, i.e. between 1 and 2 years. Stoneman (1985) [15] confirms that some understanding of the process of technological diffusion is essential if we are to gain any insight into the processes of economic growth and development, for, whatever the emphasis has been in the past in research and public policy, it is the application of innovations (diffusion) rather than the generation of innovations (invention or Research & Development) that leads to the realisation of benefits from technological advance.

By the 1980s, through the first phase of industrialisation, technological diffusion became a must to promote growth and productivity through lesser effort. Incidentally, through the Mauritius Export Development and Investment Authority (MEDIA), the concept of the Free Zone left the urban areas to rural areas starting from Vallée des Prêtres and moving to Mahebourg and Pamplemousses later.

**The Creation of Competences in the Cluster**

If technology could serve the purpose of giving a push to the Free Zone sector, the success of such enterprise could be much dependent on competence developed in industry. For instance, Subana biscuits became an instant success due to the quality and adaptability of the product locally. Blendax toothpaste replaced the imported Kolynos toothpaste imported from India and local jewellery gained more credibility through creation in design linked with durability and beauty.

This is where the concept of value-added was developed. The 'haute valeur ajoutée' conceptualised the need to produce something superior by using the most appropriate raw material, producing better products through training and creation of competence, value for money capability coupled with aftersales and customer-focused service. Waits (2000) [17] suggests that clusters are a natural ally in meeting the challenges of customer input, responsiveness, accessibility, coordination, and scale. For one thing, as a collection of similar or related businesses, clusters provide a critical mass of customers, thereby making it easier for agencies and private consultants to justify spending time and resources to develop special expertise and programs tailored to fit their industries' particular needs.

**The Future of the Cluster Concept in Mauritius**

So far, this research paper has explained the success of the burgeoning industrial sector of the Mauritian economy in 1970 and, in particular, paid tribute to the founding fathers of industrialisation. Mauritius has made great advancements since then and aims at becoming a high-income country in the next ten years. The actual government has forwarded the

idea of creating nine smart cities by 2017 meaning that it aims to propel the economy at a much higher level than before.

Business Dictionary (2016) [2] defines the smart city as a developed urban area that creates sustainable economic development and high quality of life by excelling in multiple key areas; economy, mobility, environment, people, living, and government. Excelling in these key areas can be done so through strong human capital, social capital, and/or ICT infrastructure. This is expected to be a concrete project to help in the achievement of a new economic miracle proposed by the government.

The argument that arises here is whether the clustering concept will be adopted or not. Seen from the definition, the concept of smart city harnesses the need to create strong human capital and infrastructure to create sustainable development. From a personal view, the researcher hereby confirms that the new concept of smart city will be an extension to the existing cluster notion in that the same principles are applied within a new context.

**A model to crystallise the expanded cluster idea**

To crystallise ideas about the concept, a model has been developed. It purports the transformation of clusters into that of a smart city as follows:

$$C = s + k + t + l \tag{1}$$

Where C refers to cluster, s relates to skills, k as knowledge, t as technological diffusion and l as location, The smart city will be interpreted in the following formula

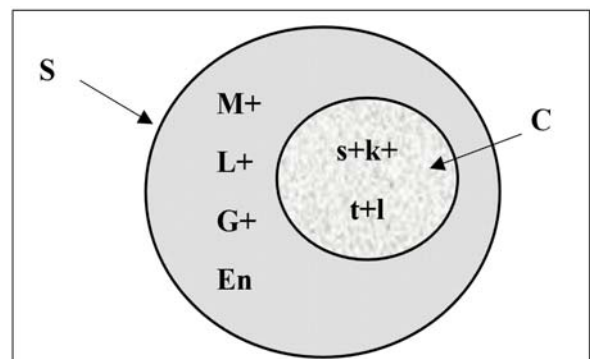
$$S = E + M + G + P + L + En \tag{2}$$

Where S= Smart City, E stands for economy, M for mobility, G for government, P for people, L for living and En for Environment, the capital letter is used because of the macro-nature of the environment; a smart city being a broader concept than skills or knowledge centred around a cluster. Since the smart city will generate human capital, social capital through ICT infrastructure, then S is broadly close to C Hence C is less or equal to S but initially lacked Government as support (G), the ease of mobility (M), the quality of living (L) and a good environment (En)

$$S \text{ is finally seen as } C \text{ compounded by } (M+L+G=En) \tag{3}$$

$$\text{Or } S=C (M+L+G+En) \tag{4}$$

Seen from a Venn diagram concept, the image is better synthesised as:



**Fig 1:** Venn diagram to picture the smart city concept and the cluster notion

It is understood here that the econometric formulation of the model is simplistic to ensure any reader's understanding of the concept without making extraneous effort. This model could be more deeply worked out with scientific arguments.

### Conclusion

This research work explained the creation of competences in the cluster regarding Mauritius as a new industrialised society as from the 1970s. It studied the various concepts that enabled its development and that have contributed to what the country is and where it stands today. The future lies in the development of smart cities that understate a new concept of economic development compared to those of the 1970s that were more micro-focused on skills, competence, technology and location that created the value-added which owes tribute to the founding fathers of industrialised Mauritius. It concludes that the cluster concept will not be avoided or repealed but it will still be part of the bigger picture which is now being boasted in the media and international stances which promote Mauritius as an industrialised high income economy in the years to come.

### References

1. Brands R. *Manage Innovation to Drive Value Creation, Innovation Excellence*, 2014.
2. Business dictionary Definition of a smart city, 2016. <http://www.businessdictionary.com/definition/smart-city.html#ixzz3zeswTvj9>
3. Department of Training and Workforce Development, Australia Definition of clustering, Clustering units of competency: A guide to how to cluster for delivery and assessment, (3rd edn), 2013, ISBN 978-1-74205-638-8.
4. Diamond W, DB Diamond B. *Tax-free trade zones of the world, Sub-Saharan Africa/Mauritius*, 1998, 2.
5. Hobijin B, Comin D. *An Exploration of Technology Diffusion*, Harvard Business School, Working Paper, 2008.
6. Interpress Mauritius, *a duty free island in the making*, AGOA. Info., 2005.
7. Meneren. *Introduction to Industrial free Zones*, the Meneren Corporation, 2005.
8. Moonien V. *The Port and Jin Fei projects should be our priority*, 18<sup>th</sup> July 2015, L'Express, 2015.
9. OECD *African Economic Outlook, Mauritius*. [www.oecd.org](http://www.oecd.org). 2006.
10. Porter M. *Clusters and the New Economics of Competition*, Harvard Business Review, November–December, 1998
11. Reinhardt R. *A Systematic Review on Low-cost Innovation Value Creation and Value Capture Capabilities*, Academy of Management Journal. 2015. doi:10.5465.
12. Rogers EM. *Diffusion of innovations* (4th edition). The Free Press. New York., 1995.
13. Schmitz H, Nadvi K. *Clustering and Industrialisation: Introduction*, World Development 1999; 27:1503-1514.
14. Shimy N. *From Free Zones to Special Economic Zones, The UAE Case Study*, Organisation for Economic Cooperation and Development, 2008.
15. Stoneman PL. *Technological Diffusion: The Viewpoint of Economic Theory*, University of Warwick, 1985.
16. *The Economist the idea Clustering*, 24<sup>th</sup> August 2009, The Economist newspaper, 2009.
17. Waits MJ. *The Added Value of the Industry Cluster Approach to Economic Analysis, Strategy Development, and Service Delivery*, Arizona State University, 2000.
18. Zafar A. *Mauritius: An Economic Success Story*, Chapter 5, World Bank Organisation, 2010.