ENTREPRENEURSHIP AT DHUNGENTAR

OPPORTUNITIES AND CHALLENGES

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ENTERPENEURSHIP AT DHUNGENTAR: CHALLENGES AND OPPERTUNITIES

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ABSTRACT

This report is a part of the students' first pilot case study conducted in Dhungentar, Nuwakot, Nepal from February 20 to 26, 2019 under the project entitled "Problem Based Learning in South Asian Universities", which is a joint initiative of ten higher education institutions (HEIs) located in Finland, India, Nepal, Bhutan, the Netherlands and Lithuania, and co-funded by Erasmus+ Programme of the European Union. A group of students from Asian Institute of Technology and Management (AITM), Nepal and Aalto University, Finland jointly carried out the pilot case study entitled "Entrepreneurship Development and Social Cohesion in Dhungentar" after the 2015 earthquakes in Nepal. The AITM and Aalto University students focused on "Entrepreneurship" and "Social Cohesion" respectively in the study. Data were collected in the field through individual interviews (random sampling method) and focused group discussions using structured and semi-structured questionnaires over the period of seven days.

Majority of the Dhungentar people desired to have an enterprise and were ready even to collaborate with others for entrepreneurship businesses. The people were interested in agriculture (poultry farming in particular) and cement stabilized earthen brick (CSEB) production. The major challenge for Dhungentar people to establish and run entrepreneurship businesses was capital. The other challenges were lack of raw materials in the local level and identification and access to the marketplace. Although the Dhungentar residents were more conscious on entrepreneurship businesses after the 2015 earthquakes in Nepal, their confidence level to start such businesses was not very high. From the social perspective, social inertia and migration of Dhungentar youths to big cities and foreign countries for employment are the major hurdles of starting entrepreneurship businesses and their sustainability in Dhungentar. Therefore, psychology of a society should be properly understood and taken into account to influence the society to move to a desired direction.

Poultry farming and CSEB manufacturing businesses were found to be viable and suitable for Dhungentar residents. There are already established market links for poultry farming businesses and the key resources like compression machines and raw materials are available in Dhungentar for CSEB businesses. More trainings on additional skills and marketing to motivate the local residents will very likely jumpstart a new wave of economic development of Dhungentar.

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ABBREVIATION

AGI	:	Aalto Global Impact
AITM	:	Asian Institute of Technology and Management
BMC	:	Business Model Canvas
CBS	:	Central Bureau of Statistics
CSEB	:	Cement Stabilized Earth Block
DSLR	:	Digital Statutory Liquidity Ratio
FGD	:	Focused Group Discussion
HEI	:	Higher Education Institution
ICIMOD	:	International Center for Integrated Mountain Development
IDRC	:	International Development Research Center
INGO	:	International Non-Governmental Organization
MSL	:	Mean Sea Level
NGO	:	Non-Governmental Organization
NRA	:	National Reconstruction Authority
PBL	:	Problem Based Learning
SA	:	South Asia
SSN	:	Samajik Sahayata Nepal
USINFO	:	U. S. Department of State's Bureau of International Information Programs

1. INTRODUCTION

1.1 Background

Aalto University in Finland has recently (November 2018) initiated a project entitled “Problem Based Learning in South Asian Universities” co-funded by the Erasmus+ Programme of the European Union. The project aims to implement PBL pedagogy in some selected South Asian Universities (particularly in Nepal and Bhutan), where Asian Institute of Technology and Management (AITM), Khumaltar, Lalitpur, Nepal is a partner Higher Education Institution (HEI) of the project. The students’ first pilot case of the PBL based research project was conducted at Dhungentar, Nuwakot district of Nepal from February 20 to 26, 2019. In this pilot case study, five undergraduate students of AITM from different fields of study also took part together with seven graduate students from Aalto University (**Fig. 1**).

Figure 1: AITM and Aalto University students’ team moving to a field site at Dhungentar.

1.2 Study Area

The students’ first pilot case of “Problem Based Learning in South Asian Universities” project was conducted at Dhungentar of Nuwakot district in Nepal jointly by Aalto University and AITM students. The literal meaning of the name “Dhungentar” is a high land made of stones (Dhunga = stone, Taar = high land). Dhungentar is a small hilly village situated in Nuwakot district at about fifty kilometers west of Kathmandu (**Fig. 2**). Mostly low-caste[1] poor and marginalized

people are residents of the village, which was almost completely damaged by the 2015 earthquakes of Nepal. After the earthquakes, International Center for Integrated Mountain Development (ICIMOD), an international non-governmental organization (INGO), initiated a project of low-cost affordable houses construction with cement stabilized earth block (CSEB) in place of conventional kiln burnt (fired) bricks for the people of Dhungentar, and the project was completed in September 2018.

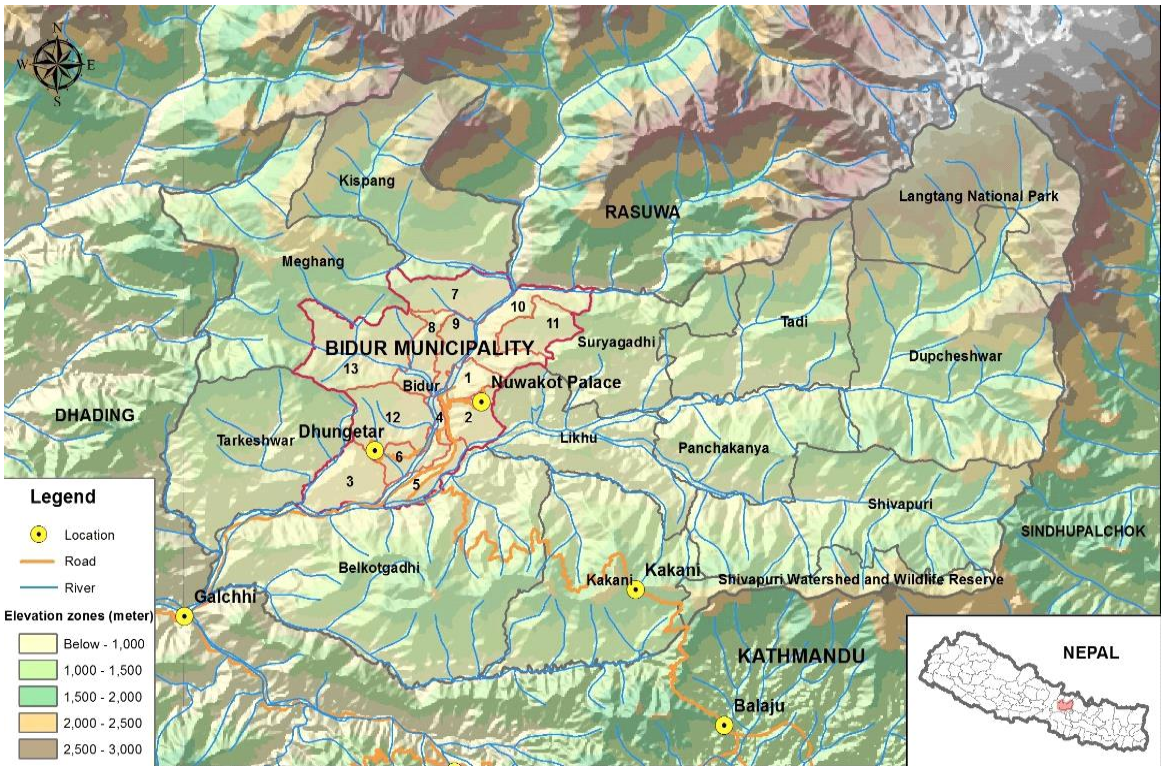

Figure 2: Location map of Dhungentar reconstruction area in Nuwakot, Nepal.

1.3 Objectives

The primary objective of this study is to shed light on the reasons of failure and challenges for entrepreneurship development in Dhungentar. The specific objectives are listed below:

- Exploring entrepreneurial scenarios of Dhungentar
  - To understand local people's current job status.
  - To learn about local people's job skills.
  - To assess the local people's willingness to start enterprise businesses.
- Identification of challenges and opportunities for entrepreneurship at Dhungentar.
  - To identify various entrepreneurship scopes.
  - To identify the prevailing challenges for entrepreneurship development.
  - To assess the potential markets for entrepreneurship development.

2.1 Dhungentar at a Glance

Dhungentar is a small rural settlement (50 hectares of land area, latitude: 27º 53' 14" N, longitude: 85º 06' 33" E, and altitude: 2,152 feet above mean sea level (MSL) in Bidur Municipality of Nuwakot district, Nepal. The nearest town from Dhungentar (7 km away) is Battar. The Dhungentar area comprises of five cluster villages: Dhand, Mathillo Dhand, Archale, Karamfedi and Ratamate (**Fig. 3**). The Karamfedi and Archale are located on steep hillsides while Dhand and Mathillo Dhand are on the same gradual hillside (Giri *et al*., 2018).

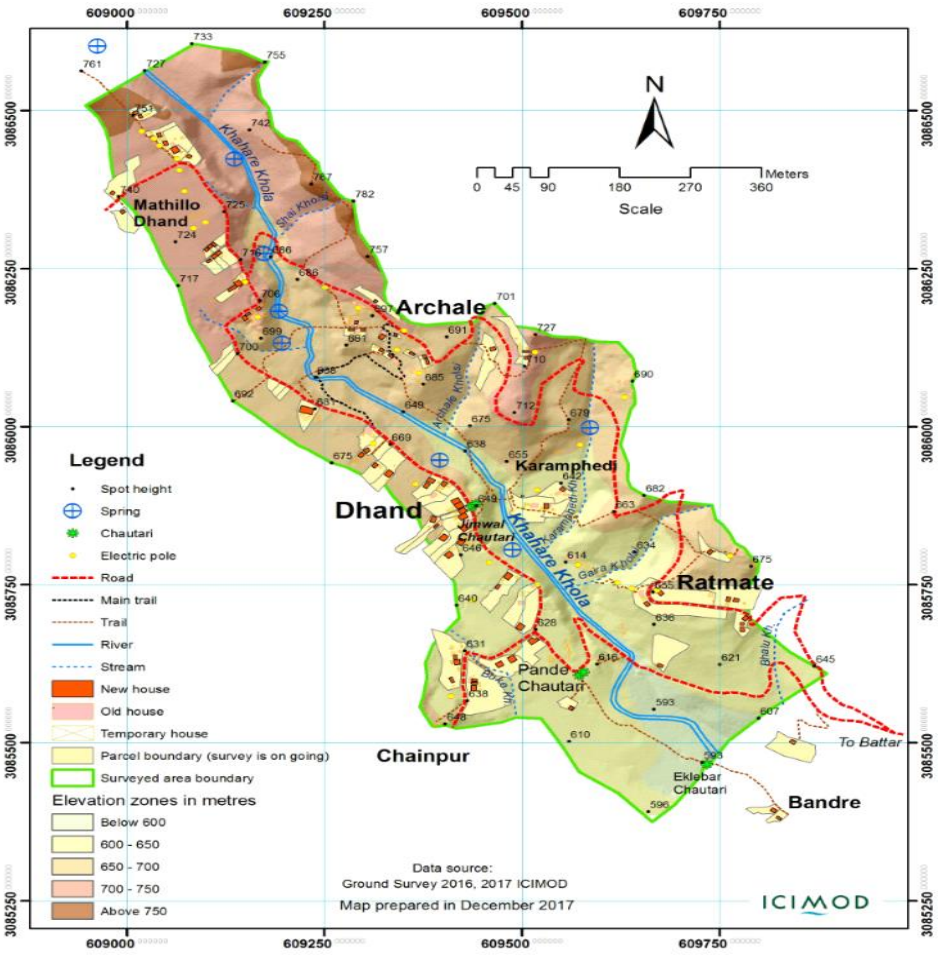

Figure 3: Clusters of Dhungentar reconstruction area in Nuwakot district, Nepal.

2.1.1 Social and ethnic dynamics

There are total 96 households at Dhungentar and 91.6% of them belong to the lower caste people (Sunar, Biswokarma, Mijar, Tamang, Lama and Kami) and the remaining households belong to higher caste people. Moreover, about 56% of the lower caste families are Sunar (**Fig. 4).** About 35% of the people of Dhungentar are illiterate and only about 55% of the population have basic reading and writing skills. A bill on "Caste-Based Discrimination and Untouchability" was passed in Nepal in May 2011, which was designed to end discriminatory

practices with the lowest caste people (Johnson, 2011). But, to this date, it is being practiced in Dhungentar.

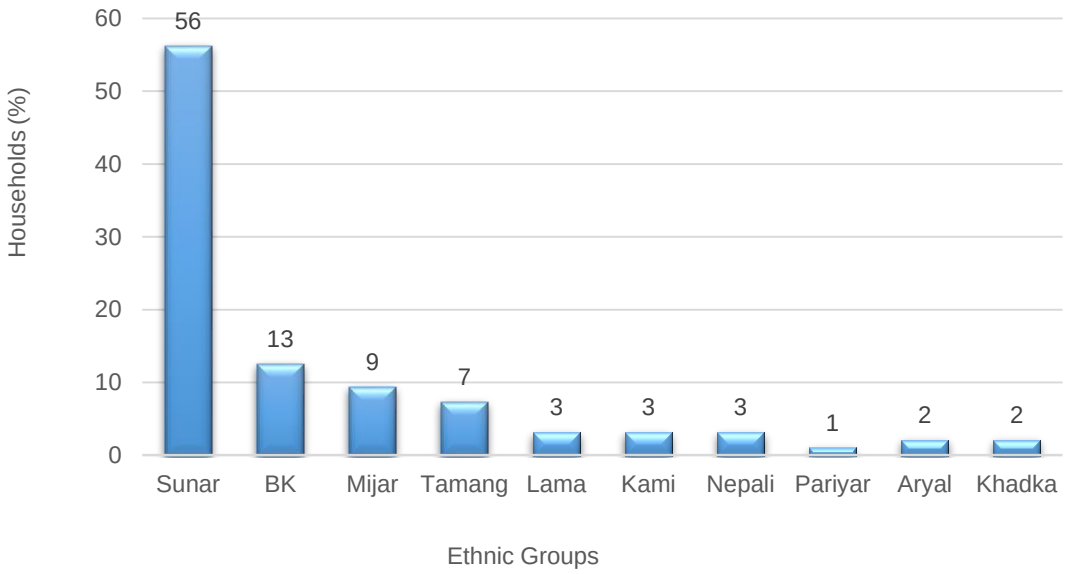

Figure 4: The ethnic composition of Dhungentar community.
Source: (Shrestha et al., 2018)

The total population of Dhungentar is 485, while women constitute 48.5% of the total population. Dhungentar is sparsely populated with fewer clusters of houses compared to the denser clusters in other areas of Nuwakot District (Shrestha *et al.*, 2018).

2.1.2 Economic status

Among the 96 households, eleven households do not have their own land. Most of the land at Dhungentar is owned by high caste people living outside the village. The average annual income of a household at Dhungentar (NRs. 127,703) is quite lower than the average national annual income (NRs. 248,893) in Nepal. Dhungentar residents are dependent on agriculture, daily-wage labor work and traditional skill-based low-income occupations like tailoring, blacksmith and carpentry. In the recent years, the younger generations are inclined more to foreign employments for uplifting their living standard (Shrestha *et al.*, 2018).

2.2 Reconstruction and Rehabilitation at Dhungentar

The Dhungentar settlement suffered a big damage due to the 2015 earthquakes in Nepal. Almost all the houses (except one) in the settlement were fully damaged due to the earthquakes. In April 2016, ICIMOD in association with National Reconstruction Authority (NRA) of Nepal and supported by International Development Research Center (IDRC) initiated and implemented building reconstruction project entitled “Resilient Mountain Village: A Pilot Demonstration Project on Earthquake Reconstruction and Rehabilitation at Dhungentar, Nuwakot, Nepal” at Dhungentar (Shrestha *et al*., 2018).

The objective of the project was to construct low-cost houses using climate-friendly CSEB instead of conventional kiln-burnt bricks and other locally available materials for the Dhungentar residents. The reconstruction project addressed four core areas: (a) disaster-resilient infrastructures, (b) community mobilization and capacity development, (c) livelihood and enterprise development, and (d) access to services and environment (Giri *et al.,* 2018).

Four young women were selected from different village clusters of Dhungentar as social mobilizers[2]. They are engaged in data collection, information dissemination, procurement and community mobilization (Shrestha *et al.,* 2018). Fifty-four out of ninety-six damaged houses, fifty-five toilets, one multipurpose community center and one health center were constructed at Dhungentar using CSEB technology. Remaining forty-two damaged houses were constructed with reinforced cement concrete (RCC) technology and the house owners spent additional costs of the structures not covered by the assistance from ICIMOD (Shrestha *et al*., 2018). Along with the local government, infrastructures like roads, water supply, electricity and lighting, water-mill and a general-purpose community hall were built. A model house was constructed with eco-friendly technologies (e.g. CSEB brick house, solar panels, biogas plant and integrated farming approach) that demonstrated a replicable approach for the community. For the development communal sense and community mobilization, mothers' group and reconstruction community were established. The mother's group gathers once in a month to discuss pressing issues and addresses them. They also manage a community saving fund which serves to provide low interest loans for local community people. The reconstruction committee is responsible for the post-earthquake infrastructure development and maintenance (Shrestha *et al.,* 2018).

2.2.1 Stakeholders of Dhungentar reconstruction

The ICIMOD with the support of IDRC and NRA initiated and executed the Dhungentar reconstruction project through different local stakeholder groups like "Samajik Sahayata Nepal" (SSN, a local NGO), local women's group, social mobilizers, local schools and ward office of Bidur Municipality-4. IDRC provided technical as well as financial assistance. The NRA also provided financial assistance and represented the Government of Nepal in the project. Four young ladies from the local communities were assigned the job of social mobilizers throughout the project period. Their role was to communicate and facilitate between the local communities and the organizations/people involved in the reconstruction work.

2.2.2 Entrepreneurship at Dhungentar

Entrepreneurship is defined as the act of creating a business or businesses with the aim of generating profits (Amiri and Marimaei, 2012). The more modern definition of

entrepreneurship is transforming the world by solving big problems like initiating social change, creating an innovative product, etc. An entrepreneur is a person who sets up a business or businesses with the aim of making profits (USINFO, 2019). Social entrepreneurship is strikingly apart from the present different types of entrepreneurship routes due to its value proposition and the very fact that it gives the money making a heart and a noble social cause. Social entrepreneurships are intended to drive societal transformations and such entrepreneurs concurrently act to address particular cases of social issues and problems and empower transformational progress throughout the system (Gandhi and Raina, 2018).

Figure 5: A local resident of Dhungentar participating in soap making training conducted by ICIMOD.

Figure 6: The local residents taking part in a training on CSEB production conducted by ICIMOD at Dhungentar.

The local residents at Dhungentar have been adopting traditional skill-based occupations like agriculture, blacksmithing, tailoring, carpentry and animal husbandry for their daily living. After the reconstruction project was initiated, ICIMOD provided several trainings such as incense making, tunnel farming, jewelry making, bee keeping and soap making to the local residents. But the local residents could not develop any entrepreneurship businesses and continue them even after the trainings (Shrestha *et al*., 2018) (**Figures 5 and 6**).

2.3 Business Model Canvas

Business model canvas (BMC) is a strategic management tool for developing new or documenting existing business models (Osterwalder and Pigneur, 2010). In other words, BMC is a business tool used to visualize all the building blocks of starting a business including customers, route to market, value proposition and finance. A Swiss business guru Alexander Osterwalder and computer scientist Yves Pigneur developed BMC in 2005. It is a well-known and easy to apply tool for business model innovation.

2.4 Earlier Study at Dhungentar

A group of eight students from Aalto University, Finland and AITM, Nepal, led by Aalto University conducted a study entitled “Relations between communication means and knowledge adoption of sustainable solutions in Nepal” at Dhungentar from March 6 to 11, 2018. Five Master students from Aalto University, three undergraduate students of from AITM and one mentor from Aalto University were involved in the study. The study focused on communication problems between beneficiaries, government and organizations involved in the post-disaster reconstruction project at Dhungentar. The study concluded that unidirectional communication is not effective to result in a desired action, the more participatory and inclusive the knowledge transfer is, the more likely it is to result in the desired action, and communication should not focus only on content of the message, but also on the methods for effective communication in the post-disaster recovery (Dahm *et al.*, 2018).

Two AITM students and one Aalto University student, who had already participated in an earlier study at Dhungentar, were involved again in the students’ first pilot case study at Dhungentar under “Problem Based Learning in South Asian Universities” project in March 2019. Therefore, at least three members of the students’ pilot case study were already familiar with the basic information on Dhungentar field and its surroundings.

Different components of the methodology adopted in this study in their sequential order are shown in **Fig. 7**. Each component of the methodology is briefly described below to provide a clear view on it.

Figure 7: A flow diagram illustrating methodological steps adopted in this study.

3.1 Review of Literatures

First of all, relevant literatures were collected through different sources, and they were reviewed to get fundamental insight of the Dhungentar study site and to understand necessary methods and tools for the study. The literatures included reports, journal articles, e-books and websites.

3.2 Planning

After going through the available literatures, objectives of the study were set through group discussions. Then, the necessary information from Dhungentar field to achieve the objectives of this study as well as necessary activities, methods and tools (e.g., field reconnaissance, interviews, questionnaires, focused group discussions, photography) were discussed and finalized. After setting out the objectives of the study and the activities to be carried out in the field, the activities were tentatively allocated for each day of the field visit. However, the daily activity schedules were revised later whenever required in the field.

3.3 Questionnaire Preparation

Sets of structured and semi-structured questionnaires were prepared for different groups of people (e.g., students, school teachers, women, other local people) to collect necessary information from the local residents of Dhungentar during the field study after several discussions within our group. The questionnaires were later modified in the field whenever needed after observing the Dhungentar field study site and the local residents.

3.4 Field Visit and Data Collection

A joint team of twelve students (seven from Aalto University and five from AITM), three mentors (two from Aalto University and one from AITM) and one observer (from Indian Institute of Science, Bangalore) reached Dhungentar on February 20, 2019 and conducted a reconnaissance survey of the study area on the day. The twelve student colleagues were divided into groups of three/four persons to carry out activities parallelly at different points of Dhungentar area. The team focused on its activities like interviews, focused group discussions and photography and exhibition in the Dhungentar reconstruction area during the five days.

Total twenty-four individual interviews of local residents (random sampling) and five focused group discussions (mothers' group, teenagers' group, service providers' group, teachers' group and local NGO) were conducted during the five days' period. Mr. Deepak Pathak from the local NGO (Samajik Sahayata Nepal: SSN) and three young local ladies (Ms. Sharmila Sunar, Ms. Samiksha Sunar and Ms. Apsara Sunar) assigned as social mobilizers in the reconstruction project arranged and facilitated the interviews and focused group discussions with the local residents, and photo exhibition in addition to the logistical supports provided for this study.

Activities for each day were planned in the morning before moving to the fields. Then the groups went to the assigned areas and collected data through the use of specified tools like questionnaires, interviews, group discussions, etc. A photo exhibition was also organized at

Dhungentar on the final day. During the event, local residents' views and reflections on different issues of the exhibition were also recorded.

3.5 Data Analysis and Interpretation

The team returned to Kathmandu from Dhungentar on February 26, 2019. The data collected from the study site were reviewed again, organized, divided into different categories and plotted in the forms of bar diagrams, charts, etc. for discussion. Then the results of the field study were thoroughly discussed and interpreted before reaching to conclusions. At the end, a business model was also proposed for CSEB entrepreneurship at Dhungentar.

3.6 Assumptions

The following assumptions related to data collection and interpretations of the results are made in this study.

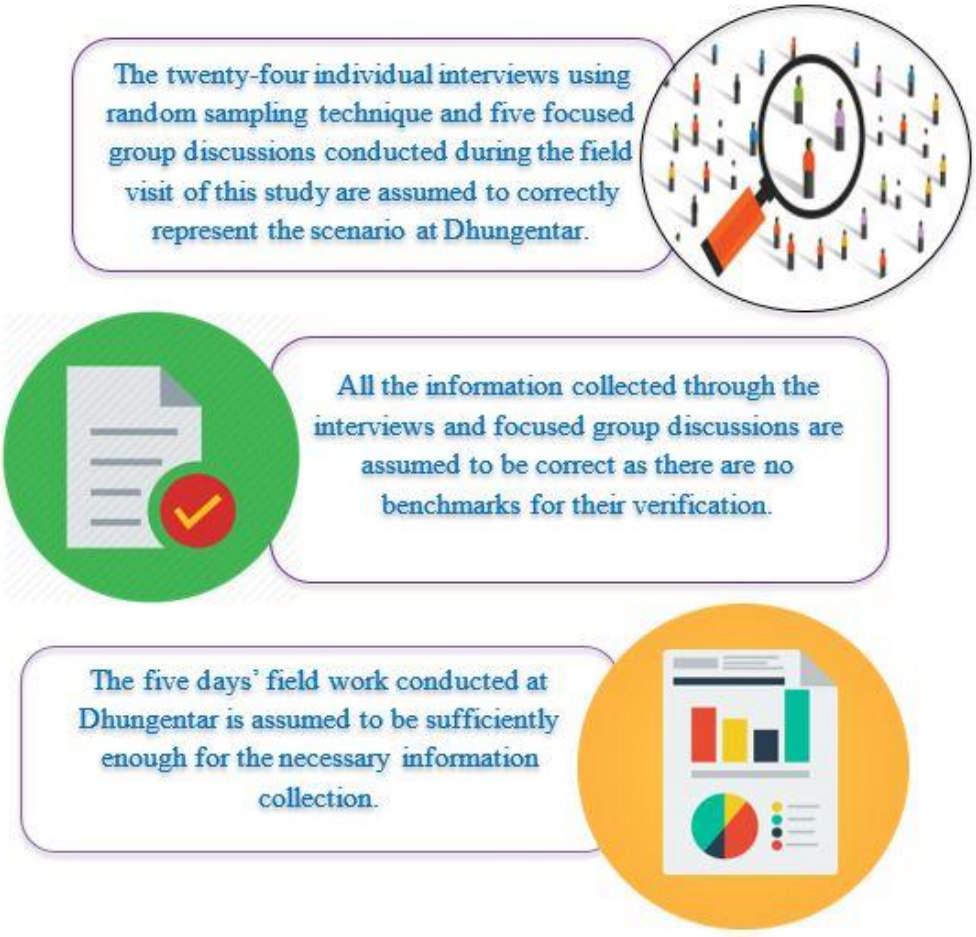

Figure 8: The assumptions of the study.

4. RESULTS AND DISCUSSION

The results presented in this section are based mainly on the twenty-four individual interviews (random sampling) and five focused group discussions (mothers' group, teenagers' group, service providers' group, teachers' group and local NGO) of local residents of Dhungentar conducted during the five days' period.

4.1 General Observation

The Dhungentar village is still in an underdeveloped stage though some of the basic infrastructures and facilities like road, drinking water supply, irrigation and electricity are available there. The most crucial facilities for health care and higher secondary level education are still lacking in Dhungentar. The people have to go all the way to Battar to receive medical assistance for both emergency cases as well as minor health concerns. ICIMOD constructed a community center in the village for community-based activities after the 2015 earthquakes and handed over to the local community. People now can organize social events in the community center and share their knowledge.

There is an obvious visual communication gap between "high" and "low" caste people in the village. A kind of fear and nervousness could be seen on the faces of low caste people when they talked to high caste people. The low caste people are dominated by the high caste people residing in the surrounding villages. The high caste people denigrate the low caste people and they would not eat anything from the low caste people (untouchability). Moreover, there is gender discrimination within the low caste people, but the unity among the low caste people is exhibited and maintained through cultural practices in local festivals and events.

Most of the people in Dhungentar are involved in occupations that are parts of their heritage. Most families were found to be constrained by their names while choosing their occupations. For example, most of the youths belonging to Sunar caste are currently working as silver jewelers in Kathmandu. Their skills would generate very low income if worked within the village. Hence, most of the male youths of Sunar caste have migrated to big cities or gone abroad for better job opportunities. This has led to decline in male population as many of the male youths go out of the village for employment during their mid to late teenage.

The female members of the Dhungentar society are not allowed to carry out skilled jobs and therefore they opt for farming to support the families. But, such farming is only subsistent and not enough to earn any profits. Some of the children in Dhungentar are not at all attending schools, while those attending the schools drop out early due to financial pressures in the

family. It was found through the focused group discussions that the local rural municipality started to provide lunch and stationery materials to the school children to encourage them to attend the schools, and this strategy has helped to increase students' number in the schools.

4.2 Entrepreneurship in Dhungentar

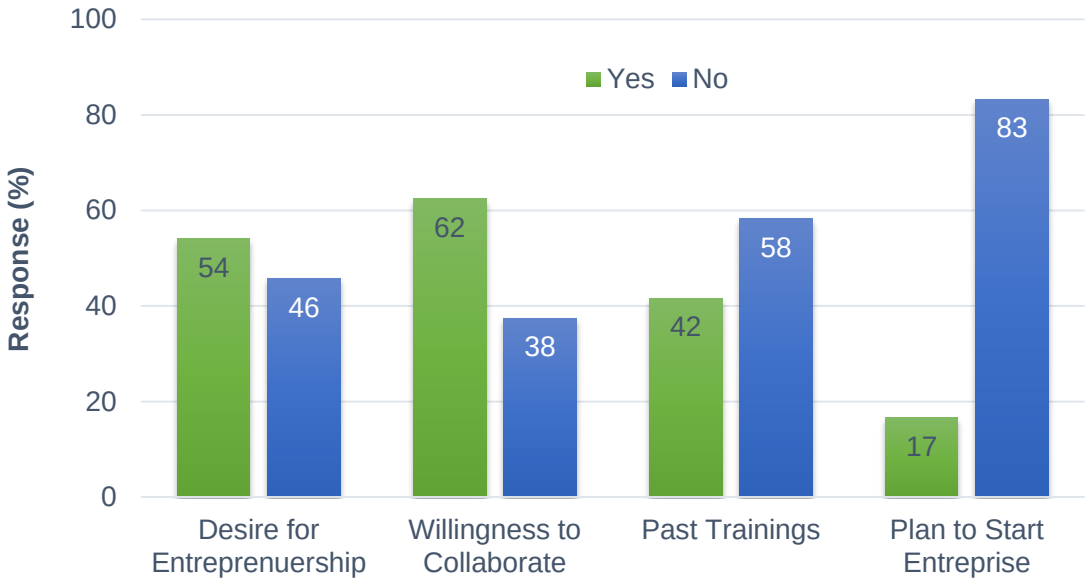

Figure 9: Entrepreneurship statistics of Dhungentar.

The general entrepreneurship scenario of Dhungentar based on individual interviews (random sampling) of the local residents is shown in **Fig. 9**. Only about half of the interviewed people showed willingness for entrepreneurship businesses and the remaining half people were not at all interested on it. After the reconstruction project started in September 2016, ICIMOD conducted short trainings on agriculture, soap making, incense making, jewelry and CSEB manufacture to the interested local residents (Shrestha *et al.,* 2018). Fifty-eight percent of the interviewed local people had received at least one such training while the remaining forty-two percent were non-recipient of any trainings. The residents were also asked if they had any specific plans to start entrepreneurship businesses, and seventeen percent of the interviewed residents responded positively. Collaboration is an important component of an entrepreneurship business and more than sixty percent of the interviewed people showed their willingness for collaboration.

None of the twenty-four respondents of individual interviews were involved in a stable business. They were mostly working as daily wage workers or involved in seasonal businesses. For example, goldsmiths were busy during wedding seasons only. Everyone was working in small-scale low income jobs such as farming, plowing, sewing etc. Ten of the

interviewed local residents had received entrepreneurship trainings on different themes (e.g., incense stick making, jewelry making) conducted by ICIMOD, but few of them only were practicing their skills learned in the trainings. The model house was intact and functioning well, and its owners have been showing their willingness to share their knowledge to other local residents. But, the knowledge transfer has not been taken place until now due to ego problems among the residents. Few other people in Dhungentar have been practicing their skills on tunnel farming, bee keeping and mushroom farming (**Fig. 10**). But, quantities of their products are small to start a viable business.

Figure 10: Few Dhungentar residents are practicing the skills learnt in the past trainings: (a) goat rearing, (b) incense sticks making and honey production, and (c) tunnel farming.

4.3 Challenges in Entrepreneurship

The challenges of enterprise development in Dhungentar identified in this study are illustrated graphically in **Fig. 11**. Lack of fund was found to be the biggest constraint (28% response) to start entrepreneurship businesses. Most of the locals have very low annual income to raise sufficient funds. Although loans from banks can be received to start a business, most of the local residents do not own their own land or any other property to be used as collateral for the bank loans. Majority of the local community people lease the agricultural land from the elite people who stay in city areas of Nuwakot district. They can opt for loans at co-operatives, but these co-operatives provide loans with high interest rates and it is very hard for them to pay back the loans. The lack of time was identified as the second important constraint (19%

response) for entrepreneurship business. The female residents at Dhungentar are more active and busier than their male counterparts. As majority of the twenty-four interviewees were fifty years or older who are already engaged in their traditional occupations, the lack of time as a major constraint for entrepreneurship business at Dhungentar is obvious. The fear of business failures was the third biggest challenge (16% response) for entrepreneurship as most of the local residents were poor and marginalized, and they lack experience on entrepreneurship businesses.

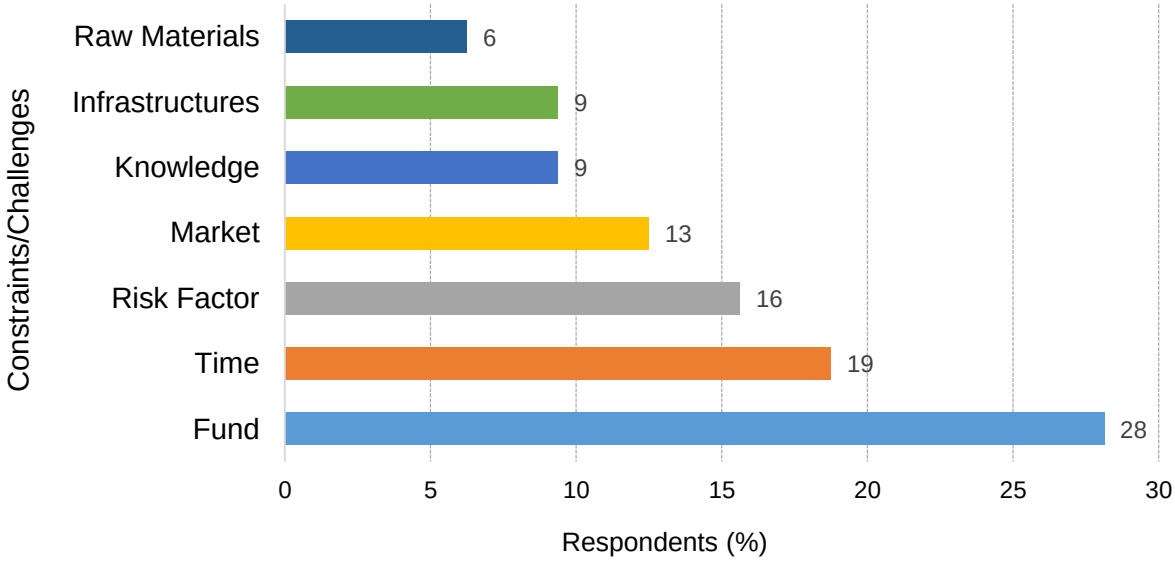

Figure 11: The challenges of enterprise development in Dhungentar.

The lack of market for the products was identified as another important challenge (13% response). Market for the local products within the Dhungentar is minimal while the nearest big market Battar is 7.0 km away from Dhungentar village. The lack of suitable market for their products is considered as a constraint to start an entrepreneurship business. Less than ten percent respondents only considered other factors like raw materials, infrastructures and knowledge as the challenges for entrepreneurship businesses. The social mobilizers and owner of model house tried to sell their products. But they did not find much sales. The following statements from two local residents reflect on some of the constraints for enterprise development in Dhungentar.

"*I received training on incense making, but I was not able to sell the products. The market is full of outside products.*"

Til Kumari Sunar

(Model house owner)

"*We (social mobilizers) tried to make and sell jewelry items. The stock of raw materials provided by ICIMOD already finished. Then, we had to buy the raw materials from Kathmandu. The transportation cost was so high that we could not make any profit."*

Apsara Sunar

(One of the social mobilizers)

The local residents who took part in the ICIMOD trainings said they did not find any reliable sources to buy raw materials for jewelry and soap makings in the nearby locations. Some of residents who did not take part in the ICIMOD training activities later regretted for missing the training opportunity.

4.3.1 Challenges in entrepreneurship from socio-economic perspective

The social dimensions of a large-scale project that influences and impacts the society must not be neglected in the pursuit of tangible materialistic outcomes (Barinaga, 2012). There are number of possible reasons for the people of Dhungentar not adopting entrepreneurship. The people earlier were living in worn out houses and insufficiency. After the 2015 earthquakes, INGOs, NGOs and government constructed new houses for them, conducted trainings for their skill development and helped to enhance their living standards. The sons and husbands in Dhungentar who are earning in cities send money back to their homes for day to day living. The increased dependence on aid from outside possibly have lowered their willingness to take risk (Luitel, 2010), and hence they hesitated to move forward with the idea of entrepreneurship businesses. As no outside people have migrated to Dhungentar so far, the deep-rooted conventional thoughts and practices are still intact in Dhungentar residents.

Social Inertia

Social inertia is defined as the tendency of a society or groups within the society to be resistant to changes in short time periods (Cincinnatus, 2016). The Dhungentar society also has a deep-rooted ancient practices and norms ranging from caste system to traditional agricultural practices that are not likely to change easily. The deep-rooted traditional practices termed as cultural heritages are passed from generation to generation leading to social inertia. The cultural factors tend to limit flexibility of the society to quickly adapt changes despite rapid changes in economy and outside social influences (Swartz and Zolberg, 2006). People not willing or motivated to take risks may also be linked to inertia. The big cities in the country are constantly changing and people there are relatively quicker in adaptation. But, an entrepreneurial culture is yet to be established in Dhungentar. Social inertia is one of the main factors in Dhungentar also that needs to be addressed. Overcoming social inertia can take

place by a large trigger/event or can take place gradually with sufficient amount of continuous external stimulus for a long duration. A large trigger can be in form of new project similar to ICIMOD's last year project, but with equal focus on the social dimensions as well. The philosophy of "If you build it, they will come" did not quite work in case of Dhungentar due to deep rooted social practices there. The standard of living of the local residents of Dhungentar has definitely increased by certain margin, but an entrepreneurial culture is not yet developed as expected. The Dhungentar residents have not observed a real example of entrepreneurship yet. If they get an opportunity to witness a long-term profitable enterprise, they would certainly be influenced by it sooner or later.

Youth Influence

As mentioned earlier, majority of the youths in Dhungentar go outside the village for employment. The youths are the major workforces and they are essential for economic development of the community. The Dhungentar youths have a strong perception that they can earn more money by working in big cities and from foreign employments than that from doing businesses in their native place. The influences in the form of conformity (a type of social influence involving a change in behavior, belief, or thinking to align with those of others or with normative standards) and internalization (the process of acceptance of a set of norms established by people or groups that are influential to the individuals) seems to have played a big role in case of Dhungentar youths (Kelman, 1958). This may lead the youths to risk their money on moving out of Dhungentar rather than getting engaged in entrepreneurship businesses and influencing their peers. The youths are more quickly influenced than others and they are the future of Dhungentar. Changing the existing demography in Dhungentar can help to overcome the inertia in a long run. The most effective way of influencing the youths would be from schools. If the students can sufficiently be challenged and appropriate knowledge on entrepreneurship businesses be given to them, they might get inclined to a better choice. Also integrating project-based and problem-based learning techniques in the curriculum can help them to acquire necessary skills and thinking ability to start and sustain a business in the future. Also, collaboration of local schools in Dhungentar with organizations like "Teach for Nepal" would help to gain additional outside knowledge which would be helpful for gradual social changes. All these steps and activities will have positive impact in developing entrepreneurial culture in Dhungentar.

Capital

Most of the Dhungentar people stated in the interviews that they lacked capital to start businesses. As most of the people live through subsistent agriculture and have limited earnings, they might not have enough money saved to start businesses, let alone risk what

they have. As mentioned in the earlier section, the co-operatives that provide loans do so with high interest rates, which is very risky for them. Assuming that one has gathered the required capital for businesses like jewelry or soap making, the required raw materials are not available near Dhungentar area resulting in high transportation cost. Once the products are ready, they have to be brought to the nearby market (Battar in this case) for reasonably higher prices of the products and this results in additional transportation costs.

Market

The interviewees said that they did not have necessary marketing knowledge and skills. In the trainings conducted by the ICIMOD, the local residents learned about raw materials and production procedures of different items, but they were not trained on market analysis and marketing. The knowledge of market analysis and marketing is crucial for starting new businesses or there are very high chances of business failures. The jewelry and soap making enterprises at Dhungentar earlier faced the lack of necessary resources like raw materials, and the residents are now heavily dependent on the raw materials from outside. Therefore, the entrepreneurship businesses requiring less outside resources like bee-keeping and animal husbandry would be more appropriate for the Dhungentar people.

4.4 Opportunities

The Dhungentar local residents showed interests for entrepreneurship businesses in several fields, which are illustrated in **Fig. 12**. The highest number of interviewed people (30%) showed their interest on poultry farming, which they think would be much helpful to uplift their financial condition in a short-term. The second highest number of people (22%) were interested on general farming rather than other types of businesses. These people were reluctant to start other types of businesses possibly due to lack of knowledge, lack of funding and fear of business failures in new fields. Tailoring and blacksmithing are two traditional occupations Dhungentar residents. About seven percent of the interviewed residents were interested on these businesses, and they possibly did not like to take any risks in other new businesses.

Although, ICIMOD provided extensive trainings on CSEB production to local residents and constructed fifty-four CSEB houses, only four percent of the interviewed local residents showed interest on establishing CSEB entrepreneurship business there. Interestingly, some of the people were interested in the fields for which ICIMOD had not provided any trainings and these businesses include motel, beauty parlor, computer service, blacksmith and tailoring. These types of businesses are entirely new in Dhungentar, but they can pave ways to entrepreneurship development if operated successfully.

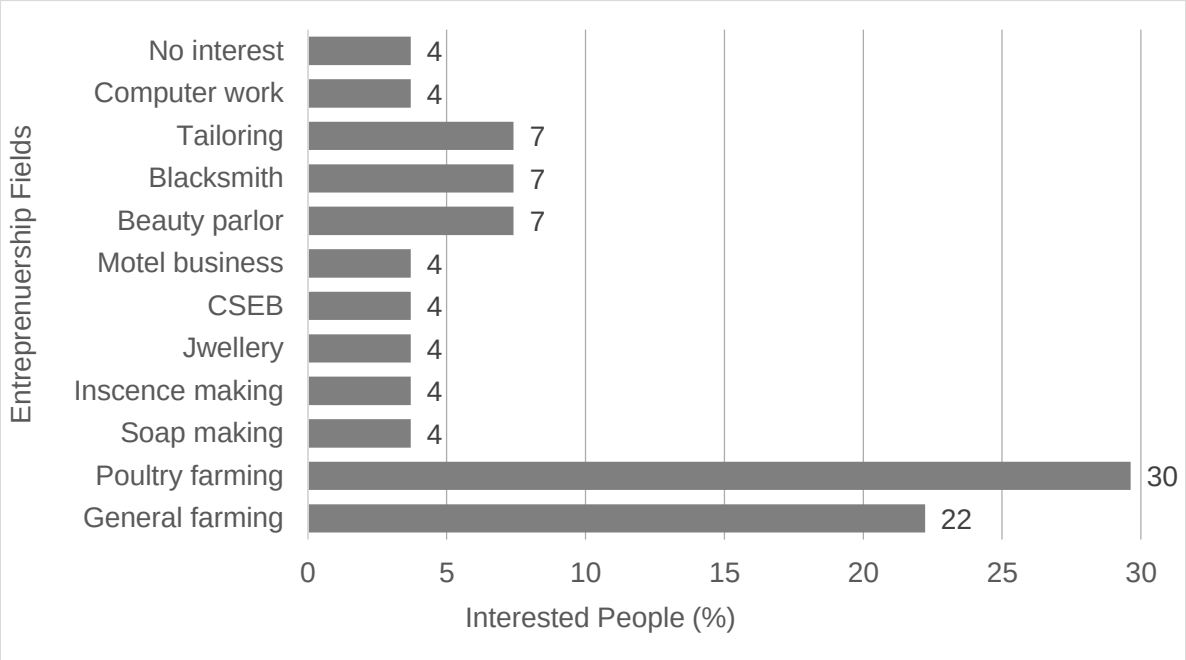

Figure 12: Field of interest of locals.

One viable entrepreneurship option for Dhungentar residents can be large-scale poultry farming and goat rearing. Most of the interviewed people saw high market potential of poultry farming in Dhungentar. They knew the high demand of chicken in the market and the chickens from Nuwakot are exported to other regions of Nepal also. This could mean that the Dhungentar people can have access to the poultry market through the people they know and involved in poultry businesses. The poultry products of Dhungentar also would be welcomed in the market. In fact, there is very high demand of meat in festivals while the Nepali calendar is packed with festivities throughout the year (The Kathmandu Post, 2013). Nonetheless, more trainings on poultry farming and marketing for the local residents can greatly support them to start new businesses in this field. The following statement of a local resident also reflects the scope of this kind of entrepreneurship business in Dhugentar.

"Chickens from Dhungentar are sold to Kathmandu. Dealers from Battar came to the village for chickens particularly in festival seasons".

Samikshya
(Local/Interviewee)

Rather than having an individual small-scale operation, the people of Dhungentar can pool in to form a comparatively large enterprise, in fact a social enterprise that can produce large

volumes and bring in more profits. The concept of large-scale enterprise would be successful as some people, though do not have the will to start businesses on their own, showed interest in collaborating with others **(Fig. 9).** Although, CSEB production is already stopped, the CSEB enterprise business is still another viable and valuable option for Dhugentar residents, and this point is reflected in one of the resident's statement as given below.

"*The CSEB business has good potential in Dhugentar. Sufficient profits can be earned from this business if the production volume is increased. It is disappointing that the CSEB machines provided by ICIMOD are abandoned. This business can generate many job opportunities here.*"

Krishna Bahadur Sunar

The possibility of starting a CSEB enterprise business in Dhungentar is also explored in this study as ICIMOD provided training on CSEB production to the local residents and handed over the six CSEB compression machines to the local community free of cost. In this regard, a business model for CSEB entrepreneurship in Dhungentar was also developed (**Table 1**). The CSEB compression machines are very expensive, but ICIMOD handed over them to the local community free of cost and these machines can be used to start a CSEB enterprise business there. Nevertheless, market acceptance[3] (a condition in which an item or service satisfies the needs of a sufficiently large number of customers to continue or increase its production or availability) is found to be the biggest obstacle in case of CSEB enterprise development in Dhungentar as people in general tend to go for the tried and tested products to avoid risks. An aggressive campaigning and marketing of CSEB products needs to be done as most of the people living outside Dhungentar are unaware of the products. The product can be marketed as a low-cost alternative for low income people. It can also be marketed as an environmental-friendly product through the environmental campaigners and organizations, and local government bodies also can be involved in such activities. Furthermore, the local governmental bodies can build infrastructures like government schools, *Chautaris* (resting place under a big tree), footpaths and other public places using CSEB for promotion.

Total six CSEB compression machines have been provided and setup at the production site of Dhungentar by ICIMOD. Three machines are required to be operated to produce 1,000 blocks. The business model (**Table 1**) is based on 1,000 blocks production per day. The total cost of three CSEB compression machines, factory setup and maintenance is around $10,848. As the investment costs for the machines and the production facility are not required, this amount of money is saved. The ICIMOD provided necessary trainings to the selected local residents during its project (2016 to 2018) and the training cost is also saved. Therefore, the

cost of 1,000 CSEB production including raw material extraction, transportation (3 km distance) and labor and marketing costs comes to be around $391 per day. Hence, the cost of a single block is about $0.39. Involvement of the local community in the CSEB production will further decrease this cost.

New jobs will be created in the village with the start of a CSEB enterprise business in Dhungentar, which will help to minimize the flow of Dhugentar youths to outside, and this will ultimately help to smoothly run the wheel of entrepreneurship there. This business model shows that CSEB enterprise in individual as well as community levels at Dhungentar is a viable option.

Table 1: Business Model Canvas for CSEB Entrepreneurship

<table>
<tr><th colspan="6">CSEB Business Model</th></tr>
<tr><td colspan="2">Deal</td><td colspan="2">Key activities</td><td>Jobs to be done</td><td>Customer relationship</td></tr>
<tr><td colspan="2" rowspan="2">CSSB production
Building design & construction</td><td colspan="2" rowspan="3">Raw material acquisition
Material processing
Laboratory testing
Brick production
Marketing
Demonstrations
Selling bricks
Trainings</td><td rowspan="2">Save time and effort
Build eco-friendly homes
Reduce construction cost
Access best application
Technology
Decent jobs</td><td>Service and product
Interaction of locals
Knowledge sharing</td></tr>
<tr><td>Channels</td></tr>
<tr><td colspan="2">Key Partners</td><td>Costumer Value Proposition</td><td rowspan="2">Local government
Third party dealers</td></tr>
<tr><td colspan="2" rowspan="2">Local government
Locals
NGOs and INGOs
Transport guild
Technicians
Third party dealers</td><td colspan="2">Key resources</td><td rowspan="2">Trainings
Earthquake-resistant housing
Low carbon emission
Cheaper product
Better thermal insulation
Local empowerment
Employment opportunity</td><td>Customer segment</td></tr>
<tr><td colspan="2">Locally trained people
Locally available raw materials
Customer relations
Local government</td><td rowspan="2">Private housing
Office building
Hotels/Restaurants/Resorts
Retail shops/stores
Private schools
Factories
Programs/meeting halls</td></tr>
<tr><td colspan="4">Cost structure</td><td>Revenue streams</td></tr>
<tr><td colspan="2"><u>Capital</u></td><td colspan="2"><u>Running cost (1000 Blocks per day)</u></td><td rowspan="6">Product cost vs. what is available at market
Local market
Export
Profit margins
Expenses vs earnings</td><td></td></tr>
<tr><td>Infrastructure setup</td><td>$ 4,500.00</td><td>Raw material extraction</td><td>$ 217.39</td><td></td></tr>
<tr><td>Equipment</td><td>$ 4,347.83</td><td>& transport</td><td></td><td></td></tr>
<tr><td>Others/maintenance</td><td>$ 2,000.00</td><td>Labor/Manpower</td><td>$ 86.96</td><td></td></tr>
<tr><td></td><td></td><td>Marketing</td><td>$ 86.96</td><td></td></tr>
<tr><td>Total capital (Estimate)</td><td>$ 10,847.83</td><td>Running cost per month (Estimate)</td><td>$ 391.30</td><td></td></tr>
</table>

5. CONCLUSIONS AND RECOMMENDATIONS

The Dhungentar, a village in between rocky hills, has the potentials in both agriculture and rocky earth material extraction. Dhungentar is a place with a deep-rooted traditions and values. Bringing change in such a place is a monumental task. The problems and challenges should be identified to the roots, and then only it might be possible to bring about a positive transformation.

From the perspectives of the local residents, various entrepreneurship challenges like lack of capital, time limitation, market, risk factor etc. were identified in Dhungentar. The small problems that can be solved with few careful planning are seemingly mountainous tasks for the people living the life of subsistence in Dhugentar. Hence, a thorough and careful study of the problems is necessary and we delved deeply into the social roots of the problems that may have direct link with the challenges at hand. Social inertia and youth migration to big cities and foreign countries for employment are found as the major hurdles in starting entrepreneurship businesses and establishing entrepreneurial culture in Dhungentar. These problems are not resolved over a short time period. The chances of continuous exposures to new technologies and opportunities should be given to the society until the social psychology shifts to a more modern perspective and gives a big push in development and innovation.

There are ample opportunities to start entrepreneurial businesses for the locals in Dhungentar. But, not all the opportunities may be viable in the present context. For example, raw materials for laundry soap production business in Dhungentar have to be transported from Kathmandu and the transportation cost is very high to sustain the business. Two businesses (Poultry farming and CSEB) are more likely to be successful in the long run in Dhungentar. Most of the Dhungentar people have visualized huge business potential in poultry farming business and hence they are very much interested in it. The market links between Dhungentar and Battar, and Dhungentar and Kathmandu are already established. As the meat demand in Nepal is soaring up all the time, the poultry business is very likely to be successful in Dhungentar also. The concept of social entrepreneurship, in which many people come together to pool in resources to establish big enterprises, can be suggested to address the issue of initial capital investment for Dhungentar.

The CSEB entrepreneurship business also would be a fruitful business option for the residents as the major resources like compression machines are already available there free of cost, the locals are already trained on CSEB production and the required raw materials are available in the nearby area. The CSEB enterprise can be turned into a profitable business with the help of government agencies, environmental campaigners and institutions.

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Appendix I: Interview Questionnaire

a) Introduction

1. Information about the team and the project's goals
2. Explain that the interview is free and the interviewee will be anonymous
3. Ask for consent for pictures and recording

b) Personal Information

1. Name:
2. Age:
3. Gender:
4. Household size:
5. Education:
6. Livelihood/employment status:
    - What kind of occupation is your family involved with?
    - Are some of your family members abroad?
    - Do you know other families whose family members are abroad?
    -

c) Interview questions

1. Describe your normal day (what kind of tasks / activities it includes).
2. Do you usually have any free-time and if you do, when and how do you spend it?
    - What would you need to have more free-time? (in addition to money)
    - If you had more free-time, what would you like to do?
3. What do you consider as your community? Which part of the village? What do you expect from them?
4. How often do the people in your village get together and for what purposes?
5. Do you know many people in the village and do you spend time with them?
    - Where, how often, what you do?
6. Are you aware of the demo house or the multipurpose center?
    - Do you see these places as knowledge sharing hotspots?
7. During the earthquake Gorkha 2015, who came to help you? (e.g. neighbors, government, other?)
    - How do you feel about the future, who would come to your help if a disaster happened?
8. Do you know people involved in some kind of entrepreneurship? If yes, what kind? What

is your experience on it?

9. Do you have a business of your own or do you want to start a business?
    - What kind of support do you need for entrepreneurship?
    - Would you be interested in collaboration with other villagers to do business together?
10. Do you have any suggestions or recommendations towards improvement of economic status in your community?
11. Are you aware of the existing committees? And if yes, are you taking part in them?
    - If not, why not? What do you know about their activities?
    - If yes and taking part: What kind of activities is the committee planning at the moment? How do you communicate with other villagers?
12. How do you see the future of your community?
13. Image yourself as the head of the community, what would you like to do?

Appendix II: Project Journey and Learnings (Field visit on Feb 20-26, 2019)

Day 1
- Reached Dhungentar
- Planning for interviews
- Questionnaire preparation

Day 2
- Group division
- Individual interviews of locals
- Attending wedding ceremony invited by the locals

Day 3
- Planning of Photo exhibition
- Planning for focused group interview

Day 4
- More individual interviews

Day 5
- Invitation sent to the locals for Focused group discussion and photo exhibition
- Photos sent for printing to Battar
- Focus group interview questionnaire preparation

Day 6
- Focused group discussion
- Photo exhibition

Day 7
- Back to Kathmandu

Team Members Experience

It was a very unique and exciting learning opportunity for me. I am an introvert and this project helped me get exposure in a lot of areas. Most importantly, I got to witness first-hand the scenarios and situation of very rural part of Nepal. Living in Kathmandu Valley, I had only little knowledge of such areas. Interacting with the locals and learning about their life experiences was very eye-opening for me.

After going on-site and engaging with the Aalto team and the locals I feel a noticeable improvement in my communication and socializing skills. Also, the daily meetings and brain-storming sessions helped me increase my critical thinking ability. I got to see in-action, the learning and research methods of the Aalto students and I have been putting them into practice which is proving to be very effective. I learned a lot about team building and coordination. Social data analysis is also a new thing I learned.

During the project, I was also given the responsibility of carrying a DSLR camera and taking pictures, of which I had no idea and experience. But Carles Martinez and Loius Alfonso, from the Aalto team, had faith in me and walked me through the photography process from the beginning. I learned so much about photography and use the camera confidently and also learned about photography as an art form and method in research. I have been looking at normal things with different perspective now.

Problem based learning has been a new experience for me. Going on-site and witnessing first-hand the real-world problems adds a whole new level of detail and perspective. I think it is very necessary to devise a real-world solution and it should be included in the curriculum of Nepal's schools and colleges. As a life-science student, I was only limited to theorems and experiments in the lab. But after this experience, I have gained more interest in social dimensions. I have been studying sociology ever since and I wish to do more work, in the future, with societal impact.

- ***Prithivi Jung Thapa***

Being brought up in Kathmandu, I had rarely been to a village. I had heard a lot about the post-earthquake recovery going on in various villages of Nepal but never witnessed one so

closely. Dhungentar gave me an opportunity to see the village life, its people, and their endurance to such a deadly devastation.

I liked talking to the villagers like I was one of their own, and asking them about their life and experiences. The way they welcomed strangers from foreign cities and the hospitality they showed inspired me. Most of the villagers were more than willing to give the interview and serve us a hot cup of tea.

One of the social mobilizers, while gossiping with me, told that she would do anything for the village. Even though she is no longer employed by ICIMOD, she would continue helping the villagers and provide her service in whatever way she can. I doubt I would do something so selflessly to the town I live in.

I loved the friendships that developed within the team in such a small time. Living, cooking and eating together made us feel like a family. Everyone was ready to help each other in anything, and share their tasty snacks, even though we were from different parts of the world, with different cultural backgrounds, and strangers a few months ago. The stories and photos from the Finnish team made me feel motivated. They had been to so many places and accomplished so much in such a young age.

- ***Richa Khatiwada***

Visit to Dhungentar have been one of the most memorable part of my life since this is the first time I have ever been involved in any project apart from my study which used to be focused by syllabus course. Doing work as a team with different people from different field of study gave me an understanding that there is always something common in all which brings us together. Before being to Dhugentar, I have studied about the place through ICIMOD Journal and website. When we visited Dhungentar there was seen more potential in the place and the authentic hospitality of Dhungentar was also seen which was one of the major attraction for me. As a hotel management student we need to interact with different guest background in hotel, From this project, I have learnt how there exist commonality among diverse group and also found Dhugentar as one of the tourism prospect destination.

- ***Gyalbu Sherpa***

The Dhungentar project was great learning opportunity, exciting and unique experience to me. This was the second time for me to be the part of the project. I was very excited to revisit the locality for the second time and have the conversation with the people of the community. As being the student of Civil Engineering the Experience of being the part of PBL project was beyond my imagination which made me realize the social part of humans above science and technology to be the part of the life.

The site visit was very interesting and enjoyable moment along with the wonderful team members from AITM and Aalto University. The daily activities on the project as morning evening sessions different entertaining moments increased my communicating skills, presentation skills, decision making potential, interacting skills and many more.it also empowered and encouraged me more on social cohesion, social activities behaviors. Finally, thanking AITM Family and Aalto University making me the part of the team all my team members to be helping me in experiencing and learning new things. This project was opportunity to motivate to the new starting of the works.

- ***Yug Maharjan***

It was my second visit to the project area Dhungentar, Nuwakot after a year. I was really excited about my second visit as I was learn to find out and learn about the changes and differences in the lives of people and place over a period of a year. It was really pleasing to receive warm welcome by the people of Dhungentar. Lots of locals recognized me and shared with me their stories. It was a great learning experience and one of the memorable moments of my life.

Being a part of team, it gave me the opportunity to learn to work in team, to co-ordinate among the team members, respect and understand other members point of view and opinions. One of the methods of group discussions and meetings was brainstorming which I believe was as excellent way for the team for exchanging ideas and opinions and coming up with creative solutions. I realized that by working in a team together we can find solutions that work the best. By interacting and interviewing the people I got the chance to develop some social skills like social awareness, communication and relationship skills, decision making skills. I too learned a lot about time management, problem solving, and values like commitment and trust and friendship working as a team member. I'm grateful to be part of the amazing team and I would like thank to the people of Dhungentar for their love and affection and grateful to social mobilizers for making our stay feel like home. And lastly thank everyone who directly and indirectly contributed, supported and inspired to make this pilot project successful.

- ***Sumit Shah***

GLOSSARY

[1]**Caste** is a small and named group of persons characterized by endogamy, hereditary membership, and a specific style of life which sometimes includes the pursuit by tradition of a particular occupation and usually associated with a more or less distinct ritual status in a hierarchical system (Béteille, 2012) For example, the caste Sunar (Literal translation: Goldsmith) belong to lower class while the caste Acharya (Translation: Spiritual teacher) belong to high class.

[2]As a part of ICIMOD's '*Resilient Mountain* Village' project, four young women were selected from different village clusters of Dhungentar as **Social Mobilizers**. They are engaged in data collection, information dissemination, procurement and community mobilization (Shrestha *et al.*, 2018).

[3]**Market acceptance is a** condition in which a good or service satisfies the needs of a sufficiently large number of customers to continue or increase its production or availability.