

Published by



Government of Nepal,
Ministry of Industry, Commerce and Supplies
Trade and Export Promotion Centre

Aamchi Medicine Promotion and Preservation in Mustang District

A Study on Feasibility of Infrastructure Development for Promotion and Preservation of Aamchi Medicine
Produced in Conventional Ways in Mustang District, Nepal



Disclaimer

Trade and Export Promotion Centre (TEPC) endeavor, using its best efforts to provide a thorough research on **Feasibility Study on Infrastructure Development for Promotion and Preservation of Aamchi Medicine Produced in Conventional Ways in Mustang District, Nepal.**

Unless TEPC provide prior written consent, no part of this **report** should be reproduced, distributed or communicated to any third party. We do not accept any liability if this **report** is used for an alternative purpose from which it is intended, nor to any third party in respect of this **report**. However, TEPC do not make any representation or take responsibility and liability for any omissions and errors.

Acknowledgement

This **Feasibility Study on Infrastructure Development for Promotion and Preservation of Aamchi Medicine Produced in Conventional Ways in Mustang District, Nepal** is the outcome of the thorough work of the staffs of Trade and Export Promotion Centre (TEPC) who have rendered their hard work in accomplishing this final report.

TEPC also would like to acknowledge with gratitude to Also, we express special gratitude to our researchers **Dhulikhel Hospital - Syaahaar Project, Kavre, Nepal** for its contribution in making this shape of the report by gathering the first hand information from Mustang District of Nepal.

Furthermore, we would also like to thank Aamchi (Tibetan Medicine Doctor) Mr. Tsampa Ngawang, Mustang who contributed his time and knowledge to make our research team aware about the scenario of various MAPs available in the region and their traditional medicinal uses in Aamchi medicine. We also appreciate the involvement of stakeholders, MAPs collectors, farmers, local businessmen, and traders who cooperated with us in discussions and helped us generate data necessary for this report.

Mr. Sarad Bickram Rana
Executive Director

Executive Summary

Amchi medicine also known as Sowa Rigpa or Tibetan science of healing is practiced in the Himalayan region of Nepal by Amchis or Tibetan medical doctors. One of the oldest medical traditions of the world with more than 2500 years of documented history, it is based on *Jung-wa-lna* (Panch Mahabhuta/five elements) and *Nespa Sum* (Tri-dosh/ three humours) theories. According to these all animate and inanimate phenomena of this universe are composed of *Jung-wa-lna* (five elements). The Tibetan medicine takes into account the interconnectedness of the mind, body and soul of a patient and the three poisons or enemies of the human health is believed to be delusion, attachment and aversion. Tibetan medicine assumes that an imbalance of three humours (wind, bile and phlegm) has an effect on the human health as well. Many features of Tibetan medicine seem to have their basis on the traditional medicine practised in India and China. In India, in the 6th and 12th century, during the spread of Buddhism, Ayurveda seems to have had significant influence on Tibetan traditional medicine.

The Amchis or the Tibetan doctors are apprenticed to elder Amchis. The knowledge of the Amchis is rigorously passed from one generation to the next, from teacher to student, from father to son. It is often taught at an early age and this art of healing is wholly altruistic. Students learn to read and write Tibetan scripts, read important Tibetan books and religious scriptures. They learn from the Gyud Shi or the Four Root Tantra text of Tibetan medicine in which they learn about medicinal plants, how to identify, how and when to collect, dry and process, remove poison from some plants, mix herbs according to treatments, diagnose patients and prescribe. The students also learn moxibustion, cauterisations, acupuncture and astrology among other skills. The Amchis do not expect any form of payment for their services. The treatments that are prescribed by the Amchis besides acupuncture, moxibustion or in extreme cases surgery, change in food habit, exercise habit or social habit include the precious medicinal herbs, minerals and natural products from the Himalayan region. In recent years, the Amchi education has evolved with the introduction of Amchi education in more formal modern education systems like Amchi schools and colleges in India and China and the incorporation of these healing practices with allopathic medicine particularly in China.

In many of the Himalayan villages of Nepal, Amchis are the only form of medical assistance available. These Amchis rely on medicinal plants found in the Himalayan regions which are collected from the wild and processed and then given to the patients. The collection, drying,

processing and combination of different medicinal plants are very meticulous and requires great skill. Amchis diagnose the patients by taking their pulse, checking their phelgm and urine. Nepal is rich in medicinal plants. The Medicinal and Aromatic Plant Database of Nepal (MAPDON)¹ includes over 1600 species of MAPs out of which 1515 species are angiosperms, 19 species are gymnosperms, 56 species are pteridophytes, 5 species are bryophytes, 18 species are lichens, and 1 species is a fungi. The trade of medicinal plant is an ancient one. The plants are traded to both India and China. Medicinal plants from Nepal were traded across the borders to Tibet as early as 600 AD (Sung and Yiming, 1998).

The Amchis of Nepal are found all across many districts of Himalayan region including Dolpo, Manang and Mustang. However the number of practicing *amchi* in Mustang and other mountain areas of Nepal has dropped dramatically, despite continuing demand from local people and visitors from outside the region. Although *Amchi* are increasingly consulted in urban areas, and indeed around the world, as holistic approaches to health care are becoming internationally recognized as important components of medical understanding and treatment, within rural Nepal, *amchi* remain under-supported and only marginally recognized by the Government of Nepal, and the crucial social and natural ecologies on which their medical traditions depend remain under threat – as does generations of indigenous knowledge that underlies the pharmacological and spiritual knowledge that underlies this practice.

¹ MAPDON-Medicinal and aromatic plant database of Nepal | Request PDF. Available from: https://www.researchgate.net/publication/281288981_MAPDON-Medicinal_and_aromatic_plant_database_of_Nepal [accessed Jul 06 2018].

Table of Contents

1. Introduction	7
2. Implementation Methodology	9
3. Amchis	13
4. Medicinal plant of Mustang	18
5. Options Analysis	23
6. Conclusion	41
7. Recommendation	42

Appendix 1. Questionnaire for local people (farmers/ medicinal plant traders/businessmen/students/teachers) of Mustang

Appendix 2. Questionnaire for Amchis of Mustang

Appendix 3. Photos of Mustang during data collection

Appendix 4. List of medicinal plants used in Mustang.

.

1. Introduction

Mustang is a district that falls in the Western Development Region of Nepal. Although not very farway from the capital (the distance from Kathmandu to Jomsom, the headquarter of this district is only about 375 km by road), it is very remote due to its mountainous terrain and difficult drive. During the monsoon season, Mustang gets cut off from the rest of Nepal for days on end when the landslide or flood or bad weather forces the airport and the roads to close. It is the second least population district of Nepal with only 13, 452 people living here according to the latest National census of 2011. The upper region of Mustang was restricted until 1992 which has made this region highly conserved. The presence of gorgeous scenery and breathtaking panorama makes Mustang a highly sought after tourist destination of Nepal. The people of Mustang are relatively wealthy with the average income US \$ 2466 according to the latest Human Development index. The majority of the people rely on animal husbandry and agriculture for their livelihood. Tourism and other businesses are also thriving in recent years. Mustang was a separate Kingdom up until the late 18th century after which it was annexed to the Kingdom of Nepal by King Prithvi Narayan Shah. In 2008, even the Kingdom of Lo or Upper Mustang became a part of Mustang district of Nepal losing its limited freedom of a tributary state and its monarchy. The people of Mustang have very strong historical, cultural and language ties with nearby Tibet. Therefore the Amchis or the Tibetan art of healing has been popular here since ancient times.

The current status of healthcare in the district of Mustang is limited to Government facilities and the local Amchis. There are a total of 17 healthcenters in Mustang i.e. 10 healthposts and five small healthposts. There is only one hospital in Mustang which is located in Jomsom, the headquarter of Mustang. The steep terrain and unpredictable weather especially during the monsoon season means that people do not always have access to these health centres. The Amchis are often the only source of healthcare for most of the population.

Mustang District



MAP OF MUSTANG

2. IMPLEMENTATION METHODOLOGY

2.1 Unit of analysis: Targeted Individuals

The targeted individuals for the study were amchis, amchi medicinal herbs' traders, collectors, local bodies and farmers of Mustang region.

2.2 Data collection tools

The information and data for the study was collected through primary source i.e. interviews with targeted individuals (traders, collectors, local bodies and farmers of medicinal herbs of Mustang) as well as secondary source (literature, articles, reports). The interviews were collected by 11 local research assistants from Mustang especially appointed for this project. The following methods were utilised for data collection and analysing the current status and situation.

- Interview
- Questionnaire
- Phone and online interveiws
- Secondary literature review
- Group discussion

A total of 401 local people were interviewed from age 15-92 (Fig. 1) among which 62% were male and 38% were female (Fig 2). Agriculture was the main profession (Fig 3) followed by business. All the people that were interviewed were locals from Mustang. The interview was conducted in all the five Gaonpallika of Mustang i.e. Gharpajhong, Thasang, Barhagaon/Muktichetra, Lomanthang, Dalomey

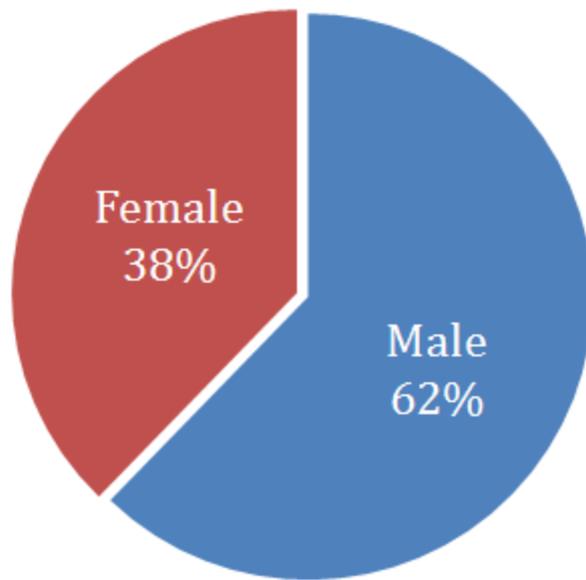


Fig 1. The gender of the respondent in this study

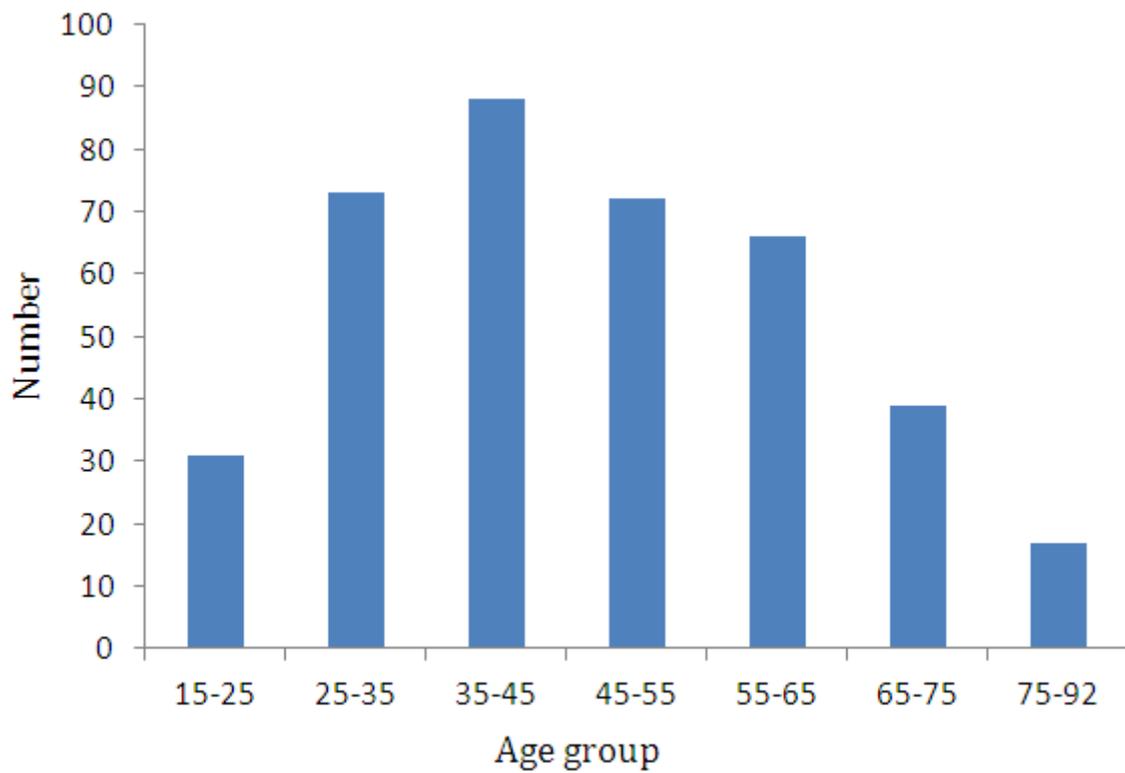


Fig 2. The Age group the respondent

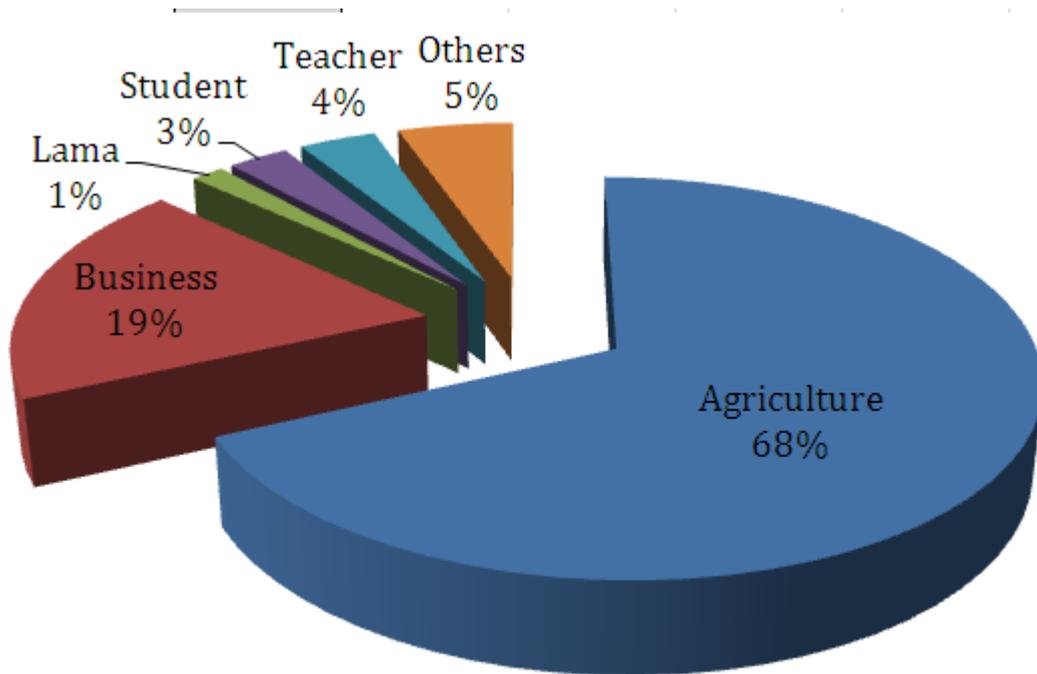


Fig 4. Percentage of different professions of the respondent in this study

2.3 Research design: Field Visits

The study was carried out in Mustang itself.

2.4 Analytical tools

The field study was followed by analysis of the data and information collected to assess the need and viability of infrastructure development for promotion and preservation of medicinal herbs in Mustang. The analysis majorly, cost benefit analysis was done with the use of tools Microsoft Excel.





Pic 1. Interviews and workshop being conducted in Mustang

3. AMCHIS

3.1 Existing Amchi Infrastructure in Mustang

3.1.1 Amchi School:

There are two Amchi schools in Mustang. One is situated in Jharkot and the other in Lomanthang. Lo Kunphen School was established in 2000 by Amchis Gyatso Bista and his brother Tenzing Bista and this school educates and trains future Amchis. The younger student from grade 1-8 are given normal Nepal's school curriculum along with classical Tibetan and introduction to Amchi medicine. If they pass the grade 8 examination and are interested in becoming an Amchi, they study the Kangjinpa or Community Medical Assistant Course (the first stage for becoming an Amchi, a course approved by Nepal Government's Council for Technical and Vocational Training CTEVT). This school runs its courses for seven months in Lomanthang from April to November and three months Pokhara. The Bista brothers are also the founding members of the Himalayan Amchi Association which is active in the cultivation and sustainable use of medicinal herbs in the Himalayas and the improvement of medical standards. Since September 2016 a Bachelor course in Sowa Rigpa Amchi medicine has been offered by the Lumbini Buddhist University in collaboration with the Sowa Ripga International College Kathmandu.

3.1.2 Lo Kunphen Clinics:

Lo Kunphen has opened three clinics which serve around 1500 patients every year. Although the consultation is free, charges of medicine apply and are nominal just enough to sustain the clinics. The Amchis involved in Lo Kunphen are also working on cultivating medicinal plants for their usage.

3.2 Status of Amchis

In recent year, the number of Amchis have declined dramatically in Mustang. This can be attributed to mostly socio-economic reasons. The number of apprentices are dwindling mainly because the newer generation want to explore other career paths. Moreover, with the introduction of allopathic medicine, the demand and value of amchis seems to have decreased. All the Amchis we interviewed said that people have starting favoring allopathic medicine over Amchi medicine. With the introduction of hospitals, people want to go to allopathic doctor first. Only in case of emergency, or if an allopathic doctor is unavailable or inaccessible do people call on Amchis. Two of the Amchis we interviewed had business and farming apart

from being an Amchi. So the Amchis have also started exploring other business opportunities or livelihood. Additionally some Amchis have opened clinics in Pokhara and Kathmandu to cater to the tourists and other people looking for alternative healing. Earlier the Amchis did not charge any money for consultation, but in our interviews we found that some people had paid for Amchi consultation and the price of Amchi medicine they bought ranged from free to Rs 40,000 depending on the illness. The medicinal plants of Mustang are also scarcer and harder to find. This may be due to collection for trade and therefore overexploitation. The delicate ecological balance has become more vulnerable in recent years with climate change and other ecological factors. These factors combined with over harvesting of medicinal plant have led to declining population of medicinal plants and Amchis have to travel longer distances, search harder and devote more time to medicinal plant collection. The ancient knowledge that was passed from one generation to the next is therefore on the verge of being completely lost. At present, according to our data only twelve amchis are practicing in Mustang. The local people of Mustang we interviewed reiterated their belief in Amchi medicine. In our study, 97% of the people we interviewed believed in Amchis and their medicine (Fig 5). A total of 55% of the respondents had consulted an Amchi when they were sick in the past (Fig 6) out of which 93% said that they would consult an Amchi again if they were sick (Fig 7). A total of 98% of the people in our study who had consulted Amchis when they were ill were satisfied with the treatment they received. A total of 96% of the people told us that since Amchis were few, establishing an Amchi center for consultation, buying medicine, promotion, preservation and sharing knowledge was crucial for the villagers as well as Amchis. This would not only help them get easy access to Amchi but also preserve and promote this ancient knowledge of healing. Our study showed that the Amchis also visited homes of the sick.



Pic 2. An Amchi with dried herbs for making Amchi medicine

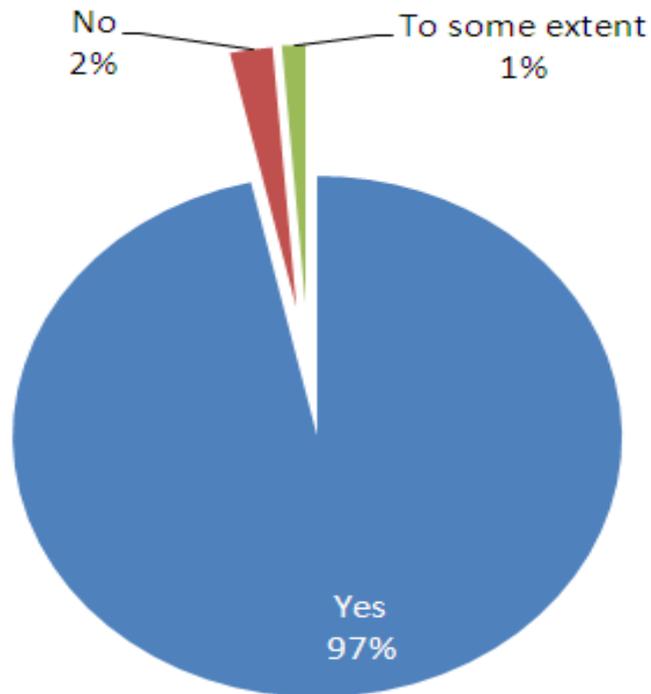


Fig. 5 Percentage of respondent who trust in Amchi medicine

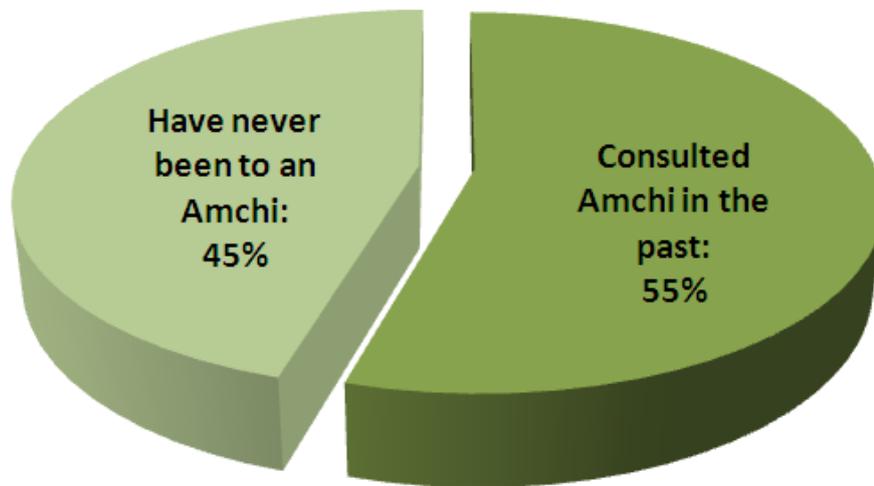


Fig. 6 Percentage of respondent who have consulted Amchi medicine in the past



Fig. 7 Percentage of people in our study who have consulted Amchi when sick and will go again

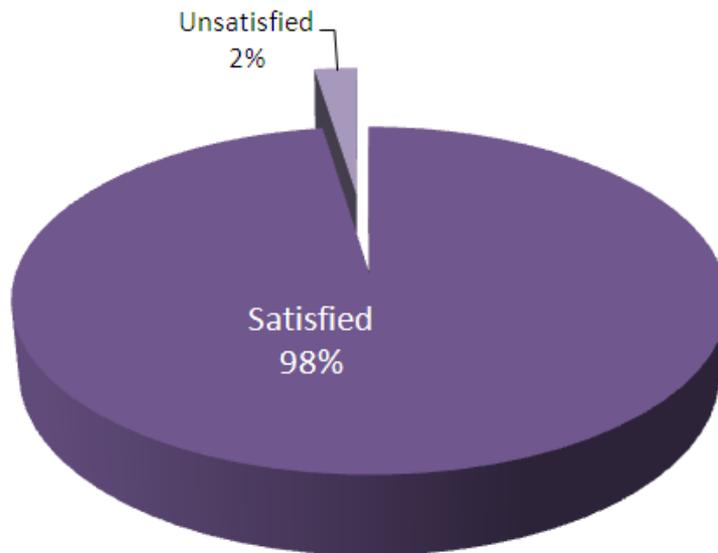


Fig 8. Percentage of people satisfied and unsatisfied with their Amchi medicine treatment

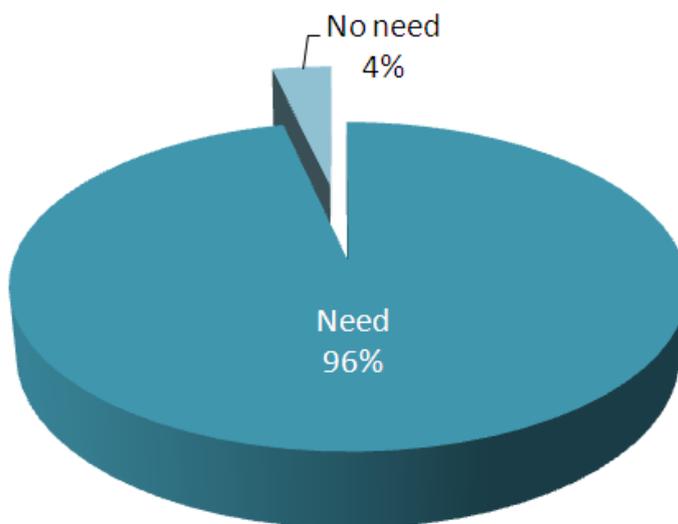


Fig 9. Percentage of people who feel the for developing an infrastrucure for the promotion and preservation of Amchi medicine

4. MEDICINAL PLANT OF MUSTANG

4.1 Medicinal plant trade in Mustang:

Mustang falls in the Annapurna Conservation Area Project (ACAP) therefore trading of medicinal plant is strictly regulated. According to the official data published in Hamro Ban by the Department of Forest, Government of Nepal, no medicinal plant was traded from Mustang in the last nine years. This data seems to be contrary to our findings from the interviews that we conducted as part of this study. According to our study, a number of high value medicinal plants are traded from Mustang including the most expensive medicinal plant of all-yarsagumba or *Cordyceps sinensis* which cost around 300-350 per piece. A kg of Yarsagumba sold for as much as \$130,000 in Singapore in 2012². The exact figure on the volume of trade of medicinal plant from Mustang could not be ascertained from this study. The traders did not want to disclose this information and the collectors were unsure of exactly how much medicinal plant is collected in bulk from this region. According to our respondents, the medicinal plants that were mostly collected and traded were Yarsagumba (*Cordyceps sinensis*), Pakhanbed (*Berginia ciliata*), Nirrmasi (*Delphinium denudatum*), Panchaunley (*Dactylorhiza hatagirea*), Ban lasun (*Fritillaria cirrhosa*), Jimbu (*Allium* sp) , Bonghnama (*Aconitum orochryseum*), Titeypati (*Artemisia vulgaris*), Satuwa (*Paris polyphylla*), Lauth salla (*Taxus wallichiana*), Jatamasi (*Nardostachys jatamasi*), chiraito (*Swertia chirayita*). The medicinal plants were collected from the wild and sold locally or to businessmen and traders. The traders were local as well as people from outside Mustang. The plants were dried and traded in raw form. The cultivation of medicinal plant is not common. Dabur Nepal started an initiative to cultivate medicinal plants in Marpha of Mustang district in 50 hectares of land leased from the locals. They cultivate medicinal plant for their own production as well as give out seedling to farmers for cultivation.

² "Yarsagumba lifts living standards of normal Nepalis", 2012. Retrieved from <https://thehimalayantimes.com/business/yarsagumba-lifts-living-standard-of-rural-nepalis/> Accessed June 29, 2018



Yarsagumba (*Cordyceps sinensis*)



Nirmasi (*Delphinium denudatum*)



Yarsagumba (*Cordyceps sinensis*) Nirmasi (*Delphinium denudatum*) Jimbu (*Allium* sp)



Satuwa (*Paris polyphylla*)



Panchaunley (*Dactylorhiza hatagirea*)



Ban lasun (*Fritillaria cirrhosa*)

Pic 3. Some highly sought after medicinal plant from Mustang.

4.2 Medicinal plant for Amchi medicine in Mustang

A total of 121 medicinal plants were recorded to be used for medicinal properties in Mustang by Amchis³. The collection and processing of medicinal plants by Amchis are meticulous. The Amchi medicine is stored in a leather bag made of skin of Himalayan musk deer (*Moschus chrysogaster*) which is tied with a thread and is believed to preserve the medicine for at least two years. The Amchis prefer stone to grind the plants to electric grinder. The medicinal plant powder is often mixed with water and sometimes honey or raw sugar according to the need of the specific plant powder to aid with the shape of the prepared pills (rounded, rectangular, etc). The medicinal plant preparations are administered by oral, topical or nasal means. The Amchis collect local medicinal plants themselves since they need skill and knowledge about the right time and way of collection, right plant part, right way of storing and correct plant. Some very similar looking plants can be toxic and dangerous therefore processing of these plants are done meticulously. Often poisonous plants are also used by Amchis for medicine by inactivating the poison which needs highly refined skill and knowledge. All the herbs that are needed by Amchis are not produced in Mustang itself. In our study, we found that some herbs like Amala are bought from India or from other parts of Nepal. From this study it can be surmised that most

³ Bhattarai, S., Chaudhary, R. P., Quave, C. L., & Taylor, R. S. (2010). The use of medicinal plants in the trans-himalayan arid zone of Mustang district, Nepal. *Journal of Ethnobiology and Ethnomedicine*, 6(1), 14.

herbs are found in Mustang itself but some herbs which are not available could be bought from other parts of Nepal. Since our data shows that medicinal plants are being indiscriminately harvested from the wild, to sustain medicinal plant supply for Amchis, cultivation of medicinal plants is necessary in Mustang.

5. OPTIONS FOR THE PROMOTION AND PRESERVATION OF AMCHI MEDICINE IN MUSTANG:

From our survey of the local people of Mustang and our analysis of the status of Amchi medicine in Mustang, building permanent infrastructure for promotion and preservation of Amchi medicine is a feasible and a sustainable option which will make Amchi healthcare accessible to all the local people of Mustang. This type of permanent infrastructure can also help promote and preserve Amchi medicine. According to our study, this type of infrastructure should house the consultation room for the Amchis, a ward for sick patients, pharmacy and medicine drying and processing room among others. From our study and from the interviews, there are several options for the promotion and preservation of Amchi medicine in Mustang. Here are the analysis from our study:

5.1. BASELINE SCENARIO:

The current number of Amchis of Mustang seem to be on the verge of decline and Amchi medicine is expected to be relegated as only an alternative healing as opposed to its present status among locals as a vitally important healthcare. The introduction of newer health policies by the Government including the recent National Health Insurance schemes may drive more locals towards allopathic medicine. Some of the Amchis have taken upon themselves to promote and preserve Amchi medicine. Lo Kunphen clinic and school is one examples. The Bista brothers behind this school and clinics have dedicated themselves for the preservation and promotion of Amchi medicine. They plan to increase their initiatives by diversifying their Amchi education, formalising it, training more Amchis and opening more clinics. Without building an infrastucture itself, these are a few alternatives available to the project proponent that can help meet comparable objectives of the overall project without a large investment:

- Supporting the Amchis and the clinics currently present in Mustang
- Supporting and promoting medicinal plant cultivation in Mustang
- Promoting awareness of Amchi medicine in Mustang
- Promoting and supporting the Amchi apprentices and the two schools (Lomanthan and Jharkot) in Mustang

5.2. OPTION 1: Building a mini Amchi center in each village of Mustang

All the locals we interviewed pointed out that since the villages were far apart, one Amchi center should be built in each village.

Benefit:

- All the people will have access to Amchis and Amchi medicine when they are ill.
- Amchi medicine will be preserved and promoted.
- Since Amchis also help conserve and correctly harvest medicinal plant, medicinal plants may be conserved and protected.

Disadvantage:

- Financially costly
- All the people may not want to go to an Amchi when they need healthcare services so this center may not be effectively used
- Few Amchis are available in Mustang so it will be difficult to find an Amchi for every clinic.

Alignment with Desired Objectives	The success of the project and the outcome will totally depend upon the activities being carried out by the second party supported by the project proponent
Technical Fit to Target Enterprise Architecture	Not at all
Costs	Minimum cost
Cost Benefit	Benefit will depend on the second party that is being supported by the project proponent
Legal / Regulatory Fit	Not applicable
Impact	The impact will also depend upon the activities being carried out by the second party supported by the project proponent
Potential Risks that impact the ability to deliver desired outcomes	No real risk involved
Rationale for Rejection or for Recommending further Analysis	Rejection of this option since the success of the project and the outcome will totally depend upon the activities being carried out by the second party supported by the project proponent
Overall Viability	Viable but not recommended

OPTION 2: A mobile Amchi clinic and a centrally located center

Some of the locals we interviewed suggested a mobile Amchi center. To actually meet the objective of promotion and preservation of Amchi medicine, only having a mobile center will not be enough. A mobile center would also need a centrally located center for Amchi medicine which would coordinate and monitor its activities. Therefore the mobile Amchi clinic would be a four wheel drive vehicle equipped with Amchi medicine and related necessities and driven by an Amchi. The centrally located Center for Amchi medicine would have to be situated in a

major town of Mustang like Jomson. This would house the main Amchi center: its administrative division, medicine processing center, pharmacy and other necessities and amenities for the promotion and preservation of Amchi medicine.

Benefit:

- All the people of Mustang would have access to an Amchi and Amchi medicine.
- Amchi medicine would be preserved and promoted.

Disadvantage:

- May not be financially sustainable since Amchi consultations are free (funds for petrol/diesel and other vital expenses would be a continuous source of concern)
- The mobile Amchi vehicle may not be able to provide service to multiple places at the same time.
- The centrally locally center would need a large number of staff to operate thus may not be sustainable.
- Mobile Amchi would need excellent communication network like mobile phones and internet which is not always reliable in a mountainous, remote parts of Mustang.
- The vehicles would need drivers and Amchis may not want to drive themselves and fundings for drivers may be an additional expense.

Alignment with Desired Objectives	Not fully aligned with the desired objective of this project
Technical Fit to Target Enterprise Architecture	Yes
Costs	The project will be very costly
Cost Benefit	The cost will be very high, the revenue will not be able to support the cost. Break even may not be possible
Legal / Regulatory Fit	Not applicable
Impact	This option will have good impact. The targeted objectives can be met.
Potential Risks that impact the ability to deliver desired outcomes	The cost for this option will be very high. Running the center and paying the wages of its workers may not be possible with only the revenue generated.
Rationale for Rejection or for Recommending further Analysis	Rejection: The cost will be high. Additionally since the management and communication is key in this option, this may not be feasible in such a mountainous area where communication signals of mobile phones and phone lines is often interrupted by adverse weather.
Overall Viability	Viable but not recommended

Alignment with Desired Objectives	Not fully aligned with the desired objective of this project
Technical Fit to Target Enterprise Architecture	Yes
Costs	The project will be very costly
Cost Benefit	The cost will be very high, the revenue will not be able to support the cost. Break even may not be possible
Legal / Regulatory Fit	Not applicable
Impact	This option will have good impact. The targeted objectives can be met.
Potential Risks that impact the ability to deliver desired outcomes	The cost for this option will be very high. Running the center and paying the wages of its workers may not be possible with only the revenue generated.
Rationale for Rejection or for Recommending further Analysis	Rejection: The cost will be high. Additionally since the management and communication is key in this option, this may not be feasible in such a mountainous area where communication signals of mobile phones and phone lines is often interrupted by adverse weather.
Overall Viability	Viable but not recommended

VIABLE OPTION

OPTION 3:

The viable option to meet our objectives and address the needs of the villagers would be to **‘Develop one Amchi medicine center in each of the five Gaunpalikas of Mustang.’**

BUILDING AN AMCHI CENTER IN EACH OF THE FIVE GAUPALIKAS

GAUNPALIKA	POPULATION		AREA	CENTER	VILLAGES
	2011				
Gharapajhong	3029		316	Jomson	Syang, Jomsom, Chhairo, Marpha, Thini, Chimang
Thasang	2912		289	Kobang	Lete, Tukuche, Kunjo, Kobang
Barhagaon/Muktichetra	2330		886	Kagbeni	Kagbeni, Khinga, Jhong, Chhusang
Lomanthang	1899		727	Lomanthang	Chhoser, Lomanthang, Chhonhup
Dalomey	1423		1344	Charang	Ghami, Surkhang, Charang

Scope of the infrastructure: The infrastructure will be able to provide the following services to the people of each Gaunpalika:

Amchi consultation service: A permanent station for an Amchi doctor to be always present for any incoming patient.

- Amchi medicine preparation facility: This center would have basic facility for Amchi medicine processing like drying room, a grinder, processing and storage facility.

- Amchi medicine dispensary: The center would have a Amchi medicine dispensary where the patients can get their medicine at a nominal cost

- Ward or resting room: For patients who are unable to travel back to their home or those who need to be kept under supervision, this center would have a basic facility for housing these sick patients
- Amchi medicine awareness and education: A separate room would be available for Amchis medicine awareness about health and hygiene as well as for dissemination important information, holding meetings for other Amchis or hosting Amchi interns and apprentices.
- Amchi medicine herbal garden: A patch of land would be relegated near the center for cultivation of appropriate herbs that the Amchi can grow for medicinal purposes.
- Amchi communication service: A telephone, cell phone and a computer would be available in this facility for information sharing about Amchis or other health issues.
- This center could also coordinate with allopathic hospitals, clinics and other services such as laboratories and diagnostic services to provide interdisciplinary holistic healthcare to the local people.

Benefits:

- All the people of Mustang will have access to Amchi and Amchi medicine at all times
- Amchi medicine will be preserved and promoted.
- The Amchis can also cultivate some important medicinal plant in the garden of the Amchi center.
- Amchi medicine can be processed and manufactured in this center.
- Locals who are too sick to travel can also stay at the ward in these centers
- The Amchi apprentices can also practice in this center and hold meetings and workshops, exchanges and trainings at these centers. Collaborations could take place between allopathic doctors, diagnostic services and Amchis through this center as well.

Disadvantages:

- Since the Amchi consultations are free, for running this center, a nominal fee must be charged for each consultation and medicine would have to be priced accordingly.
- Some of the locals from faraway villages will still have a long way to travel to get to these centers.
- Finding an Amchi to take charge of these centers may be difficult since there are few number of full time Amchis in Mustang at present.

Infrastructure Recommendation:

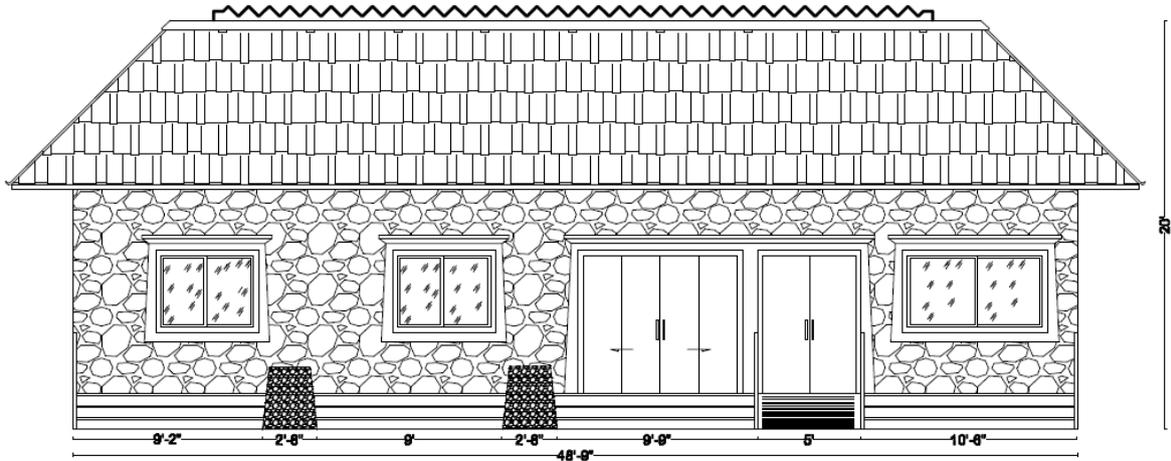
Local resource utilization: These centers will be built using locally available building material as much as possible like stones, mud and wood taking into account the weather and other environmental challenges. The centers would also be ecologically sound and environmentally friendly with the installation of solar panels for electricity and water heating and water recycling, proper ecofriendly garbage disposal and basic waste water treatment facility.

Technical feasibility:

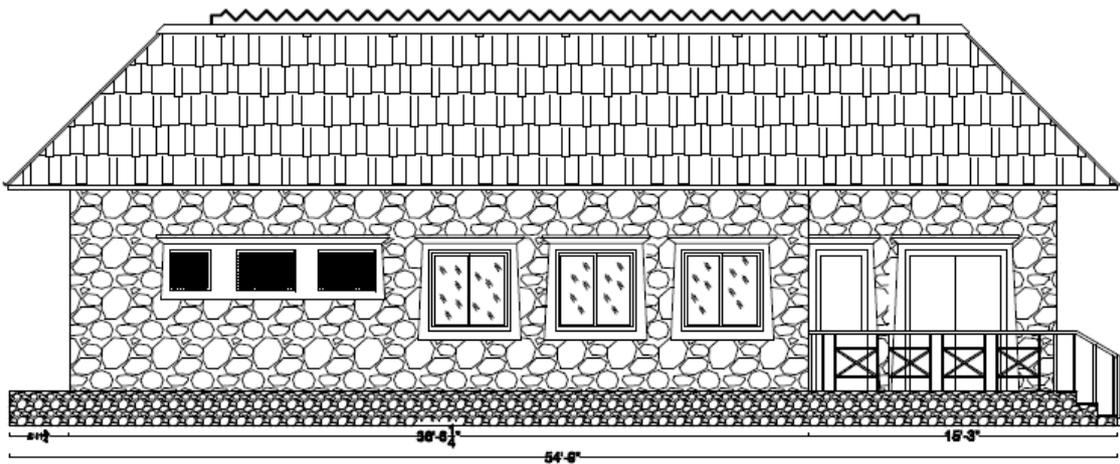
Since the infrastructure will be built from local building material as much as possible and local people will be hired using their local building skills, this project is feasible for building, operating and maintaining it in the long run. Using local expertise will ensure the success of building this infrastructure.

Alignment with Desired Objectives	Yes, fully aligned
Technical Fit to Target Enterprise Architecture	Yes
Costs	The project will be costly at the beginning (infrastructure) but the running cost can be maintained with enough patient flow.
Cost Benefit	The infrastructure cost will be very high, the revenue will not be able to support the cost of the infrastructure as well (It will take at least 20 years to break even) but only the running cost can be supported by normal running of this center.
Impact	This option will have good impact. The targeted objectives can be met.
Potential Risks that impact the ability to deliver desired outcomes	The initial infrastructure cost for this option will be very high. Running the center and paying the wages of its workers is possible with only the revenue generated. If the patient flow is less then break even will take longer.
Rationale for Rejection or for Recommending further Analysis	This is the recommended option for meeting all the target objectives of the project.
Overall Viability	Viable and recommended

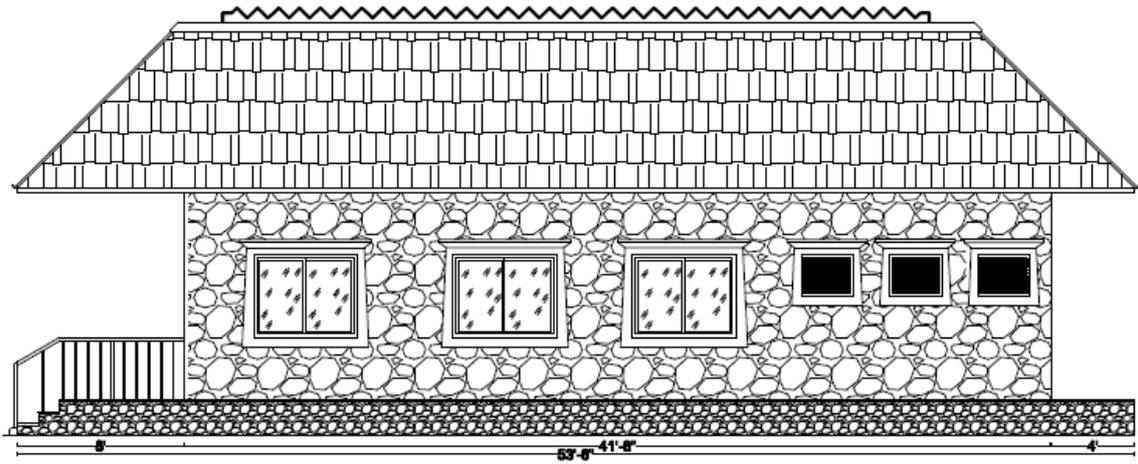
PROPOSED INFRASTRUCTURE



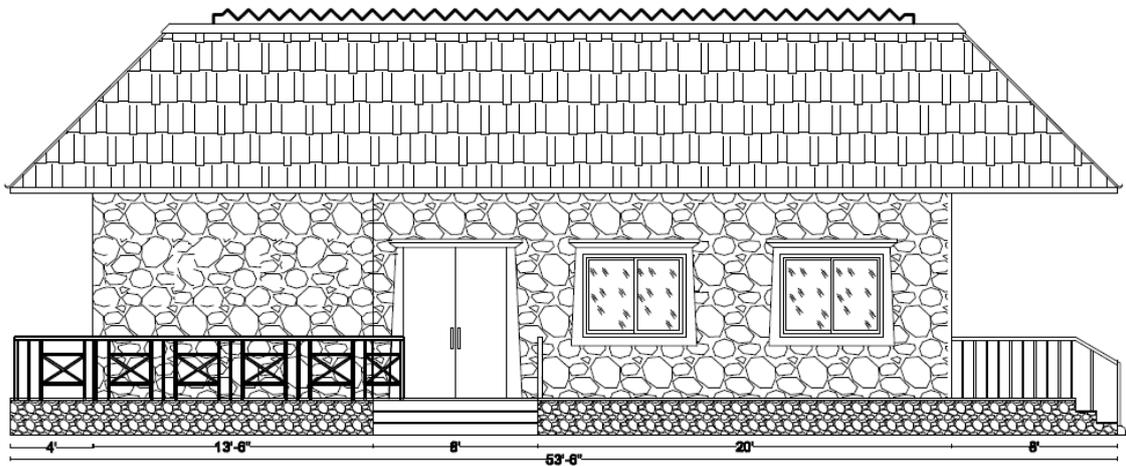
ELEVATION EAST



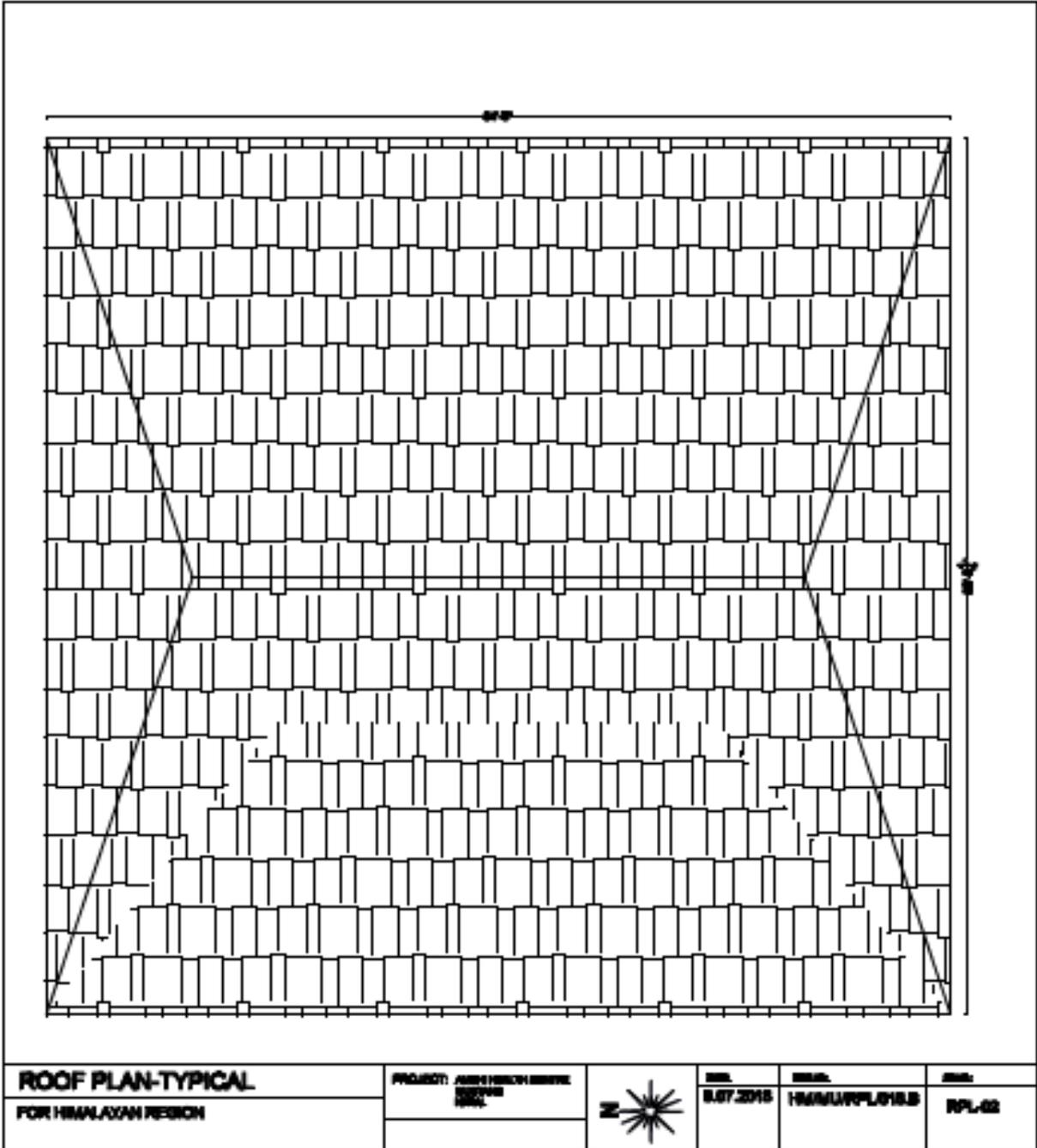
ELEVATION WEST

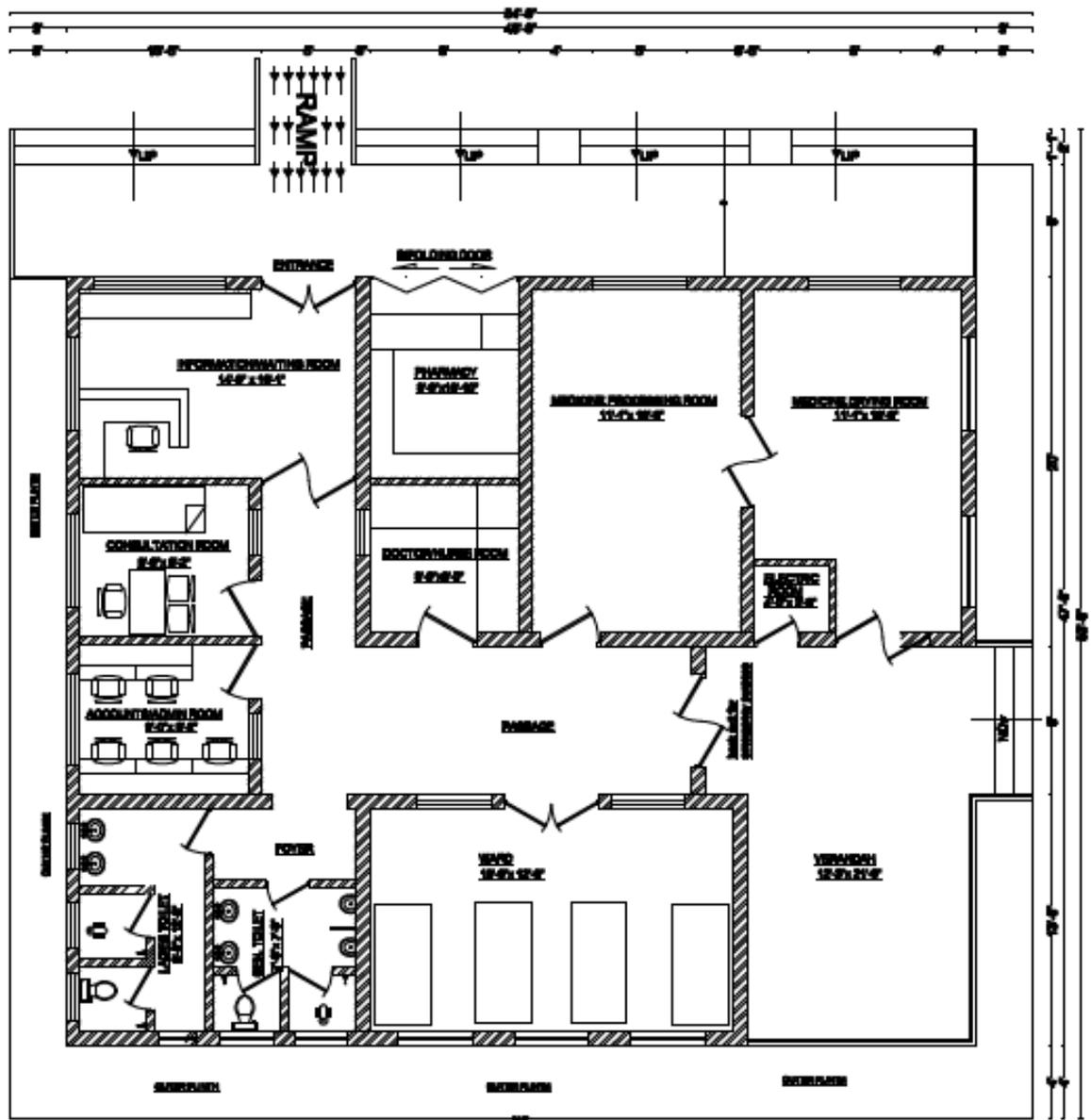


ELEVATION NORTH



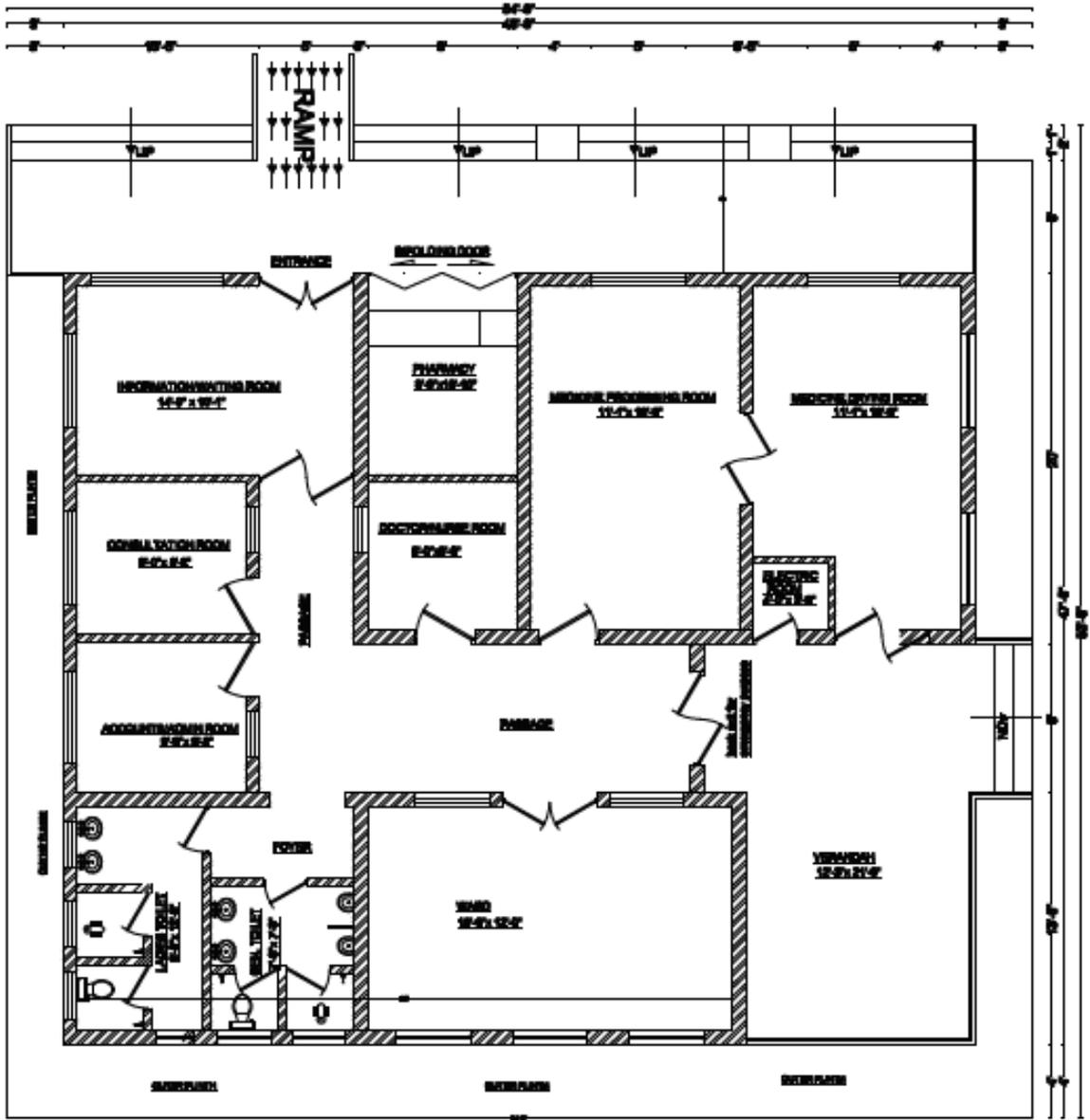
ELEVATION SOUTH





FLOOR LAYOUT PLAN-TYPICAL FOR HIMALAYAN REGION	PROJECT: ANCHAL HEALTH CENTRE SUDIKHAR NEPAL		DATE: 0.07.2018	DRAWN: HM/NU/PL018.A.F	SCALE: FURPL-01

FLOOR PLAN



FLOOR LAYOUT PLAN-TYPICAL FOR HIMALAYAN REGION	PROJECT: ANCH HEALTH CENTRE SUDHAPUR NEPAL		DATE: 8.07.2018	SCALE: HMMU/PL/01&A	PLAN: PL-01

FLOOR PLAN

BUDGET ESTIMATION FOR INFRASTRUCTURE					
SN	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	Excavation and superstructure	sft	2,650.00	2,100.00	5,565,000.00
2	Wooden frame and wooden doors and windows with paint/ polish finish	sft	390.00	2,600.00	1,014,000.00
3	Emulsion Paint to walls and ceiling	sft	7,000.00	30.00	210,000.00
4	False ceiling with gypsum board on GI Frame	sft	2,650.00	100.00	265,000.00
5	Floor tile in main area	sft	2,650.00	250.00	662,500.00
6	Toilet walls and floor tiles	sft	590.00	225.00	132,750.00
7	Electricals- only wirings, sockets and light fixtures	job	1.00	-	1,000,000.00
TOTAL					8,849,250.00
13%VAT					1,150,402.50
GRAND TOTAL					9,999,652.50

Benefit:

Revenue	Annual Expected patients	Annual Revenue per patient	Total
Amchi medicine sale	2000	500	10,00,000
Amchi consultation	2000	10	20,000
TOTAL			10,20,000

Project Budget Analysis

DETAIL				TOTAL
FIXED COST:				1,00,00,000
Detail	Month	Annual	Total	
Infrastructure			100,00000	
Remuneration				
Amchi	18000	216000		
Helper	10000	120000		
Medicine processing and sales	10000	120000		
Total			456000	
VARIABLE COST:				44,000
Detail		Cost annual	Total	
Maintenance		19000		
Raw materials		25000		
Total			44000	
TOTAL				1,05,00,000
REVENUE	Annual Expected patients	Annual Revenue per patient	Total	10,20,000
Amchi medicine sale	2000	500	10,00, 000	
Amchi consultation	2000	10	20,000	
Total			10,20,000	

BREAK EVEN ANALYSIS

Administrative cost: 456,000

Variable cost: 44,000

Total income from individual patient (consultation and medicine): 510

Unit contribution Margin: 510 – (variable cost per patient i.e 250) : 260

Contribution Margin Ratio: $260/225$: 1.155%

Break Even Point:

With only administrative cost

Break Even Point: $456,000/260$: 1753.8 i.e 1754 patients annually

Profit estimated : $2000-1754*250$: Rs 63, 960

With infrastructure and administrative cost

Break Even Point: $10456,000/260$: 402150 i.e 40, 2150 patients annually

i.e. break even in 20 years @ 2000 patients annually.

HIGHLIGHTS:

Local resource utilization: These centers will be built using locally available building material as much as possible taking into account the weather and other environmental challenges.

Technical feasibility: Since the infrastructure will be built from local building material as much as possible and local people will be hired using their local building skills, this project is feasible for building, operating and maintaining it in the long run. Using local expertise will ensure the success of building this infrastructure.

Economic Practicality: Although the investment for the construction of this building is initially large, the economics

Need: With the decline in the number of practising Amchis in recent years, the need for Amchi was apparent in our study. All the respondents of our study said that Amchis were very much in need in Mustang. 75 % of the respondent felt the need for an Amchi in every village in Mustang. The rest wanted an Amchi available at least in nearby villages or in every Gaon pallika.

Social Impact: Access to healthcare is imperative for every villager. Due to its remoteness and ruggedness of terrain, healthcare accessibility is an issue in Mustang. Having an Amchi center in every Gaon pallika ensures that every village in Mustang has access to Amchis and their medicine. Amchi is also closely linked to medicinal plant information and awareness, conservation and sustainable harvesting. Indirectly, Amchis also play a role in the conservation and sustainable utilization of important flora of Nepal like the precious medicinal plant of high Himalaya.

Eco-friendly design and infrastructure: The infrastructure of the Amchi center should be ecologically sound. To reduce carbon footprint, solar panels should be used for electricity. The water should be used frugally and effectively and waste water and refuse should be sustainably disposed. The building material of this center should fit in with the environment and be made using local building materials like stone and sustainably sourced wood.

Sustainability: The sustainability of the Amchi center lies in many factors. Funds raised from selling medicine, voluntary donation, minimum consultation charges are the primary source of

fund that can help with the running of the center. The remuneration of the Amchis and other staff required can also come from Amchi trainings as well as some fund raising activities like conducting Amchi education and awareness for tourists, selling medicine to the tourists etc.

OTHER REQUIRMENTS FOR SUCCESSFUL AMCHI CENTER:

Manpower training: The current number of Amchis are not enough for Mustang. In earlier times, each village had their own Amchi. For Amchis to be made available, more local amchis need to be trained. The Government should bestow attractive incentives for the Amchis to ensure their continued service since Amchis do not charge any fee for their consultation.

Medicinal plant cultivation: Since the medicinal plants are becoming scarcer due to overharvesting, cultivation of Amchi medicinal plant should be a priority. This will ensure sustainable supply of medicinal plants. It is also recommended that some areas where medicinal plants are abundant should be strictly conserved and preserved to be used only by Amchis in a sustainable way.

6. CONCLUSION:

From this study, it can be inferred that

- The number of Amchis in Mustang are declining in number
- The majority of the people of Mustang believe in Amchis and their medicine
- The people feel that there should be activities done to promote and preserve Amchi medicine
- The people have been visiting allopathic doctors since Amchis are not readily available and the people have started trusting the allopathic medicine more.
- Majority of the people who visited Amchis when sick were satisfied with their treatment and were determined to go again.
- The medicinal plant of Mustang is vulnerable to exploitation and over harvesting for trade
- Although the medicinal plant of Mustang is not traded officially, unofficially a lot of medicinal plant are traded from Mustang
- The medicinal plants need to conserved through awareness, cultivation and sustainable harvesting
- Developing infrastructure for the promotion and preservation of Amchi medicine is key.

7. RECOMMENDATIONS:

- An Amchi center should be built in each Gaonpallika of Mustang. The Amchi center should have an Amchi 24 hours a days, process and dispense medicine and spread awareness and other beneficial health activities to the local communities.
- Medicinal plant of Mustang could be conserved for used by Amchis through cultivation and sustainable harvesting so Amchis should start practising these for the future sustainability of medicinal plant.

Appendix 1

REFERENCES

1. Questionnaire for local people (farmers/ medicinal plant traders/businessmen/students/teachers) of Mustang
2. Questionnaire for Amchis of Mustang
3. List of medicinal plants used in Mustang.
4. Photos of Mustang during data collection

APPENDIX 2

स्थानीय मनिस, बिद्यार्थीहरु, किसानहरु, जडिबुटी व्यापारीहरु, जडिबुटी संकलन गर्नेहरु र पर्यटकहरु को लागि प्रश्न

नाम:

उमेर:

लिंग:

पेशा:

शिक्षा:

हालको ठेगाना:

स्थाई ठेगाना :

प्रश्नहरु

- मुस्ताडमा कस्ता प्रकारको जडीबुटीहरु जम्मा वा व्यापार गरिन्छ।
- मुस्ताडमा सबैभन्दा धेरै जम्मा वा व्यापार हुने जडीबुटीहरु के के हुन? यस्तो २० वटाको नाम दिनुहोस्।
 - १० वटा सबै भन्दा महँगो जडीबुटीहरु के के हुन्?
 - प्रती kg कति रुपैयामा बिक्री?
 - कहाँ बाट सङ्कलन हुन्छ?
 - कति को संकलन हुन्छ? वर्षमा कति kg व्यापार हुन्छ होला?
- कहिले सङ्कलन हुन्छन्?

- कसले सङ्कलन गर्छ? कहाँबाट?
- यहाँ कुनै जडीबुटीको खेती हुन्छ? कहाँ हुन्छ? के को खेती हुन्छ ? कति खेती हुन्छ (१ बर्षमा कति उत्पादन हुन्छ होला ?
- मुस्ताङको जडीबुटीको कसले किन्न सक्छ?
- तिनीहरू कहाँ बाट किन्छ ?
- यो कहिले बिक्रि बिरुवाहरू (कुन महिनामा)
- मुस्ताङको जडीबुटी स्थानीय रूपमा बेचिएका छन्?
- मुस्ताङको जडीबुटी स्थानीय रूपमा प्रयोग गरिन्छ?
- मुस्ताङमा स्थानीयहरूले हरेक वर्ष कति किलोग्राम खपत गर्छन् होला? यसको मूल्य के हो?
- सामान्यतया मुस्ताङको मानिसले प्रयोग गर्ने जडीबुटी के के हुन (१० वटा को नाम दिनु होस् ?) बडि प्रयोग हुने जडीबुटी कहाँ बाट आउँछ? किन्छन कि जंगलबाट संकलन गर्छ?
- मुस्ताङमा आम्ची औषधि बनाउनका लागि जडीबुटीहरू छन्? पुग्छ?
- मुस्ताङमा आम्ची औषधि बनाउनका लागि यहाँकै जडीबुटी कति प्रयोग गरिन्छ?

- आम्ची औषधिबनाउनको लागि सबैभन्दा बडि प्रयोग हुने जडिबुटी के के हुन? नाम दिनु होस्? यो मुस्ताडमा पाईन्छ? पुग्छ?
- तपाईं आम्चिमा विश्वास गर्नुहुन्छ?
- के तपाईं अम्ची डक्टरकोमा बिरामी हुँदा जानुभा को छ?
 - यदि छ भने,
 - कहाँ?
 - कहिले?
 - कति पटक?
 - गत वर्षमा कति पटक
 - अन्तिम पटक कहिले जानुभएको थियो?
 - तपाईंलाई के को बिरामी भएको थियो?
 - तपाईंले कति खर्च गर्नुभयो?
 - तपाईंले कति रुपैयाको आम्ची औषधि किन्नुभयो?
 - आम्चीको लागि कति खर्च भयो?
 - तपाईं सम्पूर्ण उपचारको लागि कति खर्च गर्नुभयो?
 - तपाईं निको हुनु भयो?
 - के तपाईं उपचार वा Amchis संग सन्तुष्ट भए?
 - तपाईं फेरि फेरि जानुहुन्छ?
 - यदि जानु हुन्छ भने, के तपाईंलाई लाग्छ की आम्चिको लागि राम्रो आधारभूत संरचना (अस्पताल वा सेन्टर) हुनुपर्छ जस्तो लाग्छ ?
 - चाहिन्छ जस्तो लाग्छ भने, कस्तो प्रकार को हुनु पर्छ होला?
 - कुन प्रकारको सेवा तपाईं आशा गर्नुहुन्छ वा चाहानुहुन्छ?
 - यसतो प्रकारको सुविधा (अस्पताल वा सेन्टर) कहाँ निर्माण गर्नुपर्छ होला? (कुन गाउँ वा ठाउँ?)
- के तपाईंको परिवार आम्ची कहाँ जान्छ?

- कति पटक जान्छ ? (महिनामा)
- पछिल्लो पटक कहिले गएको?
- तपाईंको परिवारले आम्ची औषधिमा र उपचारमा हरेक बर्ष कति पैसा खर्च गर्दछ?
- यदि आम्चीमा विश्वास लाग्दैन भने?
 - किन लाग्दैन?
- के तपाईंको परिवार आम्ची कहाँं जानुहुन्छ?
 - कति पटक?
 - गत वर्ष कति पटक?
 - औषधीमा र आम्चीमा हरेक वर्ष कति खर्च गर्नु हुन्छ ?
 - के यस औषधीले काम गर्दछ? के उनीहरू सन्तुष्ट छन्?
 - आम्ची कहाँ छ? अस्पताल छ कि घरमा नै आम्ची आउँछ?
 - कहाँबाट औषधि किन्नु हुन्छ ?
- तपाईं को विचारमा आम्ची औषधि को बिकास र संरक्षण गर्नु पर्छ?
- कसरी?

APPENDIX 3

आम्चीको लागी प्रश्नहरूः

- नामः शैक्षिक योग्यताः
- व्यवसाय / व्यवसायः
- उमेरः लिंगः वर्तमान ठेगानाः

प्रश्नहरूः

- तपाईं आम्ची भएको कती भयो?
- तपाईंले कहाँ पढनुभयो? तपाईंको गुरु को हो?
- तपाईं पुरा समय आम्ची हुनुहुन्छ कि अरु काम पनि गर्नु हुन्छ ?
- तपाईंले बिरामीहरू कहाँ जाँचनुहुन्छ? (बिरामिको घरमा कि अस्पताल कि अरु कुनै ठाउँ)
- अरु गाउँका मानिसहरू पनि तपाईंसँग परामर्श गर्न आउँछन्?
- मुस्ताडमा अहिले कति आम्ची चिकित्सकहरू अभ्यास गरिरहेका छन्?

- मुस्ताडमा कतिजना आम्ची छात्रहरु छन ?
- तपाईंले कति जना आम्चिलाई प्रशिक्षण दिनुभएको छ?
- तपाईंसँग अहिले आम्ची सिक्ने विद्यार्थी छन कि छैनन्? प्रशिक्षण दिनुहुन्छ? यदि विद्यार्थी छन भने, कती जना?
- तपाईं तिनीहरुलाई कसरी तालिम दिनुहुन्छ?
- तपाईंले प्रति दिन कति जना बिरामी हेर्नु हुन्छ?
 - महिनामा कति जना?
 - प्रति वर्ष बिरामीको संख्या ? कति हुन्छ (यदि तिनीहरु रेकर्ड राख्नुहुन्छ भने, कृपया त्यो सङ्कलन गर्नुहोस)
 - बिरामीको प्रवाहमा मौसमी अंतर छ?
- तपाईं आफ्नो बिरामीको लागि आम्ची औषधि कहाँ किन्नु हुन्छ?
- तपाईंको बिरामीले आफ्नो लागि आम्ची औषधि कहाँ किन्नु हुन्छ?
- कसले बनाउँछ र कहाँ बनाउँछ ?
- यदि मुस्ताडमा नै बनाउन छ भने, कहाँ?

- कतिजना मान्छे काम गर्छन्?
 - यो बनाउने फेकट्टी कति ठूलो छ?
 - के व्यवसाय लाभदायक छ?
- के तपाईं उपचारको लागि सीधा कच्चा जडिबुटी प्रयोग गर्नुहुन्छ?
 - यदि गर्नुहुन्छ भने त्यो कहाँबाट आउँछ ?
 - आम्चीलाई बिरामी जांचेकोमा पैसा दिन्छ? कि अरु के दिन्छ?
 - यदि पैसा दिन्छ भने एक चोटि बिरामी हेरेको कति दिन्छ?
 - दबाइको मूल्य के हो?
 - एउटा बिरामीले एक चोटि औषधी किन्दा कति पैसा को किन्छ? रु.... देखी रु
..... सम्मा
 - एउटा बिरामीलाई फेरी हेर्नु पर्यो भने तिनीहरूले फेरि तिर्छन् ? कति?
 - मुस्ताइमा के सबै मान्छेले आम्चीमा विश्वास गर्छन्?

- कति प्रतिशतले विश्वास गर्छन् होला?
- मुस्ताडमा आम्चीकहाँ आउने मनिसको कमी भएको छ?
 - के कारणले ?
- के बिरामीहरु अरु अस्पतालमा जान बडेको छ?
- के क्लिनिकहरु, अस्पतालहरु, हेल्थपोस्ट हरुको संख्यामा वृद्धि भएको छ?
- आम्ची कहाँ आउने बिरामीहरु कतिको घटेको छ?
- गत पाँच वर्षमा कतीको कमी भएको छ? (जस्तै १०० बाट ५० वा १००० बाट ५०० आदि)
- के तपाईं यो कमी जारी रहन्छ भन्ने लाग्छ?
- आम्ची औषधिको लागि भविष्यमा तपाईं के आशा गर्नुहुन्छ?
- यो कसरी संरक्षित हुनुपर्छ जस्तो लाग्छ? संरक्षणको लागि के चाहिन्छ ?
- आम्ची औषधिको बिकासको लागि के आवश्यक छ?

- तपाईं सरकारबाट के आशा गर्नुहुन्छ?
- तपाईंले स्थानीय जनताबाट के आशा गर्नुहुन्छ?
- तपाईं भविष्यमा सामना गर्नुपर्ने कठिनाइहरू के के हुन सक्छ?
- तपाईं यसलाई कसरी निलम्बन गर्नुहुन्छ?
- के आम्ची प्रशिक्षक हुन चाहनुहुन्छ? के तपाईंको भविष्यमा यस्तो योजना छ ?

AMCHI INFRASTRUCTURE REQUIREMENT

- मुस्ताङमा कति आम्ची क्लिनिकहरू छन् ?
- मुस्ताङमा आम्ची अस्पताल छ? कति वटा छन्?
- मुस्ताङमा कुनचाहि (गाँउ वा गाविस) मा धेरै मानिसहरू छन् जो आम्ची डाक्टरहरूमा विश्वास गर्छन् र आम्ची औषधि किन्छन्?
- त्यहाँको लागि आम्ची अस्पताल आवश्यक छ?

- आम्ची औषधिको बिकास र संरक्षणको लागि पूर्वाधार (अस्पताल वा सेन्टर) आवश्यक छ कि छैन?
- यदि छ भने कस्तो प्रकारको पूर्वाधारको आवश्यकता छ? यसको प्रयोग के को लागि हुन सकछ?
 - त्यहाँ कसले काम गर्न सकछ?
 - मुस्ताडमा त्यस्ता आधारभूत संरचनालाई स्थानीय मानिसहरूले सकेसम्म बढी प्रयोग गर्न सक्ने र अधिकतम पहुचको लागि, त्यस्ता संरचना निर्माण कहाँ गर्नुपर्छ? कुन गाउँ ?
- यस पूर्वाधारमा हुन सक्ने आम्ची औषधी बनाउने फेक्ट्रीको लागि चाहिने जडीबुटी कहाँ बाट आउन सकछ?
- मुस्ताडमा पाइने जडीबुटी पर्याप्त हुन सकछ?
- तपाईं बिचारमा यस्तो अस्पतालमा कतिजनमानिसहरू आउनछन होला? एक दिनमा कति जन सम्मा आउन सकछ? महिनामा?
- यस्तो अस्पताल वा सेन्टर ले पैसा कमाउंछ होला ?

- यस्तो अस्पतालमा वा सेन्टरमा के के बनाउनु पर्छ ?
- यस्तो अस्पतालमा वा सेन्टरमा के के सुबिधा हुनु पर्छ?

जडीबुटीको(MEDICINAL PLANTS) बारेमा प्रश्नहरू :

- मुस्ताडमा कस्ता प्रकारको जडीबुटीहरू संकलन वा ब्यापार गरिन्छ।
- मुस्ताडमा सबैभन्दा धेरै जम्मा वा ब्यापार हुने जडीबुटीहरू के के हुन? यस्तो २० वटाको नाम दिनुहोस्।
- १० वटा सबै भन्दा महँगो जडीबुटीहरू के के हुन्?
 - प्रती kg कति रुपैयामा बिक्री?
 - कहाँ बाट सङ्कलन हुन्छ?
- कति को संकलन हुन्छ? बर्षमा कति kg ब्यापार हुन्छ होला?
- कहिले सङ्कलन हुन्छन्?
- कसले सङ्कलन गर्छ? कहाँबाट?

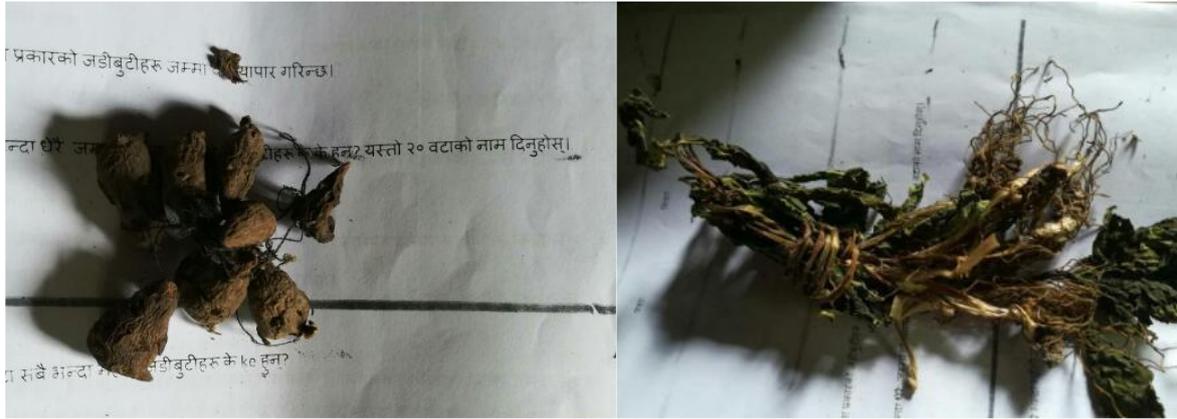
- यहाँ कुनै जडीबुटीको खेती हुन्छ?
- कहाँ हुन्छ?
- के को खेती हुन्छ ?
- कति खेती हुन्छ (१ बर्षमा कति उत्पादन हुन्छ होला ?
- मुस्ताइको जडीबुटीको कसले किन्छ ?
- तिनीहरू कहाँ बाट किन्छ ? (from where is it bought? People's houses, collection point – where)
- यो कहिले बिक्रि (कुन महिनामा)?
- मुस्ताइको जडीबुटी स्थानीय रूपमा बेचिएका छन्
- मुस्ताइको जडीबुटी स्थानीय रूपमा प्रयोग गरिन्छ?
- मुस्ताइमा स्थानीयहरूले हरेक वर्ष कति किलोग्राम खपत गर्छन् होला? यसको मूल्य के हो?
- सामान्यतया मुस्ताइको मानिसले प्रयोग गर्ने जडीबुटी के के हुन (१० वटा को नाम दिनु होस् ?) बडि प्रयोग हुने जडीबुटी कहाँ बाट आउँछ? किन्छन कि जंगलबाट संकलन गर्छ?

- मुस्ताडमा आम्ची औषधि बनाउनका लागी जडीबुटीहरु छन्? पुग्छ?
- मुस्ताडमा आम्ची औषधि बनाउनका लागी यहाँकै जडीबुटी कति प्रयोग गरिन्छ?
- आम्ची औषधिबनाउनको लागी सबैभन्दा बडि प्रयोग हुने जडीबुटी के के हुन? नाम दिनु होस्?
- यो मुस्ताडमा पाईन्छ? मुस्ताडमा आम्ची औषधि बनाउनका लागी पुग्छ?

APPENDIX 4
PHOTOS DURING DATA COLLECTION







PHOTOS OF DRIED MEDICINAL HERBS IN MUSTANG