Impact of Cluster Processes on Entrepreneurship Development: A Study of Daramdin Rose Cluster, Sikkim

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By

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DECLARATION

I, Khiraj Chhetri hereby declare that the subject matter of this dissertation is the record of work done by me, that the contents of this dissertation did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the dissertation has not been submitted by me for any research degree in any other University or Institute.

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CERTIFICATE

This is to certify that the dissertation entitled 'Impact of Cluster Processes on Entrepreneurship Development: A Study of Daramdin Rose Cluster, Sikkim' submitted to the Mizoram University for the award of the degree of Master of Philosophy in Commerce, is a record of research work carried out by Mr. Khiraj Chhetri under my supervision.

He has fulfilled all the requirements laid down in the M.Phil regulations of Mizoram University. This dissertation is the result of his investigation into the subject. Neither the dissertation as a whole nor any part of it was ever submitted to any other University for any research degree.

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PREFACE

Flowers symbolize beauty, purity, peace, love and passion. These attributes of flowers are intricately associated with the social beliefs and no social function is absolute without the use of flowers. In fact, man has utilized flower to express his sentiments on occasions of social functions, wedding, birthdays, funerals etc

Floriculture is one of the branches of agriculture that deals with the cultivation, marketing and arranging of flowers and foliage plants. Presently, there are more than 150 countries participating in the floriculture sector. Though India's share in the global floriculture trade is less than 1 per cent, of late it is emerging as a potential floriculture producer. India`s floriculture exports have increased from Rs. 1,800 lakh in the year 1993 to around Rs. 55,000 lakh during the year 2015-16.

Clusters and clustering of small firms is increasingly becoming an important tool in Micro, Small and Medium Enterprises (MSMEs) development in both developed and developing economies. Basically, clustering refers to a phenomenon wherein businesses producing a range of similar or same products co-exist in typical geographical locations. The foundations of this concept can be drawn from the work of a prominent British economist Alfred Marshall in his book '*Principles of Economics*' which was published in the year 1890 wherein he illustrated the phenomenon of clustering as "the concentration of specialized industries in particular localities". Further, he emphasized that these agglomerations of small firms enjoyed economies of scale comparable to those of the large firms. The concept was further popularized by Michael E. Porter in his book '*Competitive Advantage of Nations*' which was published in the year 1990. Subsequently, there has been a heave of interest in clusters as the drivers of regional and economic growth as well as the centre of innovation.

Clustering of firms' sets into motion several advantages that create a spin-off of enterprises in the cluster.

Sikkim is a land blessed by nature with bountiful resources, manifested in rich biodiversity, perennial water sources, diverse soil profile, extremely varied climate and wide ranging topographical variations. The extreme climatic diversity of the region gives rise to wide ranging agro-ecological situations ranging from sub-tropical in the lower valleys to alpine in higher elevations. These diverse agro-ecological conditions coupled with certain inherent geographical strengths and limitations gives horticulture greater comparative advantage over agricultural activities. In this backdrop, the present study intends to study whether the cluster processes have an impact on entrepreneurship development in the cluster. The present study has been divided into four chapters.

Chapter-1 deals with the basic understanding about agripreneurship, clustering, floriculture and the related concepts. It attempts to present a brief overview of the current scenario of the floriculture industry at the global level, national level and in the state of Sikkim. The present chapter also highlights the scope and significance of the study, statement of the problem, objectives of the study and the research methodology.

Chapter-2 intends to understand the socio-economic profile, viz., gender, age, educational status, marital status, caste, family size, occupation, religion, year of commencement of business, income etc. of the agripreneurs in Daramdin rose cluster.

Chapter-3 intends to investigate the impact of cluster processes on entrepreneurship development. To achieve this objective, the researcher attempts to assess the extent of influence exerted by the cluster on entrepreneurship in matters such as initial expectations of agripreneurs from support agencies, agripreneurs` economic reasons for entering the

floriculture industry and agripreneurs` reasons for establishing up their units in Daramdin cluster.

Chapter-4 highlights the summary of the present study and attempts to provide meaningful suggestions based on the outcome of the study.

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(KHIRAJ CHHETRI)

CONTENTS IN BRIEF

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LIST OF ABBREVIATIONS

%	-	Per cent
$	-	Dollar
ATMA	-	Agricultural Technology Management Agency
APEDA	-	Agricultural and Processed Food Products Export Development Authority
EDPs	-	Entrepreneurship Development Programmes
ESI	-	Entrepreneurial Success Index
Ha	-	Hectare
HMNEH	-	Horticulture Mission for North East and Himalayan States
IBED	-	India Brand Equity Foundation
KVKs	-	Krishi Vigyan Kendras
MIDH	-	Mission for Integrated Development of Horticulture
MT	-	Metric Tonnes
NGOs	-	Non-Governmental Organizations
NHB	-	National Horticulture Board
NSSO	-	National Sample Survey Office
OBC	-	Other Backward Class

SC	-	Scheduled Caste
SSIs	-	Small Scale Industries
ST	-	Scheduled Tribe
WTO	-	World Trade Organization
UNIDO	-	United Nations Industrial Development Organization
U.S.A.	-	United States of America

Chapter – 1
Introduction

This chapter provides a preliminary overview about clustering, definition and types of clusters, cluster initiative, cluster development, significance of clusters in the developing economies and in India and so forth. It also attempts to provide a background of the floriculture industry at the global level, national level and in the State of Sikkim. It further highlights the objectives of the present study, the research design, literature review and concludes by presenting a brief outline about the plan or organization of the present study.

Floriculture is one of the branches of agriculture that deals with the cultivation, marketing and arranging of flowers and foliage plants. Presently, there are more than 150 countries participating in the floriculture sector. The global floriculture industry is growing at the rate of around 10 to 15 per cent. The global export of floriculture products was around US$ 17 billion during 2016. Europe was the largest exporter of floriculture products. Netherlands was the leading exporter of floriculture products with a share of 43.95 per cent followed by Colombia (7.20%) and Germany (4.99%) respectively. India`s share in exports was 0.42 per cent and ranked 23rd in the list of exporting countries in terms of share in exports (http://agriexchange.apeda.gov.in/).

The global import of floriculture products was around US$ 17 billion during 2016. Germany was the leading importer with a share of 15.62 per cent followed by Netherlands (13.31%) and USA (12.74%) respectively. India`s share in imports was a meagre 0.12 per cent and ranked 50th in the list of importing countries in terms of share in imports (http://agriexchange.apeda.gov.in/).

As per the data prepared by Rabobank (The world Floriculture Map, 2015), in 2013 the global export of cut flowers, cut foliage, living plants and flower bulbs amounted to US$ 20.6 billion as against US$ 21.1 billion in 2011 and nearly US$ 8.5 billion in 2001.

Though India's share in the global floriculture trade is less than 1 per cent, of late it is emerging as a potential floriculture producer. India`s floriculture exports have increased from Rs. 1,800 lakh in the year 1993 to around Rs. 55,000 lakh during the year 2015-16 (http://agriexchange.apeda.gov.in/). The growth of floriculture in India can be supported from the fact that India is sanctified with a diversity of agro-climatic conditions prevailing in different regions of the country ensuring production of nearly all the ornamental crops throughout the year.

India is among the world`s largest floriculture production centre in terms of the total area of 248.51 million hectares under cultivation (Ministry of Agriculture, Government of India, 2014). During 2012-13 about 233,000 hectares of land across the country was utilized for floriculture, producing 1729,000 metric tonnes (MT) of loose flowers and 76,732 lakhs cut-flowers (Ministry of Agriculture, Government of India, 2014). In 2012-13 West Bengal emerged as the leading cut-flower producer with a share of 33.14 per cent followed by Karnataka (12.30%) and Maharashtra (10.31%) respectively (Ministry of Agriculture, Government of India, 2014).

Rose is the major cut flower grown all over the country. Amongst the cut-flowers the total production of roses in India was 120,950 tonnes which was the highest in the country during 2014. Karnataka was the leading state in cut-flower roses with the production of 57,020 tonnes followed by Andhra Pradesh (28,310 tonnes) and Orissa (27,670 tonnes) respectively. Sikkim`s contribution in the Indian cut-flower rose industry was 180 tonnes which was around 0.15 per cent [National Horticulture Board – Final area and production estimates for horticulture crops (2014-2015) – retrieved from nhb.gov.in].

Sikkim, bountifully endowed with facilitative geo-climatic conditions, has a huge potential to tap the floriculture market in the domestic and the global markets.

1.1 SOME KEY CONCEPTS

- ***Agripreneurs*** **-** According to Aleke *et al*. (2011), an agripreneur is defined "as a business owner who is self-employed and seeks to create wealth within the agricultural industry". Carr (2016) defines agripreneur as a person who identifies viable business opportunities in agriculture, gathers resources, establishes and manages the resulting agricultural enterprise.

  Bairwa *et al.* (2014) uphold that an agripreneur should be proactive, curious, determined, persistence, visionary, hard working, honest, integrity with strong management and organizational skills. Thus, an agripreneur may undertake a range of different activities which have a common link – the perception of an opportunity and the willingness to do something to take advantage of it. Explicitly, the agripreneur may be considered as a risk-taker and has the opportunity to initiate and to implement decisions which deal with the uncertain agricultural business environment.

- ***Agripreneurship*** – There is a dearth of literature on agripreneurship and agripreneurship development. The concept of agripreneurship in the fields of entrepreneurship and agriculture is relatively new and is still in the evolving phase (Otache, 2017).

  The term agripreneurship is synonym with entrepreneurship in agriculture and refers to agribusiness establishment in agriculture and allied sector (Bairwa *et al*., 2014). Agripreneurship has its root in the fields of agriculture and entrepreneurship (Nwibo *et al*., 2016). Agripreneurship is an employment strategy that can lead to economic self-sufficiency of rural people (Ahmed *et al*., 2011).

A shift from agriculture to agribusiness is an essential pathway to revitalize Indian agriculture and to make more attractive and profitable venture. Agripreneurship have the potential to contribute to a range of social and economic development such as employment generation, income generation, poverty reduction and improvements in nutrition, health and overall food security in the national economy. Agripreneurship has potential to generate growth, diversifying income, providing widespread employment and entrepreneurial opportunities in rural areas (Bairwa *et al*., 2014).

- ***Entrepreneurship*** - Entrepreneurship is the dynamic process of creating incremental wealth by individuals who take major risks in terms of financial, social and psychic results (Rauch *et al*., 2009). Dollinger (1995) defines entrepreneurship in agriculture as the creation of an innovative economic organization for the purpose of growth or gain under conditions of risk and uncertainty in agriculture.
- ***Cluster*** - A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities. Clusters take varying forms depending on their depth and sophistication, but most include end-product or service companies; suppliers of specialized inputs, components, machinery, and services; financial institutions, and firms in related industries (Porter, 1998a). Clusters enhance firm access to specialized labour, materials, and equipment and enable lower operating costs.
- ***Floriculture*** **-** Floriculture can be defined as a specialized branch of horticulture which deals not only with the cultivation of flowers, foliage, climbers, trees, shrubs, cacti, succulents, etc., but also with their marketing and production of value-added products from them (Singh, 2006). It is an aesthetic branch of Horticulture which deals with growing, selling designing and arranging flowers and foliage plant.

Floriculture includes the cultivation of flowering and ornamental plants for sale or for use as raw materials in the cosmetics or perfume industry as well as in the pharmaceutical industry (Kumar *et al*., 2012).

- ***Cut Flowers*** **–** Cut flowers are fresh flower harvested in clusters/spike or in single along with their stem. Cut flowers are flowers or flower buds (often with some stem and leaf) that have been cut from the plant bearing it.
- ***Loose Flowers*** **–** Loose flowers are the flowers which are usually harvested without stalk and used for Gajara, Veni and Garland.

1.2 CLUSTERING – AN OVERVIEW

Clusters and clustering of small firms is increasingly becoming an important tool in Micro, Small and Medium Enterprises (MSMEs) development in both developed and developing economies. Basically, clustering refers to a phenomenon wherein businesses producing a range of similar or same products co-exist in typical geographical locations. The foundations of this concept can be drawn from the work of a prominent British economist Alfred Marshall in his book '*Principles of Economics*' which was published in the year 1890 wherein he illustrated the phenomenon of clustering as "the concentration of specialized industries in particular localities". Further, he emphasized that these agglomerations of small firms enjoyed economies of scale comparable to those of the large firms. The concept was further popularized by Michael E. Porter in his book '*Competitive Advantage of Nations*' which was published in the year 1990. Subsequently, there has been a heave of interest in clusters as the drivers of regional and economic growth as well as the centre of innovation.

Nadvi and Barrientos (2004) emphasize that clustering sets into motion a range of potential benefits that can directly affect the poor, both as waged workers, home workers, own-account workers as well as small entrepreneurs. Clusters and associated networks

enables small firms to combine the advantages of running small units with the benefits of scale and specialisation enjoyed by large units.

1.2.1 *Defining a cluster*

Broadly, clusters may be defined as geographic concentrations of inter-connected companies, specialised suppliers, service providers, research organizations, support initiatives and associated institutions in a particular field that are present in a nation or a region. Clusters are based on unique strengths and unique products and services. Clusters have been defined and conceptualised differently by different scholars and practitioners.

Rosenfeld (1995) defined clusters as "Geographically bounded concentration of similar, related or complementary businesses with active channels for business transactions, communications and dialogue that share specialised infrastructure, labour markets and services, and that are faced with common opportunities and threats."

Porter (1998a) defined clusters as "A geographically proximate group of interconnected companies and associated institutions in a particular field linked by commonalities and complementarities. Clusters encompass an array of linked industries and other entities important to competition, including governmental and other institutions - such as universities, standard setting agencies, think tanks, vocational training providers and trade associations".

The UNIDO defined clusters as "A sectoral and geographical concentration of enterprises faced with common opportunities and threats which: a) gives rise to external economies (e.g. specialised suppliers of raw materials, components and machinery, sector specific skills, etc, b) favours the emergence of specialised infrastructures and services and c) enables cooperation among public and private local institutions to promote local production, innovation and collective learning."

1.2.2 *Types of Cluster*

Literature suggests that a cluster has several dimensions. According to Enright (1998), clusters are classified as working clusters, latent clusters, potential clusters and wishful thinking clusters. *Working clusters* are those in which a critical mass of local knowledge, expertise, personnel, and resources create agglomeration economies that are used by firms to their advantage in competing with those outside the cluster. *Latent clusters* have a critical mass of firms` related industries sufficient to garner the benefits of clustering, but have developed the level of interaction and information flows necessary to actually benefit from co-location. *Potential clusters* lack the critical mass of a cluster both at the core (i.e. principal actors) and also at the periphery (i.e. groups of sub-contractor firms, support institutions, etc.). *Wishful thinking clusters* are those chosen by governments for support, but which lack a critical mass of firms, or favourable conditions for organic development. Clusters may be also classified as artisan clusters and industrial clusters. An *artisan cluster* is characterized by the predominance of household based enterprises. Such enterprises use personal skills of the artisans to production, rather than electrically driven machinery. They are predominantly run by the family labour both in production and management of the enterprise. An *industrial cluster* on the other hand, may also have some household enterprises but is characterised by predominance of small and medium industrial enterprises with hired labourers. Artisan clusters may generally produce either handicraft or handloom products. Further a cluster may also be classified as a natural cluster and an induced cluster. A *natural cluster* is a type of cluster which emerges as a result of a natural phenomenon. These clusters have evolved due to local availability of raw material, skill or market demand. Most of the clusters known in India are natural clusters. Such clusters may have been in existence for several decades and at times for centuries. On the other hand, clusters may also emerge at a location due to specific

investment policy or public provision of specialised infrastructure. These public measures can lead to creation of new clusters and therefore referred to as *induced clusters*.

1.2.3 *Cluster Initiative*

Mills *et al*. (2008) define cluster initiative as "a formally organized effort to promote cluster growth and competitiveness through collaborative activities among cluster participants".

1.2.4 *Cluster Development*

According to UNIDO (2006), cluster development is a need-based approach that does not commence with a predetermined agenda. The developmental agenda for each cluster is based on the demands articulated by its stakeholders. The concept of cluster development implies working with like businesses.

Many research studies have indicated cluster development as a tool for regional and economic development (Rosenfled, 1995; Porter, 1998a; Rocha, 2004; Sternberg and Litzenberger, 2004).

1.2.5 *Significance of Clusters in Developing Economies*

Nadvi and Schmitz (1994) observe that sector-specific and geographically bounded clusters are frequent features of SSE manufacturing in developing countries. One of the dynamic clusters located in Pakistan is the Sialkot stainless steel surgical instrument cluster. The target market of this cluster is the United States and the Europe. Similarly, the electrical fans clusters based in Gujarat (Pakistan) and the farm machinery clusters based in Daska (Pakistan) are among the renowned clusters. Brazil which is located in South America is the leading producer of leather shoe products whose export-oriented manufacturing units are geographically concentrated in two locations namely, Franca and the Sinos valley. On the

other hand, the roof tiles manufacturing clusters in Central Java, Indonesia and carpenting and metal-working clusters of Ghana are examples of sector-specific clusters.

1.2.6 *Significance of Clusters in India*

Clustering in India has existed since decades. Nadvi and Barrientos (2004) maintain that clusters are considered as an important tool as it has the potential to enable small firms surmount constraints coupled with size, promote technological development, and augment their competitiveness in the neighbouring and global markets.

As per the India Brand Equity Foundation (IBEF) 2013, there are more than 600 micro and small clusters and over 7000 artisan micro enterprise clusters operating in India. Moreover, there are more than 2500 untapped rural industry clusters in the country. Some of these clusters are so large that they account for nearly 80 per cent of the production of the selected product within the country. For example, the knitwear clusters of Ludhiana, hosiery clusters of Tirupur etc.

1.3 CLUSTER PROCESSES

Nadvi and Barrientos (2004) observed that clustering sets into motion a range of potential benefits which can be through externality gains, joint action, and local social capital. Clusters can set into motion processes that improve the ability of small firms to improve market access through externality gains and through joint action. This can raise incomes for those who work in clusters, raise their assets and capabilities and have a significant impact on lowering levels of poverty and social deprivation. Joint action, often cemented through social capital, can improve local networks and support mechanisms that help reduce future risks and vulnerability to shocks.

External Economies - Agglomeration benefits may not only raise efficiency, they may also make it possible for smaller firms to access markets through a division of labour.

Economies of scale and scope can allow individual small firms to survive by specializing in specific tasks within the production process and by accessing specialist skills and services and inputs from within the cluster. Similarly, external economies that arise from agglomeration can result in a significant lowering of costs in accessing inputs, labour and information. Again, this can help small firms to survive and grow in ways that would be infeasible if they operated in isolation.

Knowledge spillovers found in clusters may also make it feasible for small firms to acquire new know-how, new products and new production techniques that could not be obtained through markets. Clustering can thus enhance the individual capacities of small firms to access markets, and acquire skills, knowledge, credit and information.

Joint action - Clustering can also promote collective capacity. In addition to the direct economic benefits that passively accrue to small firms by virtue of their location within the cluster, there are significant gains from active local collaboration that clustering can set into motion. Local cooperation, both between individual firms and through cluster institutions can strengthen the ability of clustered actors to compete in markets, by sharing costs and by engaging in joint tasks such shared marketing and distribution. Moreover, such forms of joint action can help clustered firms confront external threats and challenges and face vulnerabilities. These external challenges are pronounced as local clusters engage in global markets. Globalization, namely the increasingly rapid flows of capital, goods, peoples, and ideas across borders, can help bring local actors into global markets and enhance their income earning opportunities. Globalization can also potentially increase the vulnerability of local actors to sudden changes in global demand, in trading rules and in financial stability. Thus, with globalization there is also greater instability and vulnerability. Clusters can help SMEs reduce their exposure to exogenous shocks and risks. Local institutions such as business associations and collective service centres can help clustered firms acquire the skills, the

technical abilities to reduce their vulnerability to the exigencies of globalization, thereby enhancing the well-being of workers and producers.

Social capital - Local initiatives and local collaboration are themselves often strengthened by local social capital. Clusters tend to have a strong presence of social capital, which can take the form of shared norms and/or common identities. This can, potentially, help reduce vulnerability, help flows of knowledge within the cluster, provide the basis to strengthen local institutions, and help firms upgrade. We need to consider how social capital works to do this, and in particular how it may mitigate against poverty. But there is a caveat. Social capital can also serve to raise local competition as much as it helps local cooperation. Divisions within communities can reduce local cooperation and serve to worsen poverty impacts. Finally, it is important to recall that social capital is not static. Its forms, and how it works, can change over time. In particular, it is affected by economic changes (and growth) within the cluster.

Marshall (1920) pointed out to three important gains from proximity of firms` viz., industry specialization, labour pooling & knowledge spillovers.

With the presence of many similar firms, firms can pursue a higher degree of intra-industry specialization and thus achieve higher productivity. In addition to these gains from intra-industry specialization, economic benefits can also be gained from inter-industry specialization where specialized suppliers and subsidiary industries provide inputs that enhance the performance of the core industry. Marshall also stresses the local labour market as a source of economic benefits. Specialization allows firms to benefit from access to a pool of specialized labour, which also enhances economic performance. Marshall`s third main mechanism has to do with the flow of knowledge between firms. Knowledge spillover occurs when knowledge flows between firms through social interaction.

New firms are subject to particular difficulties in that they face a general lack of resources (Audretsch, 1995), are more vulnerable to external economic shocks (Delmar *et al*., 2006), and frequently face cost disadvantages by operating farther from the industry`s minimum efficient scale (Pe`er and Vertinsky, 2006).

1.4 CLUSTERS AND ENTREPRENEURSHIP

Literature suggests that clusters foster business creation (Marshall, 1966; Krugman, 1991; Rocha and Sternberg, 2005). Rocha and Sternberg (2005) further observed that the combination of resource availability, lower entry and exit barriers, reduced transaction costs, and market size within industry agglomerations positively affects the creation of firms.

Clusters contribute to entrepreneurship with the interaction between the geographical, inter-firm network, and organisational network dimensions (Rocha, 2004). Clusters and entrepreneurship have become extremely admired subjects in economics, regional science, and economic geography. In the last decade, the seminal works by Michael Porter (1990) and Paul Krugman (1991) have motivated a growing number of scholars to probe the empirical evidence for clusters, their definition, and their implications for economic policy. It would not be an exaggeration to say that the concept of clusters has become en vogue in the abovementioned academic disciplines, as well as in many applications of local economic development policy. The same is true of entrepreneurship and new firm formation processes. It is the mark of the new economy boom, as indicated by economic policy and widely in the academic world (Wennekers and Thurik, 1999; Reynolds *et al*., 2002), that entrepreneurial activities are seen as a crucial impetus for both national and regional growth.

In contrast, a strong cluster environment surrounding a particular region-industry augments the incentives and potential for entrepreneurship. The firms within a geographically concentrated cluster share common technologies, skills, knowledge, inputs, consumers and

institutions, facilitating agglomeration across complementary and related industries. A strong cluster environment augments growth at the region-industry level by facilitating operational efficiency and raising the returns to business expansion, capital investment and innovation, thereby increasing job creation and productivity. (Porter, 1990, 1998a, 1998b, 1998c; Saxenian, 1994; Feldman and Audretsch, 1999; Bresnahan and Gambardella, 2004; Cortright, 2006; Delgado *et al*., 2007).

More explicitly, clusters facilitate new business formation and the growth of successful start-ups by lowering the costs of entry (e.g. by providing ready access to suppliers or low-cost access to specialized inputs, offering an environment in which the costs of failure may be lower), enhancing opportunities for innovation-based entry (as a stronger cluster environment will allow local entrepreneurs to develop and commercialize new technologies more rapidly) and allowing start-up firms to leverage local resources to expand new businesses more rapidly. Finally, strong clusters are often associated with the presence of innovation-oriented local consumers, thus providing increased opportunities for entry into differentiated market segments. As a result, entrepreneurship is a particularly important channel for cluster-driven agglomeration, and may therefore be crucial for the role of clusters in enhancing regional performance (Saxenian, 1994; Porter, 1998a; Swann *et al*., 1998; Feldman, 2001; Feldman *et al*., 2005; Feser *et al*., 2008; Wennberg and Lindqvist, 2008).

Given this, the more surprising it is to the researcher is that, there exist only few analyses to date of the relationship between cluster attributes of a region and entrepreneurship activities in the same region. Although there is literature to be found on a theoretical level, there is no coherent theoretical framework elucidating firm start-up and cluster development from a regional perspective (Fornahl and Menzel, 2002). Hence, the empirical research gap is even more substantial.

1.5 FLORICULTURE – A BACKGROUND

Flowers symbolize beauty, purity, peace, love and passion. These attributes of flowers are intricately associated with the social beliefs and no social function is absolute without the use of flowers. In fact, man has utilized flower to express his sentiments on occasions of social functions, wedding, birthdays, funerals etc.

Singh (2016) defines floriculture as "a specialized branch of horticulture which deals not only with the cultivation of flowers, foliage, climbers, trees, shrubs, cacti, succulents, etc., but also with their marketing and production of value-added products from them". Floriculture includes the cultivation of flowering and ornamental plants for sale or for use as raw materials in the cosmetics or perfume industry as well as in the pharmaceutical industry (Kumar *et al*., 2012)..

The floriculture industry comprises of (Singh, 2006):

i. The florist trade of traditional and contemporary cut flowers and cut foliage, both fresh and dried and value-added products like bouquets, floral baskets, flower arrangements and garlands.
ii. The plant nursery for propagation and supply of plant material including tissue culture plants, seeds, bulbs, corms and other propagated material.
iii. Plant rental service for supply of house plants on annual rent for a specific period.
iv. Flower perfume and *gulkand*.

1.5.1 Status of Global Trade in Floriculture

With the opening up to the global market in the WTO regime paving way to free movement of floricultural products globally, globalization and its effect on income generation have all contributed to the increase in per capita consumption of flowers in most countries. The

perceptible feature of global floriculture is the growth and development of floriculture in non-traditional areas.

The Netherlands, Italy, Germany, and Japan had strong tradition for growing and consumption of flowers. The concept of commercial floriculture was disseminated across the globe from those regions. Currently, the production centres are developing in Latin America, Africa and also in Asia to meet the demand of consuming countries and also to expand the domestic market, corresponding with improved economic conditions. These countries offer exceedingly qualitative floricultural products with low cost price which is finding a favourable place in the markets of Western Europe, America and Japan. Also the emergence of new production centres has made floriculture more competitive and this in turn is benefitting the ultimate consumers.

TABLE-1.1

International Trade in Flowers (Export)

Exporting Country	2016		Percentage Share in 2016 (%)
	Quantity (in MT)	Value (in Mill. US Dollars)	
Netherlands	21,25,083.94	7,466.26	43.95
Colombia	1,30,663.08	1,222.82	7.20
Germany	6,28,237.29	847.09	4.99
Ecuador	73,203.90	756.36	4.45
Kenya	1,90,491.08	731.56	4.31
Italy	3,43,621.08	656.02	3.86
Belgium	5,17,616.53	630.02	3.71
USA	1,08,654.08	386.26	2.27
Canada	61,504.29	366.41	2.16
Denmark	1,57,111.66	354.55	2.09
Spain	1,84,346.24	349.09	2.05
China	1,79,671.34	343.87	2.02
**Others*	13,48,090.86	1848.32	16.94
Total	**64,81,911.34**	**16736.37**	**100.00**

Source: APEDA Agri-Exchange

* India`s share in exports is 0.42 per cent.

Table-1.1 shows the major exporters of floriculture products in the world and the value of their exports for the year 2016. It shows that the global export of floriculture products was around US$ 17 billion in 2016. Europe was the largest exporter of floriculture products. It is evident from Table-1.1 that Netherlands was the leading exporter of floriculture products with a lion`s share of 43.95 per cent followed by Colombia (7.20%),

Germany (4.99%), Ecuador (4.45%), Kenya (4.31%), Italy (3.86%), Belgium (3.71%), USA (2.27%), Canada (2.16%), Denmark (2.09%), Spain(2.05%), China (2.02%) and the remaining countries were holding a share of less than 2 per cent. Among other countries, India`s share in export of floriculture products was 0.42 per cent and ranked 23rd in the list of exporting countries.

TABLE-1.2

International Trade in Flowers (Import)

Importing Country	2016		Percentage share in 2016 (%)
	Quantity (in MT)	Value (in Mill. US Dollars)	
Germany	7,95,290.36	2,653.73	15.62
Netherlands	15,59,756,.09	2,262.07	13.31
U.S.A	2,50,319.54	2,164.76	12.74
United Kingdom	3,72,593.63	1,591.90	9.37
France	3,30,334.58	1,152.60	6.78
Japan	1,06,353.03	582.83	3.43
Russia	1,70,735.50	577.76	3.40
Switzerland	1,87,682.17	557.08	3.28
Italy	2,82,776.11	532.71	3.14
Belgium	1,92,695.66	443.31	2.61
Canada	74,371.36	376.65	2.22
**Others*	32,02,546.37	2,343.50	24.10
Total	**65,18,170.37**	**16,989.99**	**100.00**

Source: APEDA Agri-Exchange

*India`s share in imports is 0.12 per cent.

Table-1.2 shows the major importers of floriculture products in the world and the value of their imports for the year 2016. The global import of floriculture products was

around US$ 17 billion in 2016. Europe was the largest importer of floriculture products. It is evident from the Table-1.2 that Germany was the leading importer of floriculture products with a share of 15.62 per cent followed by Netherlands (13.31%), U.S.A. (12.74%), United Kingdom (9.37%), France (6.78%), Japan (3.43%), Russia (3.40%), Switzerland (3.28%), Italy (3.14%), Italy (3.14%), Belgium (2.61%), Canada (2.22%) and the remaining countries were holding a share of less than 2 per cent. Among other countries, India`s share in import of floriculture products was around 0.12 per cent and ranked 50th in the list of importing countries.

1.5.2 Floriculture in the Indian Context

India is sanctified with a diversity of agro-climatic conditions prevailing in different regions of the country ensuring production of nearly all the ornamental crops throughout the year. Floriculture in India is dynamic and expanding industry recording imposing annual growth rate.

Flowers have been a part of Indian culture ever since the existence of humanity. Fuelled with floriculture, flower consumption in the country has always been very high. India is among the world`s largest flower producing countries with around 250,000 hectares of land under cultivation. Indian floriculture, however, differs from the modern floriculture world over. Indians use buds of flowers to make garlands and offerings to deities in the ancient times. India`s floriculture exports have increased from Rs.1,800 lakh in the year 1993 to around Rs. 55,000 lakh in the year 2015-16.

The National Horticulture Mission under the Ministry of Agriculture has changed the entire landscape of horticulture sector including floriculture. Horticulture department under their respective state governments are also supporting the growth of floriculture. Floriculture has been identified as a sunrise industry and has also been accorded 100 percent export

oriented status by the Government of India in 1991. This has been done in order to provide an incentive to the entrepreneurs and also to expand the sector for creating a positive environment for entrepreneurship development in this field. The Agricultural and Processed Food Products Export Development Authority (APEDA), the nodal organization for the promotion of agri-products including flowers has also launched several schemes for promoting floriculture exports from India.

TABLE-1.3

Area and Production of Flowers in India during 2014-15

Flowers	**Area in '000 Ha**	**Production in '000 Tonnes**		**Total Production in '000 Tonnes**	**Share in Production of Cut Flowers (%)**
		Loose	**Cut**		
Rose	26.33	91.75	120.95	212.70	24.98
Gladiolus	11.16	48.32	54.59	102.91	11.28
Gerbera	0.90	4.00	21.84	25.84	4.51
Chrysanthemum	11.05	106.76	6.03	112.79	1.25
Tube Rose	6.82	42.74	5.93	48.67	1.22
Orchids	0.47	2.50	5.50	8.00	1.14
Carnation	0.23	0.61	5.20	5.81	1.07
Marigold	56.04	497.59	4.28	501.87	0.88
Anthurium	0.12	0.42	2.91	3.43	0.60
Jasmine	10.01	56.57	1.73	58.30	0.36
Tulip	0.02	0.00	0.00	0.00	0.00
Other Flowers	125.36	805.92	255.20	1061.12	52.71
Total	**248.51**	**1658.72**	**484.17**	**2142.89**	**100**

Source: Adapted from National Horticulture Board (NHB)

Table-1.3 shows the total area under cultivation and the production of flowers in India during the period 2014-15. It can be observed that the total area under cultivation and the production of flowers were 248,510 hectares and 484,170 tonnes respectively. It can also be observed that among total cut flowers production, the production of rose was the highest with 120,950 tonnes which accounts for around 25 per cent of the total flowers production followed by Gladiolus (54,590 tonnes i.e. 11.28%) and Gerbera (21,840 tonnes i.e. 4.51%) respectively.

TABLE-1.4

India`s Export of Flowers

Country	**2015-16**		**Percentage share in 2015-16**
	Quantity (in MT)	**Value (in Rs. lakhs)**	
United States	5,166.27	9,679.11	20.02
Germany	2,338.56	5,692.88	11.78
United Kingdom	2,200.59	5,603.43	11.59
Netherland	1,883.90	5,567.55	11.52
United Arab Emirates	1,550.28	2,784.06	5.76
Canada	943.92	1,736.13	3.59
Japan	421.97	1,596.52	3.30
Singapore	1,176.73	1,428.87	2.96
Australia	397.44	1,393.24	2.88
Italy	444.91	1,135.73	2.35
China	334.52	1,082.84	2.24
Others	5832.57	10,640.94	22.01
Total	**22,691.66**	**48,341.30**	**100**

Source: Adapted from APEDA Agri-Exchange

Table-1.4 shows India`s export of flowers to the rest of the world during the year 2015-16. It is evident from Table 1.4 that the volume and value of India`s export of flowers to the rest of the world were 22,691.66 MT and Rs. 48,341.30 lakhs respectively. It can be observed that the leading importer of Indian flowers was USA which holds a share of 20.02 per cent followed by Germany (11.78%), United Kingdom (11.59%) and Netherlands (11.52%) respectively. '*Others*' includes countries having a share of less than 2 per cent.

1.5.3 Floriculture in Sikkim

Sikkim accounts for just 0.2 per cent of total geographical area of the country and is home to more than 25 per cent species of flowering plants found in India. It also has 60 flowering species per 100 square kilometres and hosts 125 endemic species.

Sikkim is a small hilly State in the Eastern Himalayas with formidable physical features. It is bounded by vast stretches of Tibetan Plateaus in the North, the Chumbi Valley of Tibet and the Kingdom of Bhutan in the East, the Kingdom of Nepal in the West and Darjeeling District of West Bengal in the South. The State of Sikkim has a total area of only 7096 sq km. and is stretched over 112 kilometres from North to South and 64 kilometres from East to West. Sikkim rests in the North-Eastern Himalayas between 27º 00'46" to 28º 07'48" North Latitude and 88º 00'58" to 88º 55'25" East Longitude. The State receives an Annual Rainfall of 2000mm to 4000mm (Census of India, 2011).

The agricultural practices and adaptations in the state are highly variable in time and space due to varying altitudes and agro-climatic situations. Agriculture is the primary activity of the people of Sikkim. About 109,000 hectares i.e. 15.36 per cent of the total geographical area of the land is devoted to agriculture but the actual area available for agricultural purpose is declining due to diversion of cultivable land for non-agricultural purposes like establishment of industries, township expansion, construction of roads, hydro-power projects,

buildings etc. Farming has been considerably handicapped by small and fragmented holdings, limited irrigation, and lack of farm mechanization and frequent occurrence of natural calamities like landslides, floods and earthquakes. In view of these facts, emphasis is being given to intensive and judicious use of limited land so that the per capita land productivity and overall production is maintained at a desired level.

According to the Census of India, 2011, the total population of Sikkim stands at 610,577 which is the accumulation of 43,709 belonging to North district, 136,435 belonging to the West district, 146,850 belonging to the South district and 283,583 belonging to the East district. Out of this total population 74.85 per cent of the state population lives in the rural areas while 25.15 per cent of the state population lives in urban areas in 2011 census. In West district 96.15 per cent population lives in rural area while only 3.85 per cent population lives in the urban areas.

Sikkim is a land blessed by nature with bountiful resources, manifested in rich biodiversity, perennial water sources, diverse soil profile, extremely varied climate and wide ranging topographical variations. The extreme climatic diversity of the region gives rise to wide ranging agro-ecological situations ranging from sub-tropical in the lower valleys to alpine in higher elevations. These diverse agro-ecological conditions coupled with certain inherent geographical strengths and limitations gives horticulture greater comparative advantage over agricultural activities.

More than 64 per cent of the population in the state is dependent on agriculture and allied sectors for livelihood. For the development of horticulture in North East region of India in general and Sikkim in particular, the scheme launched by the Govt. of India- *Horticulture Mission for North-East and Himalayan States* has acted as an imperative mechanism to drive its growth. The most significant factor leading to this development is increased investments

harmonized with technological interventions fully integrated with strategic planning and critical approaches.

TABLE-1.5

Area and Production of Flowers in Sikkim during 2014-15

Flowers	Area in '000 Ha	Production in '000 Tonnes		Total Production in '000 Tonnes
		Loose	Cut	
Anthrium	0.01		0.03	0.03
Carnation	0.01		0.04	0.04
Chrysathemum	-	-	-	-
Gerbera	0.03		0.11	0.11
Gladiolus	0.03		0.88	0.88
Jasmine	-	-	-	-
Marigold	0.02	16.50	-	16.50
Orchids	0.04		0.25	0.25
Rose	0.03		0.18	0.18
Tube Rose	-	-	-	-
Tulip	-	-	-	-
Other Flowers	0.08		0.44	0.44
Total	**0.24**	**16.50**	**1.92**	**18.42**

Source: Adapted from National Horticulture Board (NHB)

Table-1.5 shows the area under cultivation and production of flowers in Sikkim during 2014-15. It is evident from Table-1.5 that the total area under floriculture in Sikkim was 240 hectares and the total production of flowers was 18420 tonnes of which cut flowers accounted for 1920 tonnes. With respect to rose, the total production of roses in the state was

around 180 tonnes which covers an area of around 3 hectares. Amongst the cut flowers, rose ranked third in terms of production.

1.5.4 Rose – An Overview

Roses are deciduous woody perennials that can be used for cut flowers, drying and preserving, and for landscaping. A Rose belongs to the family *Rosacea* and the entire species of roses with slight exceptions belongs to the genus *Rosa*. The rose species contains over 100 species and comes in a variety of colours. The rose is one of the oldest flowers in cultivation and the most popular of entire garden flowers throughout the world. It is one of the nature`s beautiful creations and is universally known as the *'Queen of Flowers'* (Singh, 2006)

The most commercially important types of roses are sweetheart (intermediate), hybrid tea, and spray roses. Sweetheart roses have one small bloom per stem, generally one-half inch to 2 inches in diameter, and are typically used in bridal bouquets. Hybrid tea roses also have one bloom per stem but with a much larger flower head, ranging from 3 to 6 inches in diameter. Spray roses are a relatively newer variety with multiple blooms, one-half inch to 2 inches in diameter, growing off of a single stem. Although the most typical roses are red, they may be almost any colour except true blue or black. As fresh cut flowers, roses may last 3 to 7 days in the home without the use of floral preservatives, depending on the variety of the rose and environmental factors such as temperature and care. The vase life of a rose can be doubled when floral preservatives are used (Hooper, 2001).

The cultivation of rose has developed with the characterization of rose as mentioned in Ayurveda by Charaka around 100 A.D. At present, it has become the most important flower. A large quantity of rose flowers is used for decoration purpose. Besides, it has been growing for centuries for the extraction of its quintessence. The rose water is recurrently used for flavouring sweets and other food articles as well as for sprinkling over guests on festive

occasions. Some species of rose hip (the plant`s fleshy edible fruit) are rich in vitamin C whilst its petals are used for preparing *Gulkand* and *Pankhuri*.

The domestic demand for roses has two components – the demand for stem less roses supplied by field grown roses and demand for stemmed roses, mainly grown under protected conditions (Singh, 2006). The fragrance of rose is said to be the only fragrance that never tries the human olfactory system. Export of rose water started in the 8th century from Iran and Later in the 9th century from India and China, mostly to Arabian countries. Rose cultivation was introduced as an industry in Turkey in the 17th century and later spread to other countries like Egypt, Morocco, France, China, India etc. (Singh, 2006).

Rose is one of the significant cut flower grown all over the country. Roses were the highest ranked cut flowers produced in India with a total production of 120,950 tonnes during 2014. Sikkim`s contribution is significant in the Indian cut-flower rose industry with a production of 180 tonnes which is around 0.15 per cent. Karnataka was the leading state in cut-flower roses with the production of 57,020 tonnes followed by Andhra Pradesh (28,310 tonnes) and Orissa (27,670 tonnes) respectively [National Horticulture Board – Final area and production estimates for horticulture crops (2014-2015) – retrieved from nhb.gov.in].

TABLE-1.6

India`s Export of Roses

Country	2015-16		Percentage Share (%)
	Quantity (in MT)	Value (in Rs. Lakhs)	
Lebanon	12.76	67.53	57.38
Mauritius	3.23	17.84	16.16
Bahrain	1.59	8.58	7.29
Austria	0.98	6.13	5.21
Saudi Arabia	2.29	5.14	4.37
Reunion	0.87	4.57	3.88
United Kingdom	0.20	3.62	3.08
Colombia	0.09	1.66	1.41
Qatar	0.33	0.90	0.76
Sudan	0.10	0.76	0.64
Spain	0.06	0.39	0.33
Bangladesh	1.05	0.21	0.18
Germany	0.03	0.19	0.16
Jordan	0.03	0.13	0.11
Maldives	0.01	0.03	0.03
Total	**23.62**	**117.68**	**100**

Source: APEDA Agri-Exchange

Table-1.6 highlights India`s export of roses to the rest of the world during 2015-16. It is evident from Table-1.6 that the volume and the value of export of roses from India were 23.62 MT and Rs. 117.68 lakhs respectively. It can also be observed that Lebanon was the leading importer of Indian roses with a lion`s share of 57.38 per cent, followed by Mauritius

(16.16%), Bahrain (7.29%), Austria (5.21%), Saudi Arabia (4.37%), Reunion (3.88%), United Kingdom (3.08%), Colombia (1.41%) and the remaining countries were holding a share of less than 1 per cent.

1.6 DARAMDIN ROSE CLUSTER

Daramdin is a village located in west Sikkim, approximately 120 Km from the capital city of Gangtok. It is a centre of some of the most fascinating places of attraction in the west Sikkim like, Barsey Rhododendron Sanctuary, Soreng, Sombaria and Kaluk-Rinchenpong. A peculiar feature of the place is that it has a large surface of flat land. The name Daramdin is derived from the local Lepcha language '*Dalom*' meaning a place of rest or a flat land.

During the field survey from December 2016 to February 2017, the researcher found that 80 households were cultivating roses on a commercial basis in Daramdin. The farmers were engaged specifically in the farming of different assortment of roses. Daramdin was declared as a *'Rose Village'* by Dr. Pawan Kumar Chamling, the Chief Minister of Sikkim in the year 2007. The agripreneurs in the present study were members of a cooperative society called the Kanchenjunga Floratech Society.

1.7 SIGNIFICANCE AND SCOPE OF THE STUDY

The Indian agriculture sector has a large potential to contribute to the national income while at the same time providing direct employment and income to the numerically larger and vulnerable sections of the society (Bairwa *et al*., 2014).

Sikkim, a tiny Himalayan state in the north-eastern region of India has been emerging as a potential production centre of cut-flower roses. In order to promote the budding agripreneurs the state government in collaboration with the central government initiated various schemes for the promotion of horticulture including floriculture in the state.

Sikkim is an emerging state as regards the production of floriculture products. In 2014-15 the total area under floriculture in Sikkim was 240 hectares and the total production of flowers was 18420 tonnes of which cut flowers accounted for 1920 tonnes. With respect to rose, the total production of roses in the state was around 180 tonnes which covered an area of around 3 hectares [National Horticulture Board – Final area and production estimates for horticulture crops (2014-2015)]. The volume and the value of India`s export of roses during 2015-16 were 23.62 MT and Rs. 117.68 lakhs respectively (APEDA Agri-exchange).

Daramdin, a village located in West Sikkim approximately 120 Km from the capital city of Gangtok. Daramdin was declared as a *'Rose Village'* by Dr. Pawan Kumar Chamling, the Chief Minister of Sikkim in the year 2007. Daramdin transformed from village cultivating traditional agri-crops to roses since 2007.

Although there is still less quantitative evidence on the role and impact of cluster-based economic policy, the case experience and the conceptual framework suggest some conclusions for policy makers. Clusters can improve the efficiency of economic policy tools and there are different ways to raise economic benefits from existing clusters (Ketels and Memedovic, 2008).

Clusters enhance firm`s access to specialized labour, materials, and equipment and enable in lowering the operating costs. Entrepreneurship is one important means through which clusters achieve their benefits (Mills *et al*. 2008). In this backdrop, it is important to understand the impact of cluster processes on the emergence and growth of entrepreneurship in the cluster. The extent of influence exerted by this cluster on entrepreneurship in matters of initial expectations of the agripreneurs, the selection of the cluster for starting units, alternate proposals in the absence of the cluster and other factors were enquired into in the present study.

1.8 LITERATURE REVIEW

Literature review plays an important role in establishing the backdrop for any research work in social sciences. It is felt that justification of the present study can be clarified by reviewing the available literature on the subject. Therefore, an attempt has been made to review the available literature on the subject to find out gaps in research before finally selecting the present topic for study. In this section, the researcher has undertaken extensive review of some significant studies conducted on various aspects of floriculture, clustering and entrepreneurship with a focus on floriculture clusters in India and abroad.

Rocha (2004) studied the moderating effect of clusters on the impact of entrepreneurship on development. The research focuses on three different impacts: entrepreneurship on development, clusters on development, and clusters on entrepreneurship. The research findings are threefold. First, entrepreneurship is positively associated with economic growth. Given the importance of entrepreneurship in changing the economic and social structure of the economy, more research on the impact of entrepreneurship on development i.e. focus on capabilities rather than on output is needed. Second, it is difficult to reach empirical generalisations on the impact of clusters on development and entrepreneurship given the conceptual and methodological constraints. Both positive results and caveats are found at different levels of analysis and at different stages of development of a cluster.

Rocha and Sternberg (2005) studied the impact of clusters on entrepreneurship at the regional level. They used the 97 German planning regions as unit of analysis to test the hypothesis. Using hypothesis testing and OLS fixed-effects model, their findings revealed that clusters do have impact on entrepreneurship at the regional level, but industrial agglomeration does not.

Sawers (2005) observed whether the trade liberalization and macroeconomic reforms played a prominent role in invigorating the export boom or whether changes in the global flower market created Ecuador's competitive advantage in flower exports independent of the policy regime. His findings revealed that the cut-flowers exports from Ecuador show signs of being non-traditional export whose rapid growth has been permitted by a reduction in the anti-export bias of the trade regime.

Bergmann and Sternberg (2006) explained the individual start-ups activities on the basis of both person-related characteristics and the regional context. Their analysis is based upon micro data from the GEM (Global Entrepreneurship Monitor) adult population survey. Their findings revealed that both individual and regional variables have an influence on the decision to become self-employed.

Matthee *et al*. (2006) assessed the challenges facing the South African floriculture industry in the competitive global market using a framework based on Global Value Chain (GVC) and Global Commodity Chain (GCC) analyses. Their empirical study showed that the industry is insufficiently competitive and does not participate to its full potential in the global market.

Sen and Raju (2006) examined the issues related to high value diversification in agriculture by taking floriculture as a case study and finds that though the profitability of cut-flowers is substantially higher than that of the traditional crops, the participation of small farmers in flower cultivation is lower compared to most of the other farm-size categories, primarily because of weak linkages with the market. Their findings indicate that risk aversion is an important impediment to crop-diversification, particularly for the land-poor category of farmers. The schemes to diversify crops are likely to face serious constraints unless resource-related and institutional barriers like access to markets are triumphed over.

Belwal and Chala (2007) conducted a case study on the rise of floriculture industry in Ethiopia. Their findings revealed that the success of Ethiopia in the cut-flower exports from Africa has been remarkable due to the fact that Ethiopia enjoy certain advantages that create ample opportunities for being one among the principal producers & exporters of flower in the world. Their findings also reveal that foreign investments, government support and formation of Horticulture Producers and Exporters Association are the major catalysts in the sector. Infrastructural bottlenecks appended by shortage of agricultural inputs, narrow product range, and lack of adherence to international codes of practices are major among the perceived barriers.

Feser *et al*. (2008) investigated as to how the industries in the technology-based clusters within and on the border of the Appalachian region fared over the subsequent several years in terms of employment and new business formation. Their analysis revealed that clustering is associated with new business formation for selected technology industries but not with employment growth.

Ketels and Memedovic (2008) observed how clusters can be leveraged for economic policy and what the role of different stakeholders in this process is. Their analysis summarises the cluster concept, focusing on the main theoretical framework and on recent empirical findings, and discusses key pillars of a cluster-based economic policy approach.

Belussi and Sedita (2010) conducted a study on two leading horticulture clusters in Italy (Pistoia and Saonara) and in Netherlands (Boskoop) and observed that globalization of horticulture markets have positively affected the localization of the horticulture industry in these clusters.

Delgado *et al*. (2010) examined the impact of clusters on entrepreneurship at the regional industry level by using a novel panel dataset from the Longitudinal Business

Database of the Census Bureau and the US Cluster Mapping Project. The findings of their empirical analysis revealed that there is a noteworthy evidence of positive impact of clusters on entrepreneurship. Further, controlling for convergence in start-up activity at the regional industry level they find that industries located in regions with strong clusters (i.e. a large presence of other related industries) experience higher growth in new business formation and start-up employment.

Wennberg and Lindqvist (2010) probed the effects of clusters on the survival and performance of new entrepreneurial firms where clusters are defined as regional agglomerations of related industries. They analyzed firm-level data for all 4,397 Swedish firms started in the telecom and consumer electronic, financial services, information technology, medical equipment, and pharmaceuticals sectors from 1993 to 2002. They find that firms located in strong clusters create more jobs, higher tax payments and higher wages to the employees. These effects are consistent for absolute agglomeration measures (firm or employee counts), but weaker for relative agglomeration measures (location quotients). The strengths of the effects are found to vary on which geographical aggregation level is chosen for the agglomeration measure.

Ahmed *et al*. (2011) conducted a study in the state of Uttarkhand and Punjab to assess the entrepreneurial characteristics of the agripreneurs. Their findings showed that majority of the respondents (70 per cent) had medium level of achievement motivation; nearly 60 per cent had medium level of risk taking and leadership ability and 71.67 per cent had medium level of decision making ability.

Ramaswamy and Jyoti Kumar (2011) examined the overarching association between cluster processes and entrepreneurship and the role played, if any, by the cluster on the endogenous entrepreneurial growth in the tribal artisan cluster of Thenzawl. Their study has

explored the impact of cluster on the emergence of entrepreneurship from the point of view of the entrepreneurs. Their study has also attempted to understand whether clusters are fertile grounds for the emergence and development of entrepreneurship in tribal areas in the NER. The analysis of their findings revealed that cluster dynamics seems to be an important tool in stimulating entrepreneurship in Thenzawl handloom cluster located in remote tribal area. Further, they inferred that networking of firms in the cluster is an advantage derived by the enterprises which, in turn, would create more number of enterprises in the cluster and, as a result, an agglomeration of firms.

Agoramoorthy and Hsu (2012) probed the impact of floriculture on the lives of disadvantaged tribal women in Dahod District of Gujarat State in the Western India concentrating on the indicators for socioeconomic development. The findings of their study revealed that the tribal women who grew flowers have gained opportunities to interact with businessmen and traders. Also, floriculture provided the disadvantaged tribal women farmers' remarkable opportunities to enhance their income significantly.

Garanti and Berzina (2013) attempted to explore the benefits of regional cluster initiatives in micro (enterprise) and macro (region) level. Their findings revealed that regional clusters play an important role in stimulating firm performance, innovation capacity and competitiveness, which leads to the region's competitiveness and development. Further, based on the four statements which combined the positive aspects of regional clusters they find that there is a positive link between regional clusters and firm`s performance (micro level) and region`s performance (macro level). They further concluded that stimulating regional cluster initiatives in micro and macro level is very important.

Gonzalez *et al.* (2013) analyzed some factors determining the competitiveness of floriculture business in Mexico. Their findings revealed that among the five selected factors,

(technology, training, quality, price and distribution) training had a direct impact on business competitiveness.

Ramswamy and Jyoti Kumar (2013) studied the impact of micro handloom enterprises of Thenzawl handloom cluster in Mizoram on livelihood in terms of the extent of dependence of entrepreneur households on handloom enterprises, the proportion of small weavers (on the basis of looms owned) and income earned from the enterprise in the cluster. Their analysis revealed that the prosperity of the cluster depends on a combination of factors such as, a sound infrastructure and business development. These factors are considered decisive as it enables the cluster to not only sustain but also to develop itself as a benchmark cluster in the region.

Bairwa *et al*. (2014) in their study on agripreneurship development underlined the need for agripreneurship development in India. Their findings revealed that there is a considerable scope for entrepreneurship in agriculture in India and this potentiality can be tapped only by effective management of agri-elements such as soil, water and market needs.

Das (2015) studied the cluster development initiative for poverty alleviation on Barpeta Cane and Bamboo Craft cluster. Her analysis revealed that cluster initiative empowered rural artisanal segments helped in increasing the income with household status, creation of assets, social capital, skill upgradation, product development and improved backward & forward linkages etc.

Edoho (2015) examined the impact of public policies on engendering entrepreneurship and micro, small, and medium enterprises (MSME) development in Nigeria. His findings revealed that misalignments occur when existing public policies in other domains are in conflict with policies to promote entrepreneurship and MSME development. Policy misalignments negate the profit motive of entrepreneurship; stifle business innovation

and expansion; and contribute to survivalist mode of entrepreneurship in the country. This thwarts the public policy goals of creating jobs and alleviating poverty.

Rajasekaran *et al*. (2015) analyzed the entrepreneurial traits in the Indian youth and the socio-economic factors influencing youth entrepreneurship. Their findings concluded that the potential of Indian youth is huge which should be properly harnessed and they should be properly channelled to be involved in entrepreneurship with ample support and encouragement from the family, society, government & educational institutions.

Singh *et al.* (2015) analyzed the business practices and constraints of 60 flower growers in Punjab and observed that a greater proportion of farmers were into the floriculture business more than a decade and were conscious of the government schemes available in the State. Their findings also revealed that greater proportion of the farmers considered government subsidy advantageous for flower cultivation. Further, lack of skilled labor, market information, timely credit, demand and price fluctuations were reported as the major constraints.

Mueller and Jungwirth (2016) examined how contextual, structural and functioning characteristics of industrial clusters influence their effectiveness. Their findings showed that among the important determinants of cluster effectiveness are long-term planning security and procedural trust among the cooperating firms (contextual conditions), formalized rules and sustainable structures (structural elements), and clear goals and tasks (functioning characteristics). Their findings also revealed that some factors assessed as important in the literature do not seem to have a positive impact on effectiveness.

1.9 RESEARCH GAP

Though several studies are visible on floriculture clusters, rose clusters in India and abroad, there is no substantial evidence of studies conducted on entrepreneurial aspects of floriculture clusters in the Indian state of Sikkim. The present study aims to fill this gap in literature.

1.10 RESEARCH DESIGN

1.10.1 **Statement of the Problem**

Literature has often excluded farmers from the realm of entrepreneurship. As rightly observed by Puera *et al*. (2002) part of this recognition gap comes from agricultural tradition itself, as farmers do not think of themselves as entrepreneurs. Although farmers differ for reasons of schooling, health and experience in their ability to perceive, to interpret and to take appropriate action in responding to new information, they provide an essential human resource, which is entrepreneurship.

Entrepreneurship in agriculture is considered as an important constituent in addressing numerous economic problems like urbanization, poverty, unemployment and rural development. But, development of entrepreneurship in the areas of agriculture requires special skills like human development, knowledge of agriculture, knowledge of global agriculture market. A shift from agriculture to agribusiness is an essential pathway to revitalize Indian agriculture and to make more attractive and profitable venture.

Although there is still less quantitative evidence on the role and impact of cluster-based economic policy, the case experience and the conceptual framework suggest some conclusions for policy makers. Clusters can improve the efficiency of economic policy tools and there are different ways to raise economic benefits from existing clusters (Ketels and Memedovic, 2008).

Daramdin rose cluster can emerge as a significant contributor to the state`s economy in particular and to the national economy in general. In the last decade it has grown at a phenomenal rate which is reflected in the increase in the number of agripreneurs from a few growing roses (open field) in 2005 to 80 at present. In this backdrop, the present study intends to study whether the cluster processes have an impact on entrepreneurship development in the cluster.

1.10.2 **Objectives of the Study**

The objectives of the present study are as under:

1. To identify the socio-economic characteristics of agripreneurs in Daramdin Rose Cluster in Sikkim.
2. To investigate the impact of cluster processes on entrepreneurship development.
3. To offer suggestions.

1.10.3 **Research Question**

Do cluster processes have an impact on entrepreneurship development in the cluster?

1.10.4 **Research Methodology**

1.10.4.1 Scope of the study

The present study was conducted at Daramdin Rose Cluster, a village in the west district of Sikkim state in India, located approximately 120 kilometres from the capital city of Gangtok. For the purpose of the present study, an agripreneur is any person who is engaged in floriculture on a commercial basis. Primary data is obtained from all the 80 households in the cluster.

1.10.4.2 Data collection and analysis

The data for the present study was collected from primary as well as the secondary sources. Primary data was obtained through a structured questionnaire administered on all the

agripreneurs (80 in number) engaged in commercial rose farming during December 2016 to February 2017. The secondary data was obtained by referring relevant reports, journals, magazines, books, newspapers and websites. Adequate precautions were taken to ensure unbiased response of the respondents. Simple statistical tools such as frequency table, percentages, and ranking (based on weighted score) have been employed for data analysis. The researcher has conducted a census survey of the agripreneurs engaged in commercial cultivation of roses in Daramdin village.

1.11 ORGANISATION OR STRUCTURE OF THE STUDY

The present study has been divided into four chapters. A brief outline of each chapter has been highlighted as under:

1. ***Introduction*** – This chapter deals with the basic understanding about cluster, clustering, floriculture and the related concepts. It attempts to present a brief overview of the current scenario of the floriculture industry at the global level, national level and in the state of Sikkim. The present chapter also highlights the scope and significance of the study, statement of the problem, objectives of the study and the research methodology.
2. ***Socio-economic characteristics of the agripreneurs of Daramdin rose cluster*** – This chapter intends to understand the socio-economic profile, viz., gender, age, educational status, marital status, caste, family size, occupation, religion, year of commencement of business, income etc. of the agripreneurs in Daramdin rose cluster.
3. ***Impact of cluster processes on entrepreneurship development in Daramdin*** – This chapter intends to investigate the impact of cluster processes on entrepreneurship development. To achieve this objective, the researcher attempts to assess the extent of influence exerted by the cluster on entrepreneurship in matters such as initial expectations of agripreneurs from support agencies, agripreneurs` economic reasons

for entering the floriculture industry and agripreneurs` reasons for establishing their units in Daramdin cluster.

4. ***Conclusions and suggestions*** – This chapter highlights the summary of the present study and attempts to provide meaningful suggestions based on the outcome of the study.

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Chapter – 2

Socio-economic Characteristics of Agripreneurs in Daramdin Rose Cluster

The entrepreneurial pursuit depends on the socio-economic origins of the entrepreneurs. The present chapter intends to understand entrepreneurship in the socio-economic context by examining the gender, age, educational status, marital status, caste, family size, occupation, religion, year of commencement of business, income and so on of the agripreneurs in Daramdin which has developed as a rose cluster in the past decade.

2.1 INTRODUCTION

The socio-economic milieu plays an important role in the emergence and development of entrepreneurs as they are embedded in socio-economic systems. The socio-economic factors such as caste, parental occupation, income and age and so on mould the attitudes of entrepreneurs. Gangadhara Rao (1986) in his study on industrial estates in coastal Andhra observed that entrepreneurship is a socio-economic phenomenon.

Many researchers have asserted that clusters are identified by strong social structures. Porter (1998a) in his study on industrial clusters observed that social structure of clusters takes on central importance and social glue binds clusters together, contributing to value creation.

2.2 SOCIO-ECONOMIC CHARACTERISTICS

Schumpeter (1934) observed that entrepreneurship is predisposed by social, cultural, psychological and economic factors. The researcher was prompted to study the socio-

economic characteristics of the agripreneurs in Daramdin Rose Cluster viz., gender, age, caste, marital status, education and so on.

2.2.1 Gender

It was attempted to gather information pertaining to sex ratio (gender) of the respondents in order to know the proportion of male and female agripreneurs who participated in the entrepreneurial activity in Daramdin rose cluster with a view to understand the role of gender in the development process. In recent years, the developed nations like U.S.A. and Canada, have witnessed an increasing role of women particularly in terms of their share in small business. Women owned one third of small business in U.S.A. and Canada taking into account the proportion of women in the total work force. However, entrepreneurship in general is dominated by men in India and there is a need for greater participation of women in entrepreneurial activity**.** United Nations Industrial Development Organization (UNIDO) (2001) observed that entrepreneurship represents an appropriate opportunity for women all over the world as entrepreneurship responds flexibly to entry, change and innovation. But this potential has not yet been realised in an optimal fashion in most developing countries.

Agriculture is the main sector that employs the rural female workforce (Sanghi *et al*., 2015). National Sample Survey Office (NSSO) report (2013), 70^{th} round estimated that 35.2% of the members of the agricultural households in India were self-employed in agriculture. The share was 42.8% among male members and 25.9% among female members.

Sen (1990) observed that in societies where women have weaker bargaining position, as in the case of male-dominated India, they are often discriminated against in the distribution of resources with serious detrimental consequences for their welfare. On the other hand,

when women tend to earn income, they appear to have not only greater access to resources but also health, education, awareness and social status.

The development of Daramdin cluster would be a significant tool for empowering the women of rural areas. Moreover, floriculture has emerged as a viable alternative to cultivators of other major crops (Sen and Raju 2006).

Agriculture sector is underperforming in many countries in part because women, who are often a decisive resource in agriculture and the rural economy, face constraints that reduce their productivity. Women`s participation in rural labour markets varies considerably across regions, but invariably women are over represented in unpaid, seasonal and part-time work, and the available evidence suggests that women are often paid less than men for the same work (SOFA and Doss, 2011). The contribution of women to agricultural and food production is significant but it is almost impossible to verify empirically the share produced by women. Often, the role of women in agriculture is over-generalized and hence, there is a need to base policies on sound empirical data and gender analysis. In this backdrop, the researcher has attempted to examine the role of women agripreneurs in Daramdin.

TABLE-2.1

Gender of the Agripreneurs

Gender	No. of Agripreneurs	Per cent
Male	37	46.25
Female	43	53.75
Total	**80**	**100**

Source: Field Survey

Table-2.1 exhibits the proportion of male and female participation in the floriculture activity in Daramdin cluster. It is evident that 46.25 per cent of the agripreneurs are male and

53.75 percent are female. Female agripreneurs number more than their male counterparts in the cluster.

In studies conducted on floriculture in Istanbul (Torun, 2011) and Mexico, Gonzalez *et al*. (2013) suggest that males dominated the floriculture activities. In another study conducted by Singh *et al*. (2017) in India, it was observed that males overwhelmingly dominated the occupation with 96.67 per cent of the representation.

Interestingly, in a study conducted by Agoramoorthy and Hsu (2012), it was observed that floriculture practised by women improved their economic benefits significantly. Floriculture facilitated the poor farmers especially women, with tremendous opportunities and improved their income significantly within a short period of time. This enhanced their participation in the political milieu of the village, resulting in getting elected as members of Panchayati Raj. Another study conducted in Kerala on woman entrepreneurs in agri business revealed that Entrepreneurial Success Index (ESI) was substantially high in floriculture activities; 85 per cent of the respondents demonstrated high ESI, followed by 14 per cent demonstrating a medium level of ESI. Notably, none scored a low degree of ESI in floriculture (Narayan and Geethakutty, 2003).

Further, a study conducted on 100 farm women engaged in floriculture (roses and marigold) in 10 villages in Patur tahsil of Akola district, Maharashtra observed that the performance of the farm women based on cultivation practices was remarkably high (Mankar *et al*., 2013). Research evidence suggests that floriculture is a compatible occupation for women farmers, showing higher levels success rate. Daramdin cluster comprises more women agripreneurs than men agripreneurs which contradicts with the research findings in other places in India and abroad.

2.2.2 Education

Education is the best source of development of man`s resourcefulness which makes him well balanced. Education is not for making people wealthy but for productive and for making peoples an asset and not a liability (Gangadhara Rao, 1986).

Several researchers have contended that the entrepreneurial development and success generally depends on the educational level attained by the entrepreneurs. While studying the socio-economic characteristics of entrepreneurs, it is crucial to evaluating the extent of formal education as it is an important parameter for an individual in shaping their entrepreneurial career.

The formal education plays a significant role in imparting knowledge about the different occupational opportunities besides providing an insight on the required knowledge for a job which demands non-traditional skills. The communication skills, technological innovations, production efficiency and marketing capability of an entrepreneur mainly depend on his/her educational level (Meher and Sahoo, 2008).

TABLE-2.2

Education Level of the Agripreneurs

Education	No. of Agripreneurs	Per cent
Illiterate	10	12.50
Primary	36	45.00
Matriculation	23	28.75
Higher Secondary	2	2.50
Graduate	9	11.25
Total	**80**	**100**

Source: Field Survey

Table-2.2 shows the level of education of the agripreneurs in Daramdin cluster. It is evident that 12.50 per cent of the agripreneurs did not possess any formal education while 45 per cent had primary education and 28.75 per cent of the agripreneurs were matriculates. However, only 2.50 per cent of the agripreneurs had higher secondary education and 11.25 per cent of the agripreneurs were graduates.

Mou (2012) in his study on floriculture farmers in Bangladesh reported that 21.87 per cent of the flower growers were illiterate whereas 15.63 per cent had primary education, 31.25 per cent secondary education, and 25 per cent higher secondary education, while 6.25 per cent were graduates.

Gonzalez *et al*. (2013) in their study on floriculture business in the state of Mexico in San Lorenzo Tlacotepec observed that 36.4 per cent of the sample respondents had primary education, followed by 27.2 per cent of the respondents having high school/technical training and 21.2 per cent of the respondents having secondary level education. However, only 15.2 per cent of the respondents had lower educational qualifications.

However, in a study conducted by Singh *et al*. (2015) on flower growers of Punjab, India, they observed that 41.67 per cent of sample respondents were matriculates, 20 per cent had studied up to higher secondary and 26.67 per cent were graduates. Only 7 respondents (11.67%) were illiterate.

Sikkim ranks third among all the north-eastern states in terms of the literacy level. The census data of 2011 revealed that literacy level in Sikkim was 81.42 per cent, which was higher than the national average literacy level of 74.04 per cent. Daramdin rose cluster is situated in the west district of the state of Sikkim has recorded literacy level of 77.39 per cent as per the census data of 2011, which compares favourably with the national average literacy level of 74.04 per cent.

Interestingly, the findings of the present study compares favourably with the studies conducted in Bangladesh and Mexico. However, there should be concerted efforts by the government to bring all the farmers into the realm of literacy. This will undoubtedly increase the effectiveness of training programmes conducted for the farmers and equip them with advanced farming techniques.

2.2.3 Age

The present study also probed into the age of the agripreneurs of Daramdin cluster to gain insight into the age group that had a higher participation in the entrepreneurial development process.

TABLE-2.3

Age Distribution of the Agripreneurs

Age in Years`	No. of Agripreneurs	Per cent
Below 30	11	13.75
30-40	20	25.00
40-50	27	33.75
50-60	13	16.25
Above 60	9	11.25
Total	**80**	**100**

Source: Field Survey

Table-2.3 shows the age distribution of the agripreneurs in Daramdin cluster. It is evident that 13.75 per cent of the agripreneurs were below 30 years of age, followed by 25 per cent in the age group of 30-40 years and 33.75 per cent in the age group of 40-50 years. However, 16.25 per cent of the agripreneurs were in the age group of 50-60 years while 11.25 per cent of the agripreneurs were above 60 years.

Mou (2012) in his study on floriculture farmers in Bangladesh reported that a substantial number of flower growers were in the age group of 30-40 years indicating that the flower growers were relatively younger. In another study by Singh *et al*. (2015) on flower growers in Punjab, they observed that 38.33 per cent of the respondents were in the age group of 40-50 years, followed by more than 50 years (31.66%) and 30-40 years (30%) respectively.

Further, in a study conducted by Gonzalez *et al*. (2013) on floriculture business in the state of Mexico in San Lorenzo Tlacotepec, they observed that 39.4 per cent of the respondents were in the age group of 35-44 years, followed by 33.3 per cent in the age group of 25-34 years and 18.2 per cent of the respondents in the age group of 45-54 years respectively. However, only 9.1 per cent of the respondents were in the age group of 55-64 years.

2.2.4 Year of Commencement of Business

The origin of the cluster can be traced to 2005 with few agripreneurs commencing cultivation of roses in their farms (without greenhouses). This number grew to 80 agripreneurs opting to cultivate roses commercially.

TABLE-2.4

Year of Commencement of Business

Year	No. of enterprises	Per cent
2005-2009	77	96.25
2010-2014	3	3.75
Total	**80**	**100**

Source: Field Survey

It can be observed from Table-2.4 that maximum number of units i.e. 77 (96.25%) have commenced their business during the year 2005-2009 while only 3 (3.75%) units have commenced their business during the year 2010-2014. The period of commencement of maximum number of units coincides with the cluster development interventions initiated by the Government of Sikkim in 2007.

2.2.5 Marital Status

Agriculture is a household activity in India where all the members participate in the farming activity. It is attempted to know the marital status of the agripreneurs in Daramdin rose cluster.

TABLE-2.5

Marital Status of the Agripreneurs

Marital Status	No. of Agripreneurs	Per cent
Unmarried	10	12.50
Married	67	83.75
Divorced	-	-
Widowed	3	3.75
Total	**80**	**100**

Source: Field Survey

Table-2.5 reflects the marital status of the agripreneurs in Daramdin cluster. Evidently, 83.75 per cent of the agripreneurs were married, while 12.50 per cent were unmarried, and 3.75 per cent of the agripreneurs were widowed.

2.2.6 Religion

Dodd and Seaman (1998) argue that religion and enterprise have a complex and interdependent relationship wherein religion affects a believer`s entrepreneurial activities,

influences the believer`s decision to become an entrepreneur, enterprise management and the entrepreneur`s contact network. Gupta (1994) highlights in his study that religion and culture plays a major role in the lives of many Indian businessmen. When an entrepreneur undertakes an enterprise, he is more often influenced by some religious thoughts and a person loyal to particular religious thoughts generally don`t compromise the religion with the enterprise. Thus, religion aspect should invariably be analysed while studying the origin of the entrepreneurs. The researcher has attempted here to examine the religious background of the agripreneurs in Daramdin rose cluster.

TABLE-2.6

Religion of the Agripreneurs

Religion	**No. of Agripreneurs**	**Per cent**
Hinduism	78	97.50
Buddhism	2	2.50
Christianity	-	-
Others	-	-
Total	**80**	**100**

Source: Field Survey

Table-2.6 shows the religion pursued by the agripreneurs in Daramdin cluster. It can be observed that 97.50 per cent of the agripreneurs were practising Hinduism as their religion while the remaining (2.50%) were practising Buddhism as their religion.

According to the census data of 2011, a larger proportion of the people in the state of Sikkim were Hindu comprising 57.76 per cent, followed by Buddhists comprising 27.39 per cent, Christians comprising 9.91 per cent, and the remaining 4.94 per cent comprised of other religions. It is evident that agripreneurs of Daramdin were predominantly Hindus.

2.2.7 Community

A probe into the origins of the community affiliations of the agripreneurs in the present study was attempted. The details are presented in Table-2.7.

TABLE-2.7

Communities of the Agripreneurs`

Community	No. of Agripreneurs	Per cent
Subba/Limboo	33	41.25
Khas	13	16.25
Newar	18	22.50
Bhujel	13	16.25
Sherpa	2	2.50
Lepcha	1	1.25
Total	**80**	**100**

Source: Field Survey

Table-2.7 shows that 41.25 per cent of the agripreneurs belonged to Subba/Limboo community, followed by Newar community (22.50%). However, 16.25 per cent each of the agripreneurs belonged to Khas and Bhujel communities respectively. The Sherpas and the Lepchas constituted a very negligible section of the total agripreneurs with a share of 2.50 per cent and 1.25 per cent respectively.

It would be interesting to have a glimpse of the communities of the agripreneurs in Sikkim.

Limboo

The Limboos constitute the largest number in the cluster (41.25%) and they are the oldest community in Sikkim. They are the autochthons of Sikkim and became Sikkim

subjects along with their landmass as evident from *Lho-Men-Tsong-Sum*, treaty between Bhutia (father), Lepcha (mother) and Limboo (son).

Limboos follow their own idiosyncratic religion of '*Yumaism*' (animism) which is a kin to '*bonism*' that exists in Tibet and in some parts of Sikkim among the other tribal communities. Limboos worship unseen natural forces in the form of big trees, stone, cave, stream etc. They believe *Mangs* (spirits) reside in such places that have to be appeased with pure heart and mind. Limboo community are fond of hunting and fishing and have their own language and script which is one of the officially recognized languages of the state. Majority of the Limboo community are non-vegetarian. Their main food is rice. They prepare '*Lakshi*' or wine which is made either from millet, wheat, maize and paddy. Traditionally, they cultivate rice, maize, millets, wheat, buckwheat, soybean, etc. and also rear poultry, piggery, cattle etc. The Limboo communities fall under the Scheduled Tribe category.

Newar

Newars constituted 22.50 percent of the agripreneurs in Daramdin. *Newars* originally inhabited Kathmandu valley, Nepal where according to folklore a lake had existed which was the abode of serpent gods. The language of Newar originates in the Tibeto-Burman group of Sino-Tibetan community. Newars have rich contributions to culture, art and literature, trade, agriculture and cuisine. Trade, industry and agriculture have been the mainstay of the economy of the Newars. They comprise of social groups associated with hereditary professions that provide ritual and economic services. Merchants, craftsmen, artists, potters, weavers, dyers, farmers and others played their part in creating a flourishing economic system among Newars. The Newar communities fall under OBC (other backward class) category in the State list.

Khas

The Khas community constituted 16.25 per cent of the agripreneurs in Daramdin. The Khas community are a warlike tribe and are referred to as *Khasa*. The *Khasas* primarily originated from the Hindukush in the Himalayas and later penetrated along the southern slopes of the Himalayas. They are also referred to as 'Paharis'. The *Khas* people are classified into two communities namely, *Chhetri* and *Bahun*.

The *Khasas* (Bahun and Chhetri) are non-vedic people. They believe in their own myths and lore. Khasas are essentially worshippers of nature. Khasas believe that every waterhole or a spring of water is a *Devithan* or the seat of mother goddess and every passage on a hilltop is a *Deorali* or the abode of Devas. The deity for marshy land is *Simey* and of other land is *Bhumey*. The Khasas also worship lakes. The language spoken by the Khasas is known as *Pahari* language or Khas language. It was also known *as Sinjali* by some Khasas but with passage of time it has been transformed into Gorkhali/Nepali in a refined form of the original language. Khasas are primarily agriculturists and grow rice, barley, millets, maize, buckwheat, roots and vegetables besides rearing cattle, goat and sheep. Simply cooked grains (which is called *Bhat*), bread and porridge (*Dhendo*) are the main food items of the Khasas. Hunting of animals and bee-hunting in the forest are the collective activities of the Khasas. The Khas communities fall under OBC (other backward classes) category in the State list.

Bhujel

Bhujels constituted 16.25 per cent of the agripreneurs in Daramdin. *Bhujels* are believed to be a warrior tribe with strong *bhuja* (arms) and used to fight with *Bhujeli* (a large and heavy sword). The Bhujels themselves show that they have migrated from the Central Asia as *Hepthals* after the *Huns*.

Bhujels are basically animistic and believe that natural forces rule health, harvest and the growth of the livestock. They worship their ancestors as well as various other natural forces. Bhujels reside mostly on hill slopes and rocky areas and own dry fields with very scant paddy fields. Traditionally, Bhujels were basically hunters and jungle food gatherers and used to completely depend on forests for food. Bhujels have their own language called *Pu:gal gnur*. The Bhujel communities fall under OBC (other backward classes) category in the Central list.

Sherpa

Only 2.5 per cent of the agripreneurs were sherpas in Daramdin. The word '*Sherpa*' has been referred to as Easterner denoting that the Sherpa migrated from eastern part of Tibet after Tibet was converted to Buddhism. Their traditions, cultures and several other practices are very much identical to those of Tibetan Buddhists. The Sherpa community as a whole actively participates in all religious, social and cultural affairs of the community. The Sherpa communities are basically engaged in agriculture. They have their own language and use the Tibetan script. The Sherpa language was recognized as one of the official languages of Sikkim by the government of Sikkim in 1995. The Sherpas follow Buddhism as their religion. The Sherpa communities fall under the Scheduled Tribe category.

Lepcha

Only one agripreneur belonged to the Lepcha community in Daramdin. The *Lepchas* are basically the worshiper of nature. They consider nature and its endowments like mountains, hills, rivers, forests, lakes, and caves etc as integral part of their lives. Their history, culture, customs, religion, music are intricately enmeshed with these endowments of nature.

Lepchas have their own language and script which is recognized as one of the official state languages in Sikkim and is also taught in the schools in Sikkim up to the university level. Lepchas whose survival was very much dependent on hunting, fishing and forest products long time back are no longer the community who keep themselves distant from the outside world and have assimilated themselves in the mainstream with other tribes and communities. However, they have preserved and maintained their tradition and continue to engage themselves in these activities in a collective manner. The Lepcha communities fall under the Scheduled Tribe category.

2.2.8 Caste

The social base of entrepreneurship is an important aspect influencing the tempo of economic development. If certain social groups alone produce a large capable body of entrepreneurs, the means for such impetus may be of relevance and use to the entire society. This view was supported by Everett E. Hagen in his studies on the origin and background of entrepreneurs of several nations and regions, including United Kingdom, Western Soviet Union, Japan and Latin America. In several nations, entrepreneurs have emerged from a particular socio-economic class. In United Kingdom, United States of America and Turkey, the ranks of entrepreneurs were filled from commerce. It has often suggested that certain religions encourage the growth of entrepreneurial activity.

Entrepreneurship in India has always been discussed and analysed in terms of entrepreneurs' caste and the pursuits associated with caste as the caste system has played a vital role since times immemorial with respect to occupational mobility in India. Against this backdrop, it is attempted to examine the caste factor and its influence on entrepreneurship development in Daramdin cluster.

As per National Sample Survey Office (NSSO) report (2013) Indian agriculture was dominated by OBCs with an estimated share of 45.4 per cent of the agricultural households in India, followed by 24.9 per cent belonging to general category, SCs (16.3%) and STs (13.4%) respectively. Interestingly, a survey conducted by National Sample Survey Organization (NSSO) during 2012-13 on 674 agricultural households of Sikkim revealed that 54 per cent of the households belonged to STs and 45 per cent were OBCs and the others comprised an insignificant 1 per cent of the total households.

TABLE-2.8

Caste of the Agripreneurs

Caste	**No. of Agripreneurs**	**Per cent**
General	31	38.75
OBC	13	16.25
ST	36	45.00
SC	-	-
Total	**80**	**100**

Source: Field Survey

However, in the present study it is observed (Table-2.8) that 45 per cent of the agripreneurs belonged to ST category, followed by general caste accounting for 38.75 per cent of the total. Only 16.25 per cent of the total agripreneurs belonged to OBC (other backward class). It is to be noted here that the general caste comprises of '*Khas*' and the '*Newar*' communities who falls under the OBC (other backward classes) category in the state list.

In a study conducted by Roy *et al*. (2013) on socio-economic status of hill farmers in Almora District in Uttarakhand, they observed that 58.33 per cent of the hill farmers belonged to SC category while 41.67 per cent belonged to general caste.

Daramdin rose cluster is situated in the west district of the state of Sikkim and according to Census data of 2011 (Government of Sikkim 2011), west district recorded the second highest proportion of scheduled tribes population i.e. 57, 817 persons which accounts for 42.38 per cent of the population of which males comprised of about 51 per cent and females comprised of 49 per cent. On the contrary, the total tribal population of the state of Sikkim was recorded to be 33.87 per cent of which males comprised of about 51 per cent and females comprised of 49 per cent.

2.2.9 Structure and Size of the Family

Traditionally, the Indian society followed the joint family system. However, it has been observed that as a consequence of growing industrialisation and urbanization, joint family system is slowly disintegrating, giving way to the independent family system.

TABLE-2.9

Family Structure of the Agripreneurs

Family Structure	No. of Agripreneurs	Per cent
Joint	31	38.75
Nuclear	49	61.25
Total	**80**	**100**

Source: Field Survey

It can be observed from Table-2.9 that majority of the agripreneurs (61.25%) were living in nuclear families while 38.75 per cent of the total agripreneurs were living as a joint family. Singh *et al*. (2017) in their study on integrated farming systems in Punjab reported

that 63.33 per cent of the respondents were living as a nuclear family while 36.67 per cent were living as a joint family.

Meher and Sahoo (2008) in their study in Orissa reported that the larger proportion of SSIs entrepreneurs (68.89%) were living in nucleus families wherein the entrepreneur themselves were the authority/head of the household and took independent decisions relating to its management. The findings of the present study corroborate with the findings of studies conducted in other places in India.

TABLE-2.10

Family Size of the Agripreneurs

Family Size	No. of Agripreneurs	Per cent
Up to 4	29	36.25
5-8	46	57.50
9-12	5	6.25
Above 12	-	-
Total	**80**	**100**

Source: Field Survey

According to the National Sample Survey Office (NSSO) report (2013) the average agricultural household size in India was five. It can be observed from Table-2.10 that 57.50 per cent of the agripreneurs were having a family size of 5-8 members, 36.25 per cent were having up to 4 members and 6.25 per cent were having a family of 9-12 members.

Singh *et al*. (2015) in their study on flower growers in Punjab observed that 23 of the total respondents (38.33%) were having a family size of 5-6 members, followed by 2-4 members (36.67%) and 25 per cent of the sample respondents were having a family of more than six members.

In another study conducted by Khandoker *et al*. (2016) on flower growers in Bangladesh, they reported that 41.67 per cent of the respondents were having a family size of 5-6 members while 30 per cent of the respondents were having a family of more than six members. However, 28.33 per cent of the sample respondents were having a family size of 1-4 members. The findings of the present study are in conformity with the findings of studies conducted in other places in India and Bangladesh.

2.2.10 Occupation

According to National Sample Survey Office (NSSO) report (2013), agriculture was the principal source of income for 68.3 per cent of agricultural households' in India.

It is attempted to know the extent of the dependence of the agripreneurs on rose farming.

TABLE-2.11

Main Occupation of the Agripreneurs

Occupation	No. of Agripreneurs	Per cent
Floriculture	45	56.25
Business/Trade	6	7.50
Job	2	2.50
Other Agricultural Activities	27	33.75
Total	**80**	**100**

Source: Field Survey

Table-2.11 shows that 56.25 per cent of the agripreneurs were solely dependent on floriculture while 33.75 per cent followed other agricultural activities (traditional farming) as their main occupation, and 7.50 per cent considered business/trade as their primary occupation while only 2.50 per cent considered job as their main occupation.

It is pertinent to note that the agripreneurs of Daramdin cluster have transformed themselves from conventional farming to flower (rose) farming, as 56.25 per cent of the agripreneurs indicated floriculture as their primary occupation. Perceptibly, there is a shift of occupation from traditional farming to rose farming in the village.

2.2.11 Income

Income from a given activity is considered as a strong stimulant to the growth and development of entrepreneurship in that sphere. Profit is an important determinant of success for any enterprise and a motivating factor for others to enter the same line of business. It is also important for the sustenance and growth of an enterprise.

The income earned from all sources (including floriculture business) for the agripreneurs` families was enquired into in order to understand the viability of rose farming as an alternate occupation for farmers in Daramdin. As observed in Table-2.11, 56.25 per cent of the agripreneurs are solely dependent on floriculture for their livelihood. The income of the others is supplemented by business, job and other agricultural activities.

TABLE-2.12

Average Annual Income of the Agripreneurs from all Sources

Income (in Rs.)	No. of Agripreneurs	Per cent
Up to 40000	10	12.50
40001-80000	21	26.25
80001-120000	27	33.75
Above 120000	22	27.50
Total	**80**	**100**

Source: Field Survey

Table-2.12 shows the average annual income of the agripreneurs from all sources. It is evident that 27.50 per cent were earning an average annual income above of Rs. 1,20,000 while 33.75 per cent of the agripreneurs were earning an average annual income in the income range of Rs. 80,001-1,20,000; 26.25 per cent were earning an annual average income in the range of Rs. 40,001-80,000 and 12.50 per cent of the agripreneurs were earning an average annual income up to Rs. 40,000.

TABLE-2.13

Average Annual Income of the Agripreneurs from Rose Farming

Income (in Rs.)	No. of Agripreneurs	Per cent
Up to 40000	16	20.00
40001-80000	23	28.75
80001-120000	28	35.00
Above 120000	13	16.25
Total	**80**	**100**

Source: Field Survey

Table-2.13 shows the average annual income of the agripreneurs from rose farming. Evidently, 16.25 per cent of the agripreneurs were earning an average annual income above Rs. 1,20,000 while 35 per cent were earning in the range of Rs. 80,001-1,20,000. Further, 28.75 per cent were earning average annual income in the income range of Rs. 40,001-80,000 and 20 per cent were earning up to Rs. 40,000. Therefore, over 50 per cent of the agriprenurs were earning more than Rs 80,000 from rose farming. It appears that rose farming is emerging as a viable alternative to traditional farming in Daramdin.

Crop diversification has emerged as a key strategy for profit maximisation in agriculture in the post-economic reform era. Research evidence further revealed that flower

cultivating households earned significantly more per unit of area as compared to non-flower cultivators (Sen and Raju 2006).

Singh *et al*. (2015) in their study on flower growers in Punjab observed that 38.33 per cent of the sample respondents were earning an average annual income in the income range of Rs. 400,000-600,000, followed by 28.33 per cent of the respondents earning an average annual income less than Rs. 400,000 and 21.67 per cent of the respondents earning an average annual income in the income range of Rs. 600,000-800,000. However, only 7 respondents (11.67%) were earning an average annual income of greater than Rs. 800,000.

2.3 CONCLUSION

The evaluation of the socio-economic characteristics of the respondents is considered vital in order to gain an insight about the entrepreneurial orientation of the respondents under study. The present study attempted to understand the socio-economic profile of the agripreneurs of Daramdin rose cluster in terms of gender, caste, religion, educational background, family size and structure, income etc.

Porter (1998a) observed that the social structure of clusters takes on central importance and social glue binds clusters together, contributing to value creation. Nadvi and Barrientos (2004) further observed that the strong sense of common identity visible in clusters is based on shared norms or common notions of community that lie in ethnic, religious, regional or cultural identities which again results in local social capital that strengthens cluster ties, fosters trust between local actors and promotes local cooperation and support.

Rose farming is emerging as a sustainable alternative to traditional farming in Daramdin. The village of Daramdin has transformed from a traditional farming to rose farming in the past decade. It is pertinent to note that majority of the agripreneurs in

Daramdin rose cluster were women. Interestingly, this finding contradicts the findings of some studies conducted in India and abroad. Rose farming is evidently playing an important role in economically empowering women in Daramdin. The engagement of woman entrepreneurs in the farming of roses in Daramdin augurs well for the otherwise skewed participation of women in agripreneurship in India. In conclusion, floriculture could emerge as a significant tool for empowering women in rural areas of Sikkim.

The cluster is dominated by agripreneurs following Hinduism with a substantial share of 97.50 per cent. Moreover, the educational level of the agripreneurs compares favorably with the educational level of agripreneurs in other states in India and Bangladesh.

Agripreneurship is thriving in rose farming activities in the cluster and has emerged as an alternative occupation to traditional agriculture. The cluster holds the promise of growth and development provided it is nurtured by appropriate cluster development initiatives by the Government of Sikkim.

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Chapter – 3

Impact of Cluster Processes on Entrepreneurship Development in Daramdin

3.1 INTRODUCTION

Entrepreneurship gives vitality to the economy and is a key element that fuels growth of economies. To this end, the present chapter intends to investigate the impact of cluster processes on entrepreneurship development. To achieve this objective, the researcher has attempted to assess the extent of influence exerted by the cluster processes on entrepreneurship in matters such as initial expectations of agripreneurs from support agencies, agripreneurs` economic reasons for entering the floriculture industry and agripreneurs` reasons for establishing their units in Daramdin cluster. Ramaswamy and Jyoti Kumar (2011) enquired into the extent of influence exerted by cluster on the emergence of entrepreneurship in Thenzawl in the matters of the initial expectations of entrepreneurs, the selection of the cluster for starting their units, alternate proposals in the absence of the cluster (through self-assessment).

The agripreneurs were asked to accord ranks to their reasons wherever needed in order of their importance. These reasons were subsequently rated by a weighted score to recognize their underlying importance on the emergence of entrepreneurship in the cluster. A choice of 'any other' was also provided to the agripreneurs so as to ensure that their choices were not limited to only the choices stated in the questionnaire. The first ranking factor/reason carries three points, the second two points and the third one point. Hence, based on the percentage of the weighted score for each factor/reason, overall ranking has been arrived. Only the first three ranking have been taken into consideration and ranking beyond

these has been discounted as not of much relevance. The researcher also attempted to examine the alternate proposals of the agripreneurs in the absence of the cluster.

3.2 CLUSTER PROCESSES

Nadvi and Barrientos (2004) observed that clustering sets into motion a range of potential benefits which can be through externality gains, joint action, and local social capital. Clusters can set into motion processes that improve the ability of small firms to improve market access through externality gains and through joint action. This can raise incomes for those who work in clusters, raise their assets and capabilities and have a significant impact on lowering levels of poverty and social deprivation. Joint action, often cemented through social capital, can improve local networks and support mechanisms that help reduce future risks and vulnerability to shocks.

External Economies - Agglomeration benefits may not only raise efficiency, they may also make it possible for smaller firms to access markets through a division of labour. Economies of scale and scope can allow individual small firms to survive by specializing in specific tasks within the production process and by accessing specialist skills and services and inputs from within the cluster. Similarly, external economies that arise from agglomeration can result in a significant lowering of costs in accessing inputs, labour and information. Again, this can help small firms to survive and grow in ways that would be infeasible if they operated in isolation.

Knowledge spillovers found in clusters may also make it feasible for small firms to acquire new know-how, new products and new production techniques that could not be obtained through markets. Clustering can thus enhance the individual capacities of small firms to access markets, and acquire skills, knowledge, credit and information.

Joint action - Clustering can also promote collective capacity. In addition to the direct economic benefits that passively accrue to small firms by virtue of their location within the cluster, there are significant gains from active local collaboration that clustering can set into motion. Local cooperation, both between individual firms and through cluster institutions can strengthen the ability of clustered actors to compete in markets, by sharing costs and by engaging in joint tasks such shared marketing and distribution. Moreover, such forms of joint action can help clustered firms confront external threats and challenges and face vulnerabilities. These external challenges are pronounced as local clusters engage in global markets. Globalization, namely the increasingly rapid flows of capital, goods, peoples, and ideas across borders, can help bring local actors into global markets and enhance their income earning opportunities. Globalization can also potentially increase the vulnerability of local actors to sudden changes in global demand, in trading rules and in financial stability. Thus, with globalization there is also greater instability and vulnerability. Clusters can help SMEs reduce their exposure to exogenous shocks and risks. Local institutions such as business associations and collective service centres can help clustered firms acquire the skills, the technical abilities to reduce their vulnerability to the exigencies of globalization, thereby enhancing the well-being of workers and producers.

Social capital - Local initiatives and local collaboration are themselves often strengthened by local social capital. Clusters tend to have a strong presence of social capital, which can take the form of shared norms and/or common identities. This can, potentially, help reduce vulnerability, help flows of knowledge within the cluster, provide the basis to strengthen local institutions, and help firms upgrade. We need to consider how social capital works to do this, and in particular how it may mitigate against poverty. But there is a caveat. Social capital can also serve to raise local competition as much as it helps local cooperation. Divisions within communities can reduce local cooperation and serve to worsen poverty

impacts. Finally, it is important to recall that social capital is not static. Its forms, and how it works, can change over time. In particular, it is affected by economic changes (and growth) within the cluster. Marshall (1920) pointed out to three important gains from proximity of firms` viz., industry specialization, labour pooling & knowledge spillovers.

With the presence of many similar firms, firms can pursue a higher degree of intra-industry specialization and thus achieve higher productivity. In addition to these gains from intra-industry specialization, economic benefits can also be gained from inter-industry specialization where specialized suppliers and subsidiary industries provide inputs that enhance the performance of the core industry. Marshall also stresses the local labour market as a source of economic benefits. Specialization allows firms to benefit from access to a pool of specialized labour, which also enhances economic performance. Marshall`s third main mechanism has to do with the flow of knowledge between firms. Knowledge spillover occurs when knowledge flows between firms through social interaction.

New firms are subject to particular difficulties in that they face a general lack of resources (Audretsch, 1995), are more vulnerable to external economic shocks (Delmar *et al*., 2006), and frequently face cost disadvantages by operating farther from the industry`s minimum efficient scale (Pe`er and Vertinsky, 2006).

3.3 CLUSTERS AND ENTREPRENEURSHIP

Literature suggests that clusters foster business creation (Marshall, 1966; Krugman, 1991a; Rocha and Sternberg, 2005). Rocha and Sternberg (2005) further observed that the combination of resource availability, lower entry and exit barriers, reduced transaction costs, and market size within industry agglomerations positively affects the creation of firms.

Clusters contribute to entrepreneurship with the interaction between the geographical, inter-firm network, and organisational network dimensions (Rocha, 2004). Clusters and

entrepreneurship have become extremely admired subjects in economics, regional science, and economic geography. In the last decade, the seminal works by Michael Porter (1990) and Paul Krugman (1991a) have motivated a growing number of scholars to probe the empirical evidence for clusters, their definition, and their implications for economic policy. It would not be an exaggeration to say that the concept of clusters has become en vogue in the abovementioned academic disciplines, as well as in many applications of local economic development policy. The same is true of entrepreneurship and new firm formation processes. It is the mark of the new economy boom, as indicated by economic policy and widely in the academic world (Wennekers and Thurik, 1999; Reynolds *et al*., 2002), that entrepreneurial activities are seen as a crucial impetus for both national and regional growth.

In contrast, a strong cluster environment surrounding a particular region-industry augments the incentives and potential for entrepreneurship. The firms within a geographically concentrated cluster share common technologies, skills, knowledge, inputs, consumers and institutions, facilitating agglomeration across complementary and related industries. A strong cluster environment augments growth at the region-industry level by facilitating operational efficiency and raising the returns to business expansion, capital investment and innovation, thereby increasing job creation and productivity. (Porter, 1990, 1998a, 1998b, 1998c; Saxenian, 1994; Feldman and Audretsch, 1999; Bresnahan and Gambardella, 2004; Cortright, 2006; Delgado *et al*., 2007).

More explicitly, clusters facilitate new business formation and the growth of successful start-ups by lowering the costs of entry (e.g. by providing ready access to suppliers or low-cost access to specialized inputs, offering an environment in which the costs of failure may be lower), enhancing opportunities for innovation-based entry (as a stronger cluster environment will allow local entrepreneurs to develop and commercialize new technologies more rapidly) and allowing start-up firms to leverage local resources to expand new

businesses more rapidly. Finally, strong clusters are often associated with the presence of innovation-oriented local consumers, thus providing increased opportunities for entry into differentiated market segments. As a result, entrepreneurship is a particularly important channel for cluster-driven agglomeration, and may therefore be crucial for the role of clusters in enhancing regional performance (Saxenian, 1994; Porter, 1998a; Swann *et al*., 1998; Feldman, 2001; Feldman *et al*., 2005; Feser *et al*., 2008; Wennberg and Lindqvist, 2008).

Given this, the more surprising it is to the researcher is that, there exist only few analyses to date of the relationship between cluster attributes of a region and entrepreneurship activities in the same region. Although there is literature to be found on a theoretical level, there is no coherent theoretical framework elucidating firm start-up and cluster development from a regional perspective (Fornahl and Menzel, 2002). Hence, the empirical research gap is even more substantial.

3.4 IMPACT OF CLUSTER PROCESSES ON ENTREPRENEURSHIP

Clustering of firms' sets into motion several advantages that create a spin-off of enterprises in the cluster. As observed by Nadvi and Barrientos (2004), clustering sets into motion a range of potential benefits which can be through externality gains, joint action, and local social capital. Clusters can set into motion processes that improve the ability of small firms to improve market access through externality gains and through joint action. This can raise incomes for those who work in clusters, raise their assets and capabilities and have a significant impact on lowering levels of poverty and social deprivation.

These advantages have been spelt out by Michael E. Porter in his seminal study entitled '*Clusters and the New Economics of Competition'* (Porter, 1998a). He defined clusters as 'geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions'. His works on

clusters has fascinated scholars across the globe and have received larger attention in the academic literature. Mills *et al*. (2008) observed that clusters enhance firm`s access to specialized labour, materials, and equipment and enable in lowering the operating costs and entrepreneurship is one important means through which clusters achieve their benefits.

Rocha (2004) further observed that research on the impact of clusters on entrepreneurship at the regional level is both theoretically and empirically limited due to conceptual, theoretical, and methodological limitations.

Although there is no dearth of research studies on different facets of cluster development and cluster processes, the researchers have not focused much on the relationship between clusters and entrepreneurship development in developing countries. Moreover, there is still less quantitative evidence on the role and impact of cluster-based economic policy, the case experience and the conceptual framework suggest some conclusions for policy makers. Clusters can improve the efficiency of economic policy tools and there are different ways to raise economic benefits from existing clusters (Ketels and Memedovic, 2008).

The present study has probed the impact of cluster processes on the emergence of entrepreneurship from the point of view of the agripreneurs. The study has attempted to understand whether clusters are fertile grounds for the emergence and development of entrepreneurship and how clusters have contributed to the development of entrepreneurship in Daramdin rose cluster. The study has examined the impact of cluster processes on the emergence and augmentation of entrepreneurship. The scope of the study is confined to the role played by Daramdin cluster in the emergence and preservation of entrepreneurship. The extent of the influence exerted by the perceived advantages derived from cluster processes on entrepreneurship in matters of the expectations of agripreneurs, the selection of the cluster for starting their units, alternate proposals in the absence of the cluster were enquired into.

3.4.1 Initial Expectations of Agripreneurs from Support Agencies

The present study has identified the initial expectations of the agripreneurs from support agencies at the time of commencement of their enterprise in Daramdin rose cluster (Table-3.1). It is evident from Table-3.1 that support from the government was the dominant expectation of the agripreneurs at the time of starting their venture. Gangadhara Rao (1986) in his study conducted on industrial estates in Coastal Andhra Pradesh, revealed that assistance from state agencies and allotment of plot shed were the most important expectations of entrepreneurs, and expectations from family members, friends and relatives was the least expectation for entrepreneurs. Conversely, a study conducted in Thenzawl handloom cluster in Mizoram (Ramswamy and Jyoti Kumar, 2011), it was observed that the initial expectations of the entrepreneurs from the government agencies in the form of assistance played a negligible role in stimulating entrepreneurship in that cluster. Only 10 out of 97 entrepreneurs in the cluster accorded this factor as an initial expectation for starting their enterprise with a rating of only 7.18 per cent.

The perusal of Table-3.1 reflects that assistance from state government or other agencies have been accorded the highest rating of 40.83 per cent while allotment of the greenhouse has been accorded second rank with a rating of 34.17 per cent. However, securing cluster relationships with the other units have been assigned the third rank with a rating of 19.79 per cent.

According to Khandwall (1977) when initiatives are directed towards influencing enterprise creation by way of providing technological inputs, financial assistance, infrastructural facilities and so forth, this type of environment directly facilitates various tasks involved in enterprise creation. He alternatively referred to this environment as task environment or facilitative environment.

Enterprise support initiative in developing countries have often directed exclusively towards the facilitation of the task environment (Manimala *et al*., 2009). They further observed that the process of creating a supportive environment for enterprise creation should be a two pronged process: a) creating necessary changes in the general environment or formative environment and b) introducing changes in the task or facilitative environment so as to channelize the initiatives of enterprising individuals into entrepreneurship. The various components of the task environment could be enterprise specific infrastructure, industrial estates/special economic zones, specific training/education programmes, access to finance or capital, subsidized power supply, technology transfer and commercialization of technology, raw material supply, marketing support and so on. There is a lack of understanding of the role of task facilitation in creating conducive environmental activities (Markley and Macke, 2003). However, it has emerged as a major tool used by the governments to enterprise creation (Manimala *et al*., 2009).

TABLE-3.1

Initial Expectations of Agripreneurs

Factors	Ranking of the Expectations			Weighted Score	Rating (%)	Rank
	No. of Agripreneurs					
	Rank One	Rank Two	Rank Three			
1. Allotment of Greenhouse	24	37	18	164	34.17	2
2. Assistance from the State Government or other Agencies	47	24	7	196	40.83	1
3. Availability of Skilled Labour in the Cluster	-	-	-	-	-	-
4. Securing Cluster Relationship with other Units	7	16	42	95	19.79	3
5. Assistance from Family Members/Friends/ Relatives	2	3	13	25	5.21	4
6. Others (Please Specify)	-	-	-	-	-	-
Total	**80**	**80**	**80**	**480**	**100**	

Source: Field Survey

As observed in Table-3.1, assistance from government agencies has emerged as the most significant expectation of the agripreneurs in the decision to start rose farming in the cluster with 47 out of 80 having accorded the 1st rank to this factor, followed by 24 having accorded the 2nd rank and 7 having accorded the 3rd rank with an overall rating of 40.83 per cent based on weighted score.

Entrepreneurship has sprung in Daramdin cluster as an outcome of the primary expectation of assistance from government agencies as observed in Table-3.1. As observed

earlier (Table-2.11), the agripreneurs of Daramdin have made a concerted decision to shift from traditional agriculture (paddy growing) to rose farming. It appears that this decision can be directly attributed to the expectations of assistance from government agencies to facilitate the growth of roses in their farms. Assistance was sought to be forthcoming in the form of irrigation facilities, marketing assistance, training, cold storage, and so on. As suggested by Manimala *et al.* (2009) the facilitative environment has played a key role in the creation of rose farming enterprises in the cluster.

Allotment of greenhouse has been accorded 2nd rank with an overall rating of 34.17 per cent (Table-3.1). In the aggregate, these two factors have been accorded the highest ranking (1st rank) by an overwhelming number of 71 agripreneurs (about 89%) which reiterates the role of facilitative environment played in the formation of this cluster and the emergence of entrepreneurship in the cluster.

Greenhouse facility plays a crucial role in rose farming activities. A greenhouse is basically, a structure with walls and roof made primarily of transparent material, such as a glass, in which plants and other crops are grown in a regulated and controlled environment. In other words, a greenhouse is a framed or inflated structure covered with transparent or translucent material large enough to grow crops under partially or fully controlled environmental conditions to attain optimum growth and productivity. Greenhouse cultivation is undertaken to shield the plants from the unfavourable climatic conditions such as wind, cold, precipitation, excessive radiation, extreme temperature, insects and diseases. On the other hand, greenhouse cultivation is adopted in order to produce more yields and enhanced quality of flower production in short period of time as compared to traditional open field cultivation. There are certain advantages of greenhouse cultivation such as increased yield of 10-12 times than that of open field cultivation, year round production of floriculture produce, continual production of disease free and genetically superior transplants and limited required

of water etc. Cut flowers like carnations, Gerbera, Lilly, Rose, and Orchids etc. can be grown under greenhouse generating higher returns and enhanced quality produce.

Furthermore, securing cluster relationships has emerged as the third important factor with 65 agripreneurs (about 81%), having accorded the top three ranks to this factor with an overall rating of 19.79 per cent. It is evident from Table-3.1, that securing cluster relationship to derive positive synergies from linkages with the other units in the cluster was also one of the prime expectations of the agripreneurs at the time of starting their enterprise.

Porter (1998a) observed that a firm`s identification with and sense of community, derived from membership in a cluster, and its civic management beyond its own narrow confines as a single entity translate directly according to cluster theory into economic value. The benefits of trust and organizational permeability, fostered through repeated interactions and a sense of mutual dependence within a region or city, clearly grease the interactions within the cluster which in turn enhances productivity, spurs innovation and results in the creation of new enterprises.

This analysis leads to the inference that cluster processes acted as an important tool in stimulating entrepreneurship in Daramdin cluster.

However, the present study revealed that assistance from family members or friends or relatives and availability of skilled labour in the cluster were not significant factors that stimulated entrepreneurship in Daramdin cluster.

Assistance from family members or friends or relatives emerged as an insignificant factor with only 18 agripreneurs (about 23%) citing this factor as an initial expectation to start their enterprise. Conversely, in a study conducted by Ramswamy and Jyoti Kumar (2011), it was observed that assistance from family members or friends or relatives was one of the prime expectations of the entrepreneurs in Thenzawl handloom cluster in Mizoram.

It is noteworthy that none of the agripreneurs in Daramdin had expectation as regards availability of skilled labour at the time of starting their enterprise. During the field study, the researcher observed that rose farming was a household activity with all the household members contributing to the farming activity. This perhaps, is the reason for none of the agripreneurs citing this factor as an initial expectation. Although, literature suggests availability of labour as a crucial advantage derived from cluster processes (Marshall, 1919; Krugman, 1991b; Humphrey and Schmitz, 1995; Pitelis and Pseiridis, 2007), it doesn`t appear to be a relevant factor in Daramdin as the labour input is provided entirely by the family members of the agripreneurs.

3.4.2 Degree of Fulfilment of Agripreneurs` Expectations

Further, the present study also sought a self-assessment of the fulfilment of the agripreneurs' initial expectations presented in Table-3.2.

TABLE-3.2

Degree of Fulfilment of Agripreneurs` Expectations

Responses	No. of Agripreneurs	Per cent
1. Very Much Fulfilled	5	6.25
2. Fulfilled	22	27.50
3. Undecided (Neither Fulfilled nor Unfulfilled)	3	3.75
4. Partly Fulfilled	47	58.75
5. Not at all Fulfilled	3	3.75
Total	**80**	**100**

Source: Field Survey

It is evident from Table-3.2 that 62.50 per cent of the agripreneurs expressed discontent with their initial expectations for starting their enterprise, whereas 34 per cent of the agripreneurs seem to have achieved fulfilment of their expectations. This may be attributed to the fact that they are dissatisfied with the government in terms of assistance extended to them.

During field survey, the researcher observed that the greenhouses provided by the government to many agripreneurs were ruptured and not beneficial to the agripreneurs. It appears that greenhouses provided to these farmers were of a low quality and does not serve its purpose to the level of their expectations. Moreover, the researcher found that only around 30 agripreneurs were sent for training and exposure visits to various institutions outside the state of Sikkim. Interestingly, the ATMA (Agricultural Technology Management Agency) which was established in the cluster to function as a bridge between various stakeholders is dysfunctional and not proactive in coordinating the activities of the farmer groups, NGOs and other stakeholders.

However, the farmers who expressed fulfilment of their expectations have participated in training programmes as well as exhibitions and flower competition at the state level. In fact, one agripreneur from the village won the best Krishak award at the Vigyan Bhawan, New Delhi in 2010.

It is evident that about 63 per cent of the agripreneurs have not availed all the benefits from the government, which is creating discontent and dissatisfaction among them.

3.4.3 Agripreneurs' Economic Reasons for Entering Floriculture Industry

The present study has also attempted to examine the economic reasons that have given rise to the entry of the agripreneurs into the floriculture industry in Daramdin. The various reasons and their ratings are depicted in Table-3.3. It is observed form the table that

the highest rating was accorded to 'government support' i.e. 38.75 per cent followed by high profit margin (37.08%) and existence of similar units in the village/cluster (15.42%).

TABLE-3.3

Agripreneurs` Economic Reasons for Entering the Floriculture Industry

Factors	Ranking of the Expectations			Weighted Score	Rating (%)	Rank
	No. of Agripreneurs					
	Rank One	Rank Two	Rank Three			
1. Government Support	34	38	8	186	38.75	1
2. High Profit Margin	40	23	12	178	37.08	2
3. No Difficulty in Securing Raw Materials/Skilled Farmers	-	1	-	2	0.42	6
4. Previous Experience as Farmers	4	4	11	31	6.46	4
5. Existence of Similar Units in the Village/Cluster	-	13	48	74	15.42	3
6. *Others* (Please Specify)	2	1	1	9	1.87	5
Total	**80**	**80**	**80**	**480**	**100**	

Source: Field Survey

Others include: self-interest in flower cultivation

As observed in Table-3.3, government support has emerged as the most significant economic reason for the agripreneurs to start floriculture activities with 34 out of 80 of them having accorded the 1st rank to this factor, followed by 38 having accorded the 2nd rank and 8 having accorded the 3rd rank with an overall rating of 38.75 per cent based on weighted score.

All the agripreneurs (80) have cited government support as one of the economic reasons for entering the floriculture industry.

As part of the cluster initiative programme of the state government the rose growers were provided with the greenhouse plastics (which covers a substantial proportion of the total cost to undertake this venture), top grafted rose plants, water facilities, cold storage etc.

During the field study the researcher observed that the state government had initiated several steps to facilitate rose farming in Daramdin. The government had installed about 10 water tanks to facilitate irrigation in Daramdin cluster. Moreover, greenhouses were also provided to the agripreneurs. About 30 agripreneurs were given training outside the state since the inception of the cluster in 2005. A model floriculture centre was set up at Maniram to serve as a demonstration unit as well as a centre for training the farmers in production of roses. The researcher also observed a centre was established (Agricultural Technology Management Agency) for extension activities and as a facilitating agency between farmers, Krishi Vigyan Kendras (KVKs), local bodies and other stakeholders in the cluster. Further, the researcher observed that one cold storage facility was functioning up in the cluster to store the cut-flowers harvested in Daramdin (having a capacity of storing 50,000 rose sticks). The agripreneurs of Daramdin were also provided opportunities by the state government to participate in state level flower exhibitions. The researcher observed that the agripreneurs of Daramdin had won prizes in such competitions. It may be inferred that these initiatives of the state government has impelled the agripreneurs of Daramdin to start their enterprises in the cluster.

High profit margin emerged as a significant economic reason for the agripreneurs to enter floriculture sector with a rating of 37.08 per cent marginally less than the factor – ‘government support’. In the aggregate, these two factors have been accorded the highest

ranking (1st rank) by an overwhelming number of 74 agripreneurs (about 93%). 75 out of 80 agripreneurs (about 94%) have marked 'high profit margin' as one of the three choices. Rose farming is perceived by the agripreneurs as a highly profitable business. Their choice of shifting from traditional agriculture (paddy cultivation) to floriculture may be attributed to their expectations of higher returns.

It was observed during field survey that more than 15 rose varieties were grown in the cluster, with pink, yellow, red and white roses having a predominant share in the product mix. The rose stick with a length of less than 45 cm fetched a price of Rs. 3 to Rs. 4 per stick, whereas, the rose sticks which exceeded the length of 45 cm fetched a sale price of Rs. 5 per stick. On special occasions (Valentine's Day, New Year day etc), the roses fetched premium price of Rs. 10 per stick.

Crop diversification has emerged as a key strategy for profit maximisation in agriculture in the post reform era and particularly floriculture has emerged as a high growth sector in the agricultural sector (Sen and Raju, 2006). Research evidence revealed that flower cultivating households earned significantly more per unit of area as compared to non-flower households. Notably, in as study conducted by Agoramoorthy and Hsu (2012) in Dahod district of Gujarat state in the western part of India, observed that the economic benefits of the women farmers significantly improved after they shifted their occupation from traditional agriculture i.e. cultivation of maize, corn, wheat and other pulses to floriculture (mainly rose and marigold). They observed that floriculture gave the impoverished farmers, especially women, tremendous opportunities to enhance their income significantly through floriculture development within a short period of time. The income revenue after floriculture development registered increase of average 22 fold increases. Moreover, their study highlighted that the occupation was highly sustainable due to the usage of organic manure such as animal dung, urine, straw, green leaves and other organic wastes from farms and

homes. It is pertinent to note that, the agripreneurs of Daramdin cluster also practiced organic farming. Perceptibly, the agripreneurs entered this sector to earn higher returns than traditional agricultural activities.

Furthermore, existence of similar units has again emerged as one of the significant economic reasons of the agripreneurs for entering the floriculture industry. This factor was accorded 3rd rank with an overall rating of 15.42 per cent. It is evident from Table-3.3 that securing cluster relationship to derive positive synergies from linkages with the other units in the cluster has again emerged as one of the significant economic reasons of the agripreneurs for entering the floriculture industry.

However, the present study revealed previous experience as farmers and no difficulty in securing raw materials/skilled farmers in the cluster were not major economic reasons of the agripreneurs for entering the floriculture industry in Daramdin cluster.

3.4.4 Agripreneurs' Reasons for Setting up Enterprise in Daramdin Cluster

The present study also enquired into the probable reasons behind the agripreneurs establishing his or her unit in the cluster to gain an insight into the role played by cluster processes on the emergence of entrepreneurship in Daramdin.

TABLE-3.4

Agripreneurs` Reasons for Setting up Enterprise in Daramdin Cluster

Factors	Ranking of the Expectations			Weighted Score	Rating (%)	Rank
	No. of Agripreneurs					
	Rank One	Rank Two	Rank Three			
1. Provision of Greenhouse in the Cluster	31	33	11	170	35.42	2
2. Availability of Raw Materials	-	1	2	4	0.83	6
3. Availability of Skilled Labourers	-	1	-	2	0.42	7
4. Availability of Transport Facilities	-	1	5	7	1.46	5
5. Government Support and Assistance	44	25	9	191	39.79	1
6. Existence of Similar Units in the Cluster	3	18	50	95	19.79	3
7. *Others* (Please Specify)	2	1	3	11	2.29	4
Total	**80**	**80**	**80**	**480**	**100**	

Source: Field Survey

Others include: to make use of the available land, Daramdin is my birthplace and native land.

Table-3.4 exhibits agripreneurs` reasons for setting up enterprise in Daramdin cluster. It is observed from Table-3.4, that the highest rating (1st) was accorded to government support and assistance (39.79%), followed by provision of greenhouse in the cluster having accorded the 2nd rank (35.42%) and existence of similar units in the cluster was accorded the 3rd rank (19.79%). This (Table-3.4) corroborates the findings of Table-3.1, where government

support, allotment of greenhouse and securing cluster relationships were the key expectations of the agripreneurs for establishing their units in Daramdin. It appears that the assistance by the government agencies in the form of water tanks, cold storage, marketing assistance, training and exposure programmes and so forth, have emerged as the primary reason for the agriprenurs to set up their enterprise in Daramdin.

As discussed earlier in Table-3.1, as greenhouse plays a prominent role in development of floriculture business, this factor has played a predominant role in the choice of the agripreneurs` setting up their units in Daramdin. Greenhouse offers advantages such as increased yield, year round production of floriculture produce, continual production of disease free and genetically superior transplants and limited required of water and so forth. A cut rose flower grown under greenhouse has the potential in generating higher returns and enhancing the quality of the flowers.

Further, 19.79 per cent of the agripreneurs cited ‘existence of similar units in the cluster’ as one of the three significant reasons for setting up their enterprises in Daramdin cluster. It is evident that cluster processes have played an important role in the birth and agglomeration of firms in this cluster. Consequently, it may be inferred that networking of firms in the cluster is an important advantage derive by the enterprise which in turn, would create more number of enterprises in the cluster and as a result an agglomeration of firms.

On the contrary, ‘availability of transport facilities’, ‘availability of raw materials’ and ‘availability of skilled labourers’ were rated as the least important reasons for setting up of their enterprise in Daramdin cluster with an overall rating of 1.46 per cent, 0.83 per cent and 0.42 per cent respectively. Although, transport facilities and raw materials play a major role in setting up of any venture, it appears such factors were not considered important by the agripreneurs for establishment of floriculture enterprise in Daramdin cluster.

3.4.5 Agripreneurs' Alternate Proposals had there been no Cluster

The present study also enquired into the agripreneurs' alternate proposals had there been no cluster in Daramdin in order to gauge the magnitude of the desire for taking up any entrepreneurial venture. The details are presented in Table-3.5.

TABLE-3.5

Agripreneurs` Alternate Proposals had there been no Cluster

Alternate Plan	No. of Agripreneurs	Per cent
1. To Continue With Traditional Agriculture	10	12.50
2. To Take up a Job	3	3.75
3. To Start an Alternative Agri-business	37	46.25
4. Can`t Say	30	37.50
Total	**80**	**100**

Source: Field Survey

As shown in Table-3.5, only 3 (3.75%) agripreneurs out of 80 indicated that they would have taken up a job had there been no cluster at the time of commencement of their business in Daramdin rose cluster while 37 of them (46.25%) would start alternative agri-business. However, 30 (37.50%) of them were uncertain about their second option, as they cited 'can't say'.

It is evident that entrepreneurship is thriving in the cluster as only 3.75 per cent would take up a job. However, 12.50 per cent of the agripreneurs indicated that they would revert to growing paddy whereas 46.25 per cent would start another agri-business and 37.50 per cent have huge expectations from the cluster.

3.5 CONCLUSION

It is evident that the cluster is sustaining on the main plank of government assistance offered in the form of irrigation facilities, marketing assistance, training, cold storage, and so forth. Another key factor that has emerged as a reason for initiating the agripreneurs into rose farming is the provision of greenhouse. Cluster processes have played an underlying role in entrepreneurship as it has emerged as the 3rd most important factor in the initial expectation of agripreneurs as well as their economic reasons for entering floriculture industry and setting up their enterprise in Daramdin cluster (Table-3.1). This analysis leads to the inference that cluster processes has acted as an important tool in stimulating entrepreneurship in Daramdin. It is evident that securing cluster relationship to derive positive synergies from linkages with other units in the cluster is an important factor in the thriving of entrepreneurship in the cluster. However, a sustained effort by the government is imperative for the development and prosperity of the cluster.

It appears that the agripreneurs had opted to start rose cultivation primarily because of the existence of the cluster. Cluster processes have played an important role in the emergence and sustenance of entrepreneurship in Daramdin.

The present study underscores the need for the benefit of cluster initiatives of the government agencies to percolate to all the agripreneurs in Daramdin. It must be acknowledged that the dissatisfaction gnawing some of the agripreneurs needs to be comprehensively addressed to enable the cluster to become competitive and enter markets at the national and global levels.

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Chapter – 4
Conclusions and Suggestions

The present chapter summarizes the major findings of the present study and provides suggestions based on the findings of the study. Agripreneurship is thriving in rose farming activities in the cluster and has emerged as an alternative occupation to traditional agriculture. The cluster holds promise of growth and development and hence it is imperative that appropriate cluster development initiatives should be undertaken by the Government of Sikkim to sustain the cluster. It appears that Daramdin rose cluster has emerged as a result of the cluster initiative programme of the state government, supported by the Horticulture Department and Technology Mission of the Government of India.

4.1 SUMMARY OF FINDINGS

4.1.1 Introduction

- The global export of floriculture products was around US$ 17 billion during 2016. Europe is the largest exporter of floriculture products. Netherlands is the leading exporter of floriculture products having a share of 43.95 per cent followed by Colombia (7.20%) and Germany (4.99%) respectively. India`s share in exports is 0.42 per cent and ranks 23rd in the list of exporting countries in terms of share in exports.
- Though India's share in the global floriculture trade is less than 1 per cent, of late it is emerging as a potential floriculture producer. India`s floriculture exports have increased from Rs. 1,800 lakh in the year 1993 to around Rs. 55,000 lakh during the year 2015-16. The growth of floriculture in India can be supported from the fact that India is sanctified with a diversity of agro-climatic conditions prevailing in different

regions of the country ensuring production of nearly all the ornamental crops throughout the year.

- Rose is the major cut flower grown all over the country. Amongst the cut-flowers the total production of roses in India was 120,950 tonnes which was the highest in the country during 2014. Karnataka was the leading state in cut-flower roses with the production of 57,020 tonnes followed by Andhra Pradesh (28,310 tonnes) and Orissa (27,670 tonnes) respectively. Sikkim`s contribution in the Indian cut-flower rose industry was 180 tonnes which was around 0.15 per cent. Sikkim, bountifully endowed with facilitative geo-climatic conditions, has a huge potential to tap the floriculture market in the domestic and the global markets.

4.1.2 An Overview of Daramdin Rose Cluster

- *Daramdin* is a village located in west Sikkim, approximately 120 Km from the capital city of Gangtok. A peculiar feature of the place is that it has a large surface of flat land. The name Daramdin is derived from the local Lepcha language '*Dalom*' meaning a place of rest or a flat land.
- During the field survey conducted from December 2016 to February 2017, the researcher found that 80 households were engaged in commercial cultivation of roses in the cluster. The farmers were engaged specifically in the farming of more than 15 different assortments of roses. Further, these agripreneurs were members of a cooperative society known as 'Kanchenjunga Floratech Society'.
- The origin of the cluster can be traced to 2005 with few agripreneurs commencing cultivation of roses in their farms (without greenhouse). This number grew to 80 agripreneurs opting to cultivate roses commercially.

4.1.3 Socio-economic Characteristics of Agripreneurs

- *Gender* - The present study examined the proportion of male and female participation in the floriculture activity in Daramdin cluster. It was revealed that 46.25 per cent of the agripreneurs were male and 53.75 percent were female. Female agripreneurs were more than their male counterparts in the floriculture industry at Daramdin rose cluster.
- *Education* – The present study revealed that 12.50 per cent of the agripreneurs did not possess any formal education while 45 per cent had primary education and 28.75 per cent of the agripreneurs were matriculates. However, only 2.50 per cent of the agripreneurs had higher secondary and 11.25 per cent of the agripreneurs were graduates.
- *Age* – The present study revealed that 13.75 per cent of the agripreneurs were below 30 years of age, followed by 25 per cent in the age group of 30-40 years and 33.75 per cent in the age group of 40-50 years. However, 16.25 per cent of the agripreneurs were in the age group of 50-60 years while 11.25 per cent of the agripreneurs were above 60 years.
- *Year of Commencement of Business* – The present study revealed that maximum number of units i.e. 77 (96.25%) had commenced their business during the period 2005-2009 while only 3 (3.75%) units had commenced their business during the period 2010-2014.
- *Marital Status* – The present study revealed that 83.75 per cent of the agripreneurs were married while 12.50 per cent of the agripreneurs were unmarried. However, only 3.75 per cent of the agripreneurs were widowed.
- *Religion* – The present study revealed that 97.50 per cent of the agripreneurs were practising Hinduism as their religion while the remaining (2.50%) were practising Buddhism as their religion.

- *Community* – The present study revealed that 41.25 per cent of the agripreneurs belonged to Subba/Limboo community, followed by Newar community (22.50%). However, 16.25 per cent of the agripreneurs belonged to Khas and Bhujel community respectively. The Sherpas and the Lepchas constituted a very negligible section of the total agripreneurs with a share of 2.50 per cent and 1.25 per cent respectively.
- *Caste* - The present study revealed that 45 per cent of the agripreneurs belonged to ST category, followed by General Caste accounting for 38.75 per cent of the total agripreneurs. However, only 16.25 per cent of the total agripreneurs belonged to OBC (other backward classes).
- *Family Structure and Size* – The present study revealed that majority of the agripreneurs (61.25%) were living in nuclear families while 38.75 per cent of the total agripreneurs were living as a joint family. Further, it was also revealed that 57.50 per cent of the agripreneurs were having a family size of 5-8 members, 36.25 per cent were having a family up to 4 members and 6.25 per cent of the agripreneurs were having a family size of 9-12 members.
- *Occupation* – The present study revealed that 56.25 per cent of the agripreneurs were solely dependent on floriculture while 33.75 per cent of the agripreneurs considered other agricultural activities (traditional farming) as their main occupation. However, 7.50 per cent considered business/trade as their primary occupation while only 2.50 per cent considered job as their main occupation.
- *Income* – The present study revealed that 27.50 per cent of the agripreneurs were earning an average annual income above of Rs. 120,000 'from all sources while 33.75 were earning an average annual income in the income range of Rs. 80,001-120,000. However, 26.25 per cent were earning an annual average income in the income range of Rs. 40,001-80,000 and 12.50 per cent of the agripreneurs were earning an average

annual income up to Rs. 40,000. Further, it was also revealed that 16.25 per cent of the agripreneurs were earning an average annual income above Rs. 120,000 from rose farming while 35 per cent of the agripreneurs were earning an average annual income in the income range of Rs. 80,001-120,000, However, 28.75 per cent were earning an average annual income in the income range of Rs. 40,001-80,000 and 20 per cent were earning an average annual income up to Rs. 40,000.

4.1.4 Impact of Cluster Processes on Entrepreneurship

- *Initial Expectations of Agripreneurs from Support Agencies* - The present study revealed that 'assistance from state government or other agencies' was accorded the highest rating of 40.83 per cent while 'allotment of the greenhouse' was accorded second rank with a rating of 34.17 per cent. However, 'securing cluster relationships with the other units' have been assigned the third rank with a rating of 19.79 per cent.
- *Degree of Fulfilment of Agripreneurs Expectations* – The present study revealed that 33.75 per cent of the agripreneurs expressed their satisfaction over the fulfillment of their initial expectations while 58.75 per cent of the agripreneurs felt that their expectations were fulfilled partly. However, only 3.75 per cent of the agripreneurs expressed complete dissatisfaction in this regard.
- *Agripreneurs' Economic Reasons for Entering Floriculture Industry* – The present study revealed that the highest rating was accorded to 'government support' i.e. 38.75 per cent followed by 'high profit margin' (37.08%) and 'existence of similar units in the village/cluster' (15.42%).
- *Agripreneurs' Reasons for Setting up Enterprise in Daramdin Cluster* – The present study revealed that the highest rating was accorded to 'government support and assistance' (39.79%), followed by 'provision of greenhouse in the cluster' having

accorded the second rank (35.42%) and 'existence of similar units in the cluster' was accorded the third rank (19.79%).

- *Agripreneurs' Alternate Proposals had there been no Cluster* – The present study revealed that only 3 (3.75%) agripreneurs out of 80 indicated that they would have taken up a job had there been no cluster at the time of commencement of their business in Daramdin rose cluster while 37 of them (46.25%) would 'start an alternative agri-business'. However, 30 (37.50%) of them were uncertain about their second option, as they indicated 'can't say'.

4.2 SUGGESTIONS

- Research evidence suggests that floriculture is a compatible occupation for women farmers showing higher levels of success rate for women. Majority of the agripreneurs in Daramdin rose cluster were women comprising of 53.75 per cent of the total agripreneurs as compared to their male counterparts comprising of 46.25 per cent of the total agripreneurs. Interestingly, this finding contradicts with the findings of some studies conducted in India and abroad. Rose farming is evidently playing an important role in economically empowering women in Daramdin. Initiatives should be undertaken by the government to develop floriculture which can emerge as a significant tool for empowering women in rural areas of Sikkim.
- Though the literacy level of Daramdin cluster (87.50%) compares favourably with the national average literacy level (74.04%) as well as the literacy level of the state (81.42%), the government of Sikkim should take concerted steps to make all the agripreneurs in Daramdin literate. This will undoubtedly increase the effectiveness of training programmes conducted for the farmers and equip them with upgraded farming techniques.

- It appears that rose farming has emerged as a viable alternative to traditional farming in Daramdin with a majority of the agripreneurs solely depending on floriculture as their source of income. The state government needs to provide sustained assistance to the agripreneurs as follows:
    - *Provision of Superior quality greenhouses* – It was observed in Tables 3.1, Table 3.3 and Table 3.4 that greenhouse was an important factor for the agripreneurs to shift to rose farming as a commercial activity. Greenhouse facility plays a crucial role in rose farming activities. A greenhouse is basically, a structure with walls and roof made primarily of transparent material, such as a glass, in which plants and other crops are grown in a regulated and controlled environment. In other words, a greenhouse is a framed or inflated structure covered with transparent or translucent material large enough to grow crops under partially or fully controlled environmental conditions to attain optimum growth and productivity. Greenhouse cultivation is undertaken to shield the plants from the unfavourable climatic conditions such as wind, cold, precipitation, excessive radiation, extreme temperature, insects and diseases. On the other hand, greenhouse cultivation is adopted in order to produce more yields and enhanced quality of flower production in short period of time as compared to traditional open field cultivation. There are certain advantages of greenhouse cultivation such as increased yield of 10-12 times than that of open field cultivation, year round production of floriculture produce, continual production of disease free and genetically superior transplants and limited required of water etc. Cut flowers like carnations, Gerbera, Lilly, Rose, and Orchids etc. can be grown under greenhouse generating higher returns and enhanced quality produce. It appears

that greenhouses provided to many of the agripreneurs were ruptured and were of a low quality. There is a need to provide superior quality greenhouses to the agripreneurs for the rose farming activity to be economically viable in the cluster.

- *Transport facilities* – During field survey the researcher observed that the roads from Darmadin to important nodes namely, Melli which connects Daramdin to Siliguri, Darjeeling, Gangtok and Kalimpong were in poor condition. It is difficult for vehicles to ply on such roads which create impediments in transporting roses which are perishable in nature, to important centres like Gangtok, Kalimpong, Siliguri and Darjeeling. Furthermore, poor road conditions restrict the expansion of the markets for the roses of Daramdin beyond the state of Sikkim. There is an urgent need for the state government to improve the roads from Melli to Daramdin.
- *Training programmes* - The researcher found that only around 30 agripreneurs were sent for training and exposure visits to various institutions outside the state of Sikkim. There is a need for facilitating greater participation of agripreneurs in training programmes by government agencies.
- Furthermore, ATMA (Agricultural Technology Management Agency) which was established in the cluster to function as a bridge between various stakeholders is dysfunctional and not proactive in coordinating the activities of the farmer groups, NGOs and other stakeholders. There is a need for ATMA to perform its role effectively in coordinating activities of all stakeholders in the cluster.

- *Greater participation in exhibitions* – The government agencies should facilitate greater participation of agripreneurs in Darmadin in exhibitions at the national and international level.
- *Entrepreneurship Development Programmes (EDPs)* – There is a need to conduct Entrepreneurship Development Programmes in floriculture for all the agripreneurs in collaboration with premier institutions in the country.
- *Provision of additional cold storages in the cluster* – During the field survey the researcher observed that the entire village had only one cold storage. Rose being a perishable product, there is a need to preserve it freshness at the time of its delivery. There is a need to provide additional cold storages for preservation of the roses harvested in the cluster.

- Implementation of Horticulture Mission for North East and Himalayan States (HMNEH). HMNEH is a part of Mission for Integrated Development of Horticulture (MIDH) scheme, being implemented for overall development of Horticulture in North East and Himalayan states. The mission covers all North Eastern states including Sikkim and three Himalayan states of Jammu & Kashmir, Himachal Pradesh and Uttarakhand. The mission addresses entire spectrum of horticulture from production to consumption through backward and forward linkages.

The cluster appears to be an induced cluster established under the aegis of government assistance. The present study underscores the need for the benefit of cluster initiatives of the government agencies to percolate to all the agripreneurs in Daramdin

Cluster processes have also acted as an important tool in stimulating entrepreneurship in Daramdin. It is evident that securing cluster relationship to derive positive synergies from linkages with other units in the cluster is an important factor in the thriving of entrepreneurship in the cluster. It appears that the agripreneurs had opted to start rose

cultivation primarily because of the existence of the cluster. Cluster processes have played an important role in the emergence and sustenance of entrepreneurship in Daramdin.

The Government of Sikkim needs to implement cluster development initiatives to enable the cluster for sustenance and growth. Daramdin has the potential to develop markets beyond Sikkim and the national markets. The cluster can make inroads into international markets and contribute to the export earnings of the country with appropriate cluster intervention initiatives by the Government agencies. The schemes allocated for the development of the region need to be implemented in full measure to enable the cluster to survive and thrive.

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APPENDICES

Appendix - I

QUESTIONNAIRE

A. Socio-Economic Origins and Characteristics:

A.1 Name of the Agripreneur:

A.2 Name and address of the unit:

A.3 Phone no.

A.4 Forms of Organization:

a) Sole Proprietorship
b) Partnership
c) Cooperative Society (specify the name)
d) Any other (Please Specify)

A.5 Year of commencement of commercial production of roses:

A.6 Age:

a) Below 30
b) 30-40
c) 40-50
d) 50-60
e) Above 60

A.7 Gender:

a) Male
b) Female

A.8 Educational Qualification:

a) Illiterate
b) Primary
c) Matriculation
d) High Secondary
e) Graduate
f) Any other (please specify)

A.9 Marital Status:

a) Unmarried
b) Married

c) Divorced
d) Widowed

A.10 Religion: Hinduism / Buddhism / Christianity / Any other (please specify)

A.11 Category: GEN / OBC / ST / SC

A.12 Community / Tribe:

A.13 Family Structure:

a) Joint
b) Nuclear

A.14 Family Size:

a) Up to 4
b) 5-8
c) 9-12
d) Above 12

A.15 Main occupation of the family at present:

a) Floriculture
b) Business / Trade
c) Agriculture
d) Other Agricultural Activities
e) Others (Please Specify)

A.16 Total family annual income from all sources (Rs.):

a) Up to Rs. 40,000
b) 40.001 – 80,000
c) 80,001 – 120,000
d) Above Rs. 120,000

A.17 Annual income from Rose Farming (Rs.):

a) Up to Rs. 40,000
b) 40.001 – 80,000
c) 80,001 – 120,000
d) Above Rs. 120,000

B. Impact of Cluster Processes on Entrepreneurship:

B.1 Which of the following expectations stimulated your desire to start this venture?

Specify not more than <u>five expectations</u> in the order of importance

a) Allotment of Greenhouse
b) Assistance from the state government or other agencies
c) Availability of skilled labour in the cluster
d) Securing cluster relationship with other units
e) Assistance from family members / friends / relatives
f) Any other reason (please specify)

B.2 What is the degree of fulfilment of your expectations?

a) Very much fulfilled
b) Fulfilled
c) Undecided
d) Partly fulfilled
e) Not at all fulfilled

B.3 Why did you choose this line of activity? Specify five reasons in the order of importance:

a) Government Support
b) High profit margin
c) No difficulty in securing the raw materials / skilled farmers
d) Previous experience as farmers
e) Existence of similar units in the village / cluster
f) Any other (please specify)

B.4 Why did you choose to locate your enterprise in this cluster? Specify five reasons in the order of importance:

a) Provision of greenhouse in the cluster
b) Availability of raw materials
c) Availability of skilled labourers
d) Availability of transport facilities
e) Government support and assistance
f) Existence of similar units in the cluster
g) Any other reason (please specify)

B.5 Had there been no facility of cluster what might be your alternative proposals?

a) To continue with traditional agriculture
b) To take up a job
c) To start an alternative agri-business
d) Can`t say

Appendix - II

प्रस्नपत्र

A. समाजिक-आर्थिक मुल विशेष्ताहरु **(Socio-Economic Origins and Characteristics)**:

A.1 परिचालक को नाम:

A.2 इकाई को नाम अनि ठेगाना:

A.3 फोन नम्बर:

A.4 संगठनको संरचना:

a) एकल स्वामित्व
b) सहाकरिता
c) सहयोग समिति
d) कुनै अन्य (उल्लेख गर्नुहोस)

A.5 गुलाब फ़ूल फ़सलको व्यावसायिक उत्पादन भएको साल:

A.6 उमेर:

a) 30 देखि तल
b) 30-40
c) 40-50
d) 50-60
e) 60 देखि माथि

A.7 लिंग:

a) पुरुश
b) स्त्री

A.8 शैक्षिक योग्यता:

a) अशिक्षित
b) प्रार्थमिक शिक्षा
c) माध्यमिक शिक्षा
d) उच्च शिक्षा
e) स्नातक उपाधि

f) कुनै अन्य (उल्लेख गर्नुहोस)

A.9 वैवाहिक अवस्था:

a) कुमार / कुमारी
b) बिहैते / विवाहित
c) सम्बन्ध बिच्छेद
d) विधवी

A.10 धर्म:

a) हिन्दू
b) बौद्ध
c) इसाई
d) कुनै अन्य (उल्लेख गर्नुहोस)

A.11 जातपात: GEN / OBC / ST / SC

A.12 समुदाय / जनजाति:

A.13 पारिवारिक विवरण / सनरचना:

a) सन्युक्त
b) अलग / एकल परिवार

A.14 परिवारिक आकार:

a) 4 सम्म
b) 5-8
c) 9-12
d) 12 देखि माथी

A.15 परिवार को वर्तमान मुख्य व्यवसाय:

a) फूल खेती
b) व्यापार
c) कृषि
d) अन्य कृषि क्रियाकलापहरू
e) कुनै अन्य (उल्लेख गर्नुहोस)

A.16 परिवारको सालाना / वार्षिक आय को स्रोत:

a) 40,000 सम्म
b) 40,001-80,000
c) 80,001-120,000
d) 120,000 माथी

A.17 गुलाब खेतीबाट सालाना आय:

e) 40,000 सम्म
f) 40,001-80,000
g) 80,001-120,000
h) 120,000 माथी

B. उद्यमितामा क्लस्टर प्रक्रियाहरूको प्रभाव **(Impact of Cluster Processes on Entrepreneurship):**

B.1 निम्नलिखित कुन प्रतिक्षाले तपाईलाई यो परियोजना शुरु गर्ने ईच्छामा उत्तेजना ल्यायो? (कुनै पांच प्रतिक्षाहरु महत्वको क्रममा उल्लेख गर्नुहोस)

a) हरितगृह (Greenhouse) को आवंटन
b) राज्य सरकार या अन्य संस्थाबाट सहायता
c) समुहमा (Cluster) कुशल श्रमको उपलब्धता
d) अन्य इकाईहरुबाट समुह सम्बन्ध हासिल गर्न
e) परिवारको सदस्य / मित्रहरु / आफ़ान्ताहरु बाट सहयता
f) कुनै अन्य कारण (उल्लेख गर्नुहोस)

B.2 तपाईको प्रतिक्षाको पूर्तिको स्तर के छ?

a) पुर्णरुपमा पुरा भयो
b) पुरा भयो
c) अनिर्णीत (undecided)
d) आंशिक पुरा भयो
e) पुर्णयता पुरा भएन्

B.3 तपाईले यस क्षेत्रलाई (फ़ूलखेति) किन चुन्नु भयो? (कुनै पांच कारणहरु, महत्वको क्रममा उल्लेख गर्नुहोस)

a) सरकारबाट सहयोग
b) सर्वोच्च मुल्यको अन्तर

c) काचो सामग्री / कुशल किसान हासिल गर्न गाह्रो नभएको
d) किसान रुपमा अघिल्लो अनुभव
e) समुहमा (Cluster) / गाउँमा उस्तै इकाईको अस्तित्व
f) कुनै अन्य कारण (उल्लेख गर्नुहोस)

B.4 तपाईले आफ़्नो उद्ध्यम (enterprise) यो समुहमा (Cluster) स्थापना गर्न किन चुन्नु भयो? (कुनै <u>पांच कारणहरु</u> महत्वको क्रममा उल्लेख गर्नुहोस)

a) समुहमा (Cluster) हरितगृहको (Greenhouse) प्रावधान
b) काचो सामाग्रीको उपलब्धता
c) कुसल कामदारको उपलब्धता
d) यातायात सुबिधाहरुको उपलब्धता
e) सरकारको समर्थन अनि सहायता
f) समुहमा (Cluster) उस्तै इकाईको अस्तित्व
g) कुनै अन्य कारण (उल्लेख गर्नुहोस)

B.5 यदि समुह (Cluster) को सुविधा नभए, तपाईको कुन चाहि वैकल्पिक प्रस्ताव हुन्थ्यो?

a) पारंपरिक कृषि संग जारी राखन को लागी
b) कुनै जागीर लिने
c) वैकल्पिक कृषि व्यवसाय सुरु गर्न
d) भन्नै नसक्ने

PAPERS PRESENTED IN SEMINARS/CONFERENCES

1. Presented a paper entitled '*Socio-economic Characteristics of Agripreneurship in Daramdin Floriculture Cluster in Sikkim*' at a National Seminar on "**Social Work and Rural Development in North-East India**" organized by the Department of Social Work, Mizoram University, Aizawl, Mizoram held on 22-23 March 2018.

2. Presented a paper entitled '*Promoting Green Entrepreneurship Among Floriculture Farmers Through Cluster Development in Sikkim: A study of Daramdin Rose Cluster*' at a National Seminar on "**Agribusiness and Carbon Management**" organized by the Department of Management, Mizoram University, Aizawl, Mizoram sponsored by ICSSR New Delhi, NEC Shillong, NABARD Mizoram and ZOFISFED LTD. and held on 30-31 October 2017.

PUBLICATIONS

1. Chhetri, K., & Ramswamy, R. (2018). Socio-economic Determinants of Agripreneurship: Daramdin Floriculture Cluster in Sikkim. ***Small Enterprises Development, Management & Extension (SEDME)***, *45*(1), 61-77.