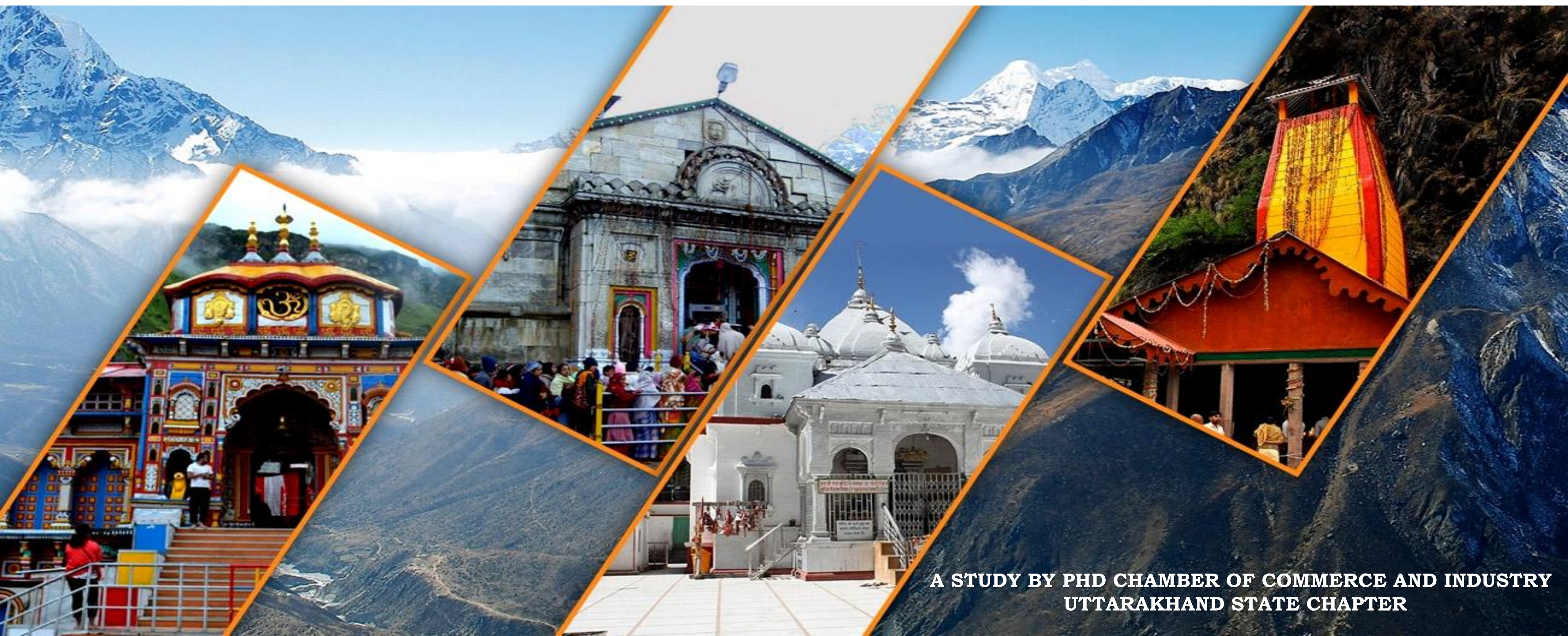




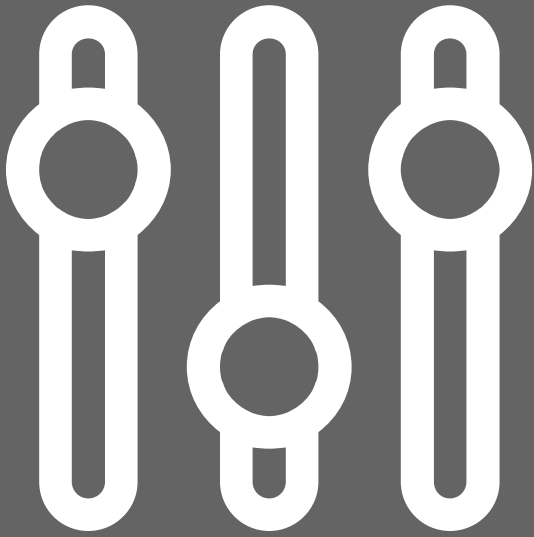
NATIONAL APEX CHAMBER

SKILL GAP ANALYSIS FOR RELEVANT SKILLS OF UTTARAKHAND



A STUDY BY PHD CHAMBER OF COMMERCE AND INDUSTRY
UTTARAKHAND STATE CHAPTER

Study Background



Objectives,Method, Approach, Surveys

Key Objectives

- **Identify Traditional Skill Sets not listed in the SSC job roles.**
- Identify the **skill development needs & preparing a catalogue of these type of skills**, range and depth of skills.
- To cover all the **promising traditional sectors** specific to the state and assess their potential in terms of **growth, employment generation, trade enhancement and investment attraction.**
- To analyze the **current scenario of skilling and facilities available** for traditional artisan's/craftsmen based on the survey analysis.
- To document about the **sector wise deficiency and demand** in various skills in the next 5 years.
- Define the **status of current skill available** in the state under different job areas and current Industries demand. It will also focus on how to fill the gap between demand and supply of the Skill under different job roles.
- **Outline outcome-based** approach towards quality skilling that results in increased employability and translates into improved productivity
- To draw conclusion of study and point wise **recommendations for filling the skill gap** found in the state.

Methodology

217 interviews



Literature and Data Gathering - A wide variety of literature has been referred to pin down the precincts of the study :

- 6th Economic Survey of the State of Uttarakhand, 2013
- Economic Survey and State Budget Notes, 2017-18
- Uttarakhand ke Shilpkkaar by Shri Chaman Lal Pradyot, Shri. Pravin Kumar
Bhatt and Arun Kuksaal.
- World Skills Report, World Bank
- Human Resource Requirements Sectorial Studies, NSDC.
- District-wise Skill Gap Study for the State of Uttarakhand (2017- 2022), NSDC

Baseline Round Table Conference - A Baseline Round Table Conference, The Conference was organised on 8th December 2017 at Dehradun by PHDCC. The Objective of the conference was to introduce the study and engage the various stakeholders to invite their views and inputs towards formation of focus groups and validating ideas for execution.

Data Collection - In-depth Interview with

- District Magistrates,
- Members of the DIC,
- Corporate employees,
- Industry Associations,
- NGOs working in defined area and also with people who have familiarity with the focus regions
- skill practitioners.

In a few cases where a group of practitioners were found together focus group discussions were also conducted with 4-6 respondents

Analysis – The relevant raw data collected from the activities mentioned above was triangulated to arrive at the Skill Gap in the state. Respondents were asked to explain the nature of work, challenges faced, current state of affairs and skill interventions that could positively impact the different skills.

Methodology

Basis the survey objectives and the available secondary data a primarily qualitative research design, backed by the quantitative data was utilized for the study. The discussion guidelines were prepared basis the available industry knowledge to focus and deep dive on the skill requirements and map the current and projected numbers and requirements. This has been done in keeping with the practices of other skill gap studies and further fine-tuned to incorporate quantitative understanding wherever relevant

- **Hybrid assessment:** Qualitative assessment is focused on understanding how people make meaning of and experience their environment or world. Different from quantitative research, qualitative research employs the researcher as the primary means of data collection (e.g., interviews, focus groups, and observations. Also unlike quantitative research, the qualitative approach is inductive in nature, leading to the development or creation of a theory rather than the testing of a preconceived theory of hypothesis. The application of the methods themselves can yield very rich findings for outcomes-based assessment however it is important to note then that when applying qualitative methodology to outcomes-based assessment, you are not fully using an inductive approach because you are using the methodology to determine whether an intended outcome has been identified. Therefore, in order to correct the inductive bias a numbers backed discussion guideline was created and used for the study 22 SKILL GAP ANALYSIS FOR RELEVANT SKILLS OF UTTARAKHAND

- **Sampling Methodologies:** A purposeful sampling methodology was used for the survey and the following techniques were used: Expert Sampling : It is the most common sampling strategy. In this type of sampling, participants are sought based on pre-selected criteria. In our Case we have identified respondent's basis:

- *Number of years of engagement with the skill*
- *Whether earning a livelihood through the skill* – The Intention was to identify experts who engage and practice the skill in the normal course of business.

Methodology

- **Snowball Technique:** It is also known as chain referral sampling. In this method, the participants refer the researcher to others who may be able to potentially contribute or participate in the study. This method often helps researchers find and recruit participants that may otherwise be hard to reach. For the purposes of our studies we have used the following reference points to qualify our respondents:
 - i. • Uttarakhand Shilp-Ratna Awardee
 - ii. • PHD Chamber of Commerce and Industry Member
 - iii. • PHD Chamber of Commerce and Industry Member Reference
 - iv. • Directorate of Industries reference
 - v. • Members of other Recognized Associations, SIIDCUL, Pharma City, etc.

- **Influencers Sampling:** To gain holistic understanding influencers from government and industry were also interacted with, who helped focus on the broader trends, numbers and skilling requirements. These included
 - I. • Gov. representative
 - II. • NGOs • HR and operations managers
 - III. • University professors
 - IV. • Industry associations

- **Quota Based Sampling:** Further in order to collect in depth information and at the same time optimizing the number of interviews, a quota based sampling technique was arrived at. The quotas were defined basis the size of the industry, complexity (types within) as well as the availability of organized and trustworthy data. At an overall level a minimum of 5 samples per SSC was aimed at , however in case of SSCs where traditional skills are involved a minimum of 10 samples were achieved in order to make up for the lack of organized data

Our Approach

Skill Gap Analysis-Relevant skills

The current study has adopted the following approach:

- The Demand for Primary Secondary and Tertiary Sectors basis the current employment numbers of DIC, SIDCUL and the industry practitioners met during the course of the study;
- Further the projections have been made basis:
 - The understanding of the replacement behaviour for separating workforce;
 - Expansion plans of the existing units;
 - New set ups coming up in the state;
 - The State of the Art of the Traditional Skill and its market;
 - The Possible alignments of craft clusters with the Industries

Skill Gap Analysis-Traditional Skills

The identification and evaluation of Traditional Skills requires a three-dimensional understanding.

- The State of the Art of the Traditional Skill and its market;
 - The Possible alignments of craft clusters with the Industries
- The Gap between the current State-Of-The-Art of the skill being practiced in the conventional market and the possible new alignments to harness the opportunities in the potential markets;

Analysis basis the above framework was mapped against the existing NSQF levels, NOS codes and QPs to arrive at the skill gaps for each of the scalable traditional skills

The Study

Secondary Research & Baseline Round Table Conference

• **Literature and Data Gathering** - A wide variety of literature has been referred to pin down the precincts of the study. Various economic surveys of the Central and State government have been analyzed to identify the demand and supply of skilled labour. A special mention of the following literature is warranted:

- 6th Economic Survey of the State of Uttarakhand, 2013
 - Economic Survey and State Budget Notes, 2017-18
 - Uttarakhand ke Shilpkaar by Shri Chaman Lal Pradyot, Shri. Pravin Kumar Bhatt and Arun Kuksaal
 - World Skills Report, World Bank
 - Human Resource Requirements Sectorial Studies, NSDC.
 - District-wise Skill Gap Study for the State of Uttarakhand (2017-2022), NSDC
- **Baseline Round Table Conference** - A Baseline Round Table Conference, The Conference was organized on 8th December 2017 at Dehradun by PHDCCI. The Objective of the conference was to introduce the study and engage the various stakeholders and invite their inputs. The Attendees included representative from the planning commission, Skill Development, PHDCCI, Shri Chaman Lal Pradyot ji, Manjusha ji, and other notable NGOs from the state of Uttarakhand.

The Data Dimensions

Data relating to the Skills of the state is multi-dimensional and dynamic. It is therefore important that the dimensions are anchored to certain precincts to help build a macro level understanding of the scheme and flow of trends. The preceding steps of the study provided the following coordinates for data universe spread across Uttarakhand.

- **Traditional & Industrial Dimension:** The Various Sectorial Skill Councils have enlisted both Traditional and Industrial Skills in the various job categories and job roles. SSCs have not made any distinction between traditional and industrial jobs. In line with the objectives of the study a distinction was required to understand the Traditional Skills not listed in Sectorial Skill Council (SSC) Job Roles. Further, the objective was also to identify the skill development needs & preparing a catalogue of these types of skills, range and depth of skills. It is important to note here that the distinction of these skills was one of the primary steps of the study architecture. Hence, we proceeded by first establishing the ensuing premise for the study.

“Human needs are limited but the alternatives to satisfy them are unlimited. Hence, the traditional and industrial initiatives compete for fulfilling the same set of requirements.”

The Data Dimensions

- **The Geographical Dimension:** The State has two very distinct Geographical terrains, namely, Mountainous and Plains. The distribution of the population is almost equally distributed between the two terrains. For the purposes of this study the districts have been aligned in the following manner:

Mountains	Plains
Tehri - Garhwal	Dehradun
Pauri - Garhwal	Haridwar
Rudraprayag	Udham Singh Nagar
Chamoli	
Uttarkashi	
Nainital	
Almora	
Bageshwar	
Champawat	
Pithoragarh	

- **The Cultural Dimension:** The State of Uttarakhand had two very distinct cultural traditions namely, Kumaon and Garhwal. For the purposes of this study we have used the following:

Garhwal	Kumaon
Dehradun	Nainital
Haridwar	Almora
Tehri-Garhwal	Bageshwar
Pauri - Garhwal	Champawat
Rudraprayag	Pithoragarh
Chamoli	Udham Singh Nagar
Uttarkashi	

Uttarakhand Status & Sector Skill Council (SSC) Perspective



Human Resource Demand by key SSCs

	2017	2022	Incremental growth
Agriculture Skill Council of India (ASCI)	2239460	2365438	125978
Apparel made ups and home furnishing sector skills council	15991	16735	744
Automotive Skills Development Council (ASDC)	302393	389365	86972
BFSI sectoral skill council	37512	49516	12004
Beauty and wellness sector skills council	8598	9842	1244
Capital Goods Sector Skill Council	101786	140077	38291
Electronics Sector Skill Council of India	45985	63090	17105
Food Industry Capacity and Skill Initiative	47195	69703	22508
Furniture and fittings skills council	15416	16252	836
Handicraft & Carpets Sectoral skill council	88896	101416	12520
Healthcare Sector skill Council	3994	5081	1087
IT-ITeS Sector Skill Council	9670	13849	4179
Life sciences sectoral skill development council	15816	25336	9520
Retail Sector Skill Council	217749	227364	9615
Rubber Skill Development Council	6346	12052	5706
Textile Sector Skill Council	29317	39518	10201
Tourism and hospitality Skill Council	307743	318175	10432
Aggregate Total	3493867	3862810	368943

In addition to these, three other SSC also have high requirements. However,

(a) On January 14, 2018, The government has disbanded the Security Sector Skill Development Council

a. Therefore despite significant requirement, the same could not be discussed in this report

(b) The construction industry in Uttarakhand has been growing in an unorganized manner, wherein most of the labour is sourced from U.P, Bihar and Nepal with little or no supply within the state.

Therefore the SSC is not included in this report

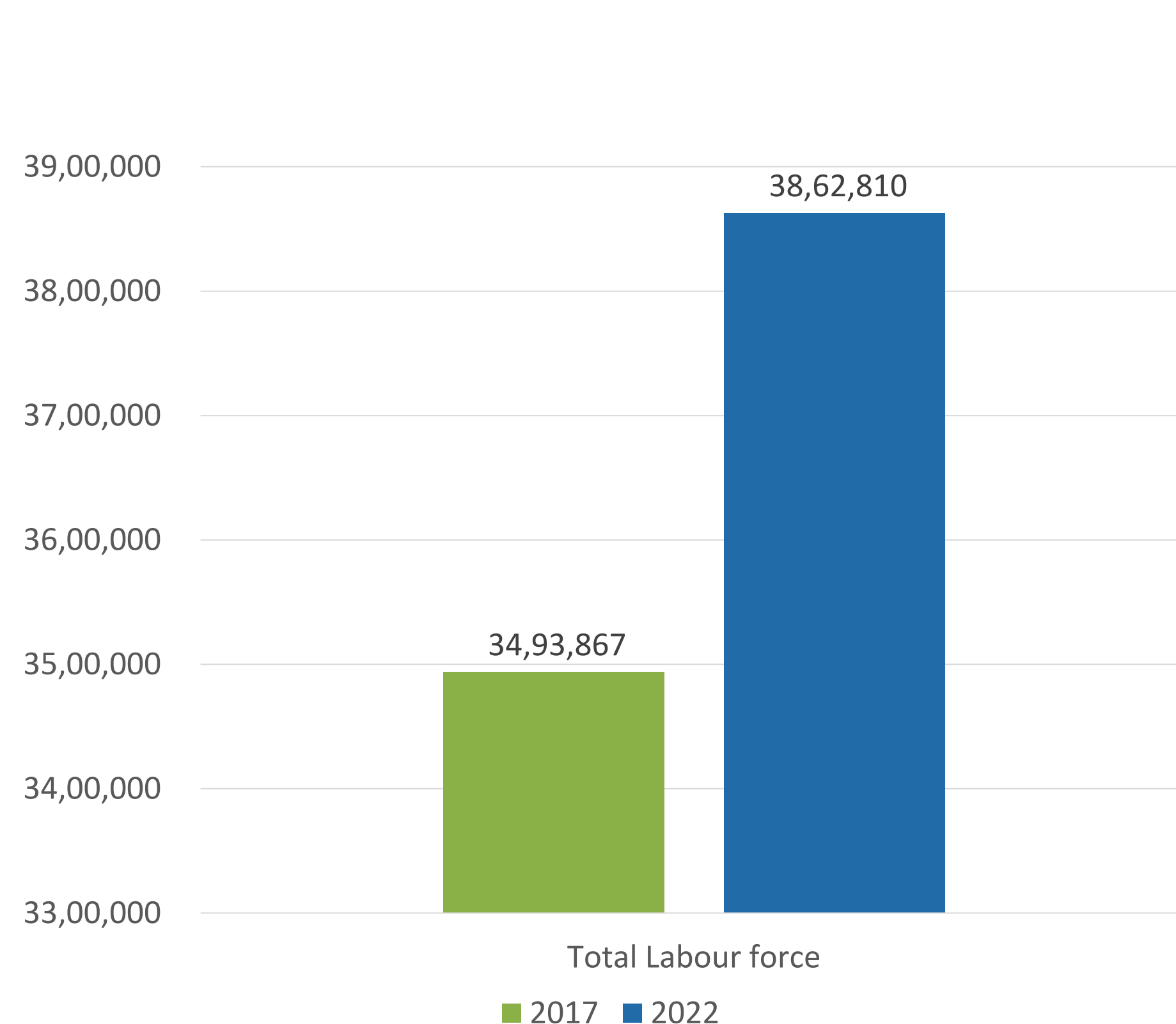
(c) Similarly the Gems and Jewellery sector of the state also have a majority of workers from outside the state with little or no supply from within the state

Human Resource Demand by key SSCs

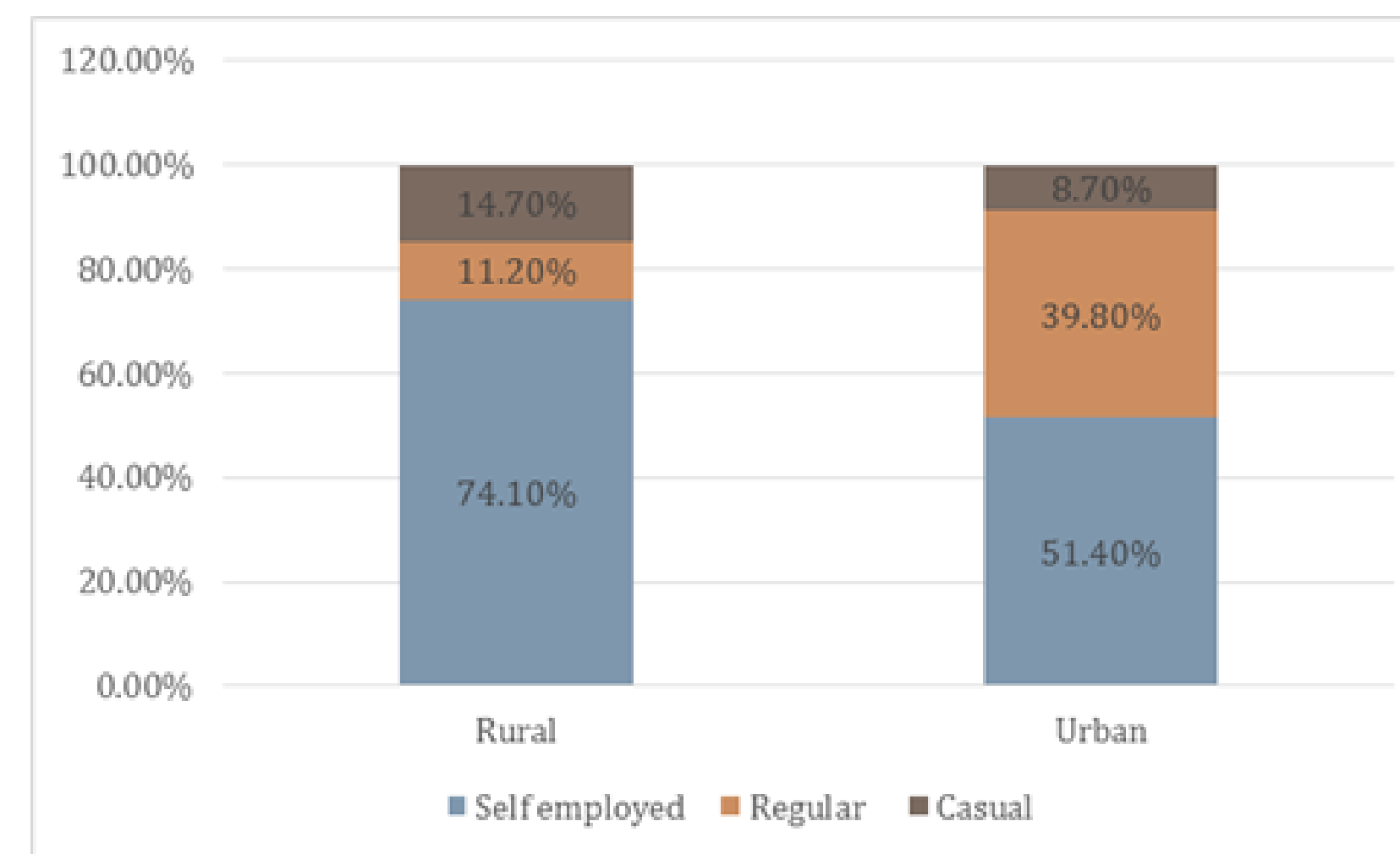
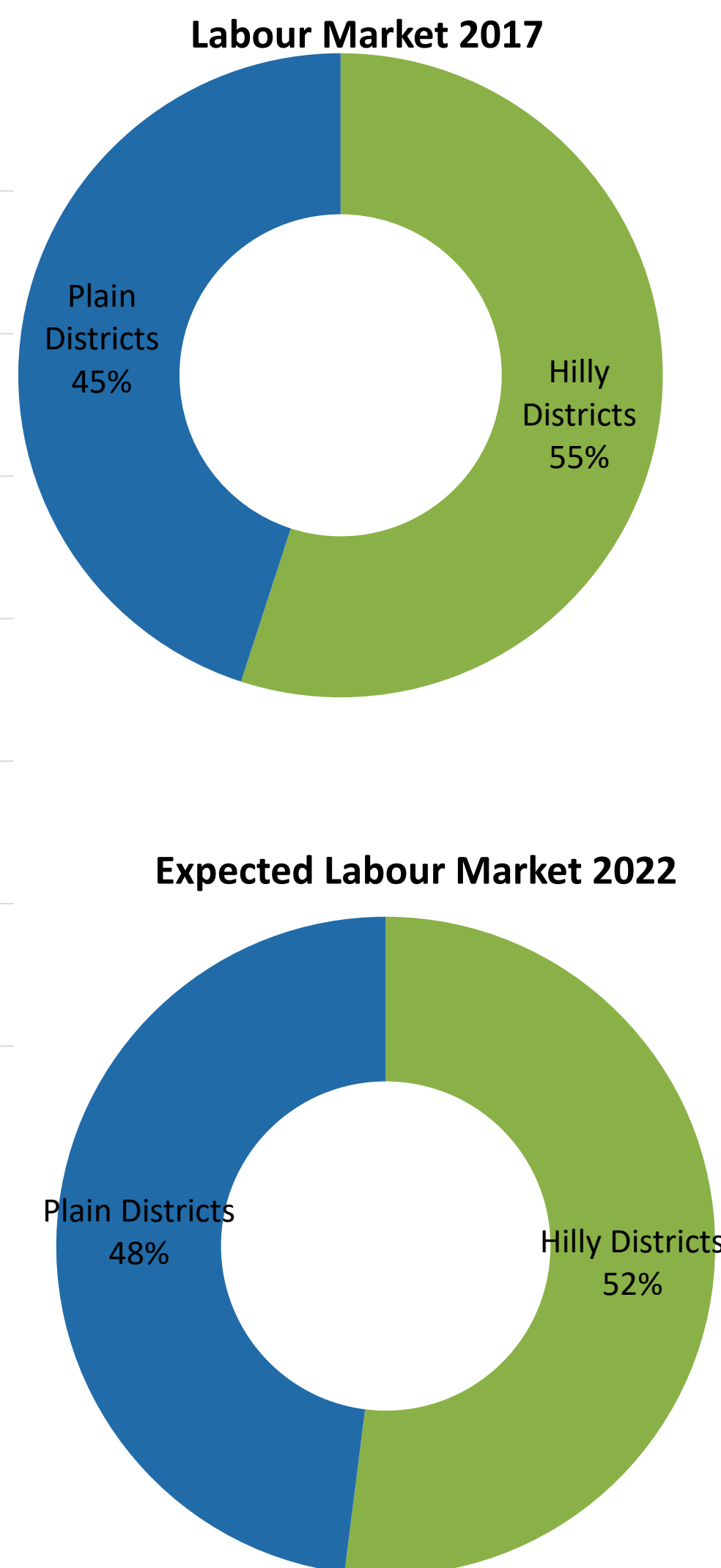
An incremental demand of 3,68,943 across 17 Sectoral Skill Councils within the state is expected to emerge. The following table shows the contribution of these SSCs to the overall job creation

SSC	Contribution to the incremental demand
Agriculture Skill Council of India (ASCI)	34.15%
Automotive Skills Development Council (ASDC)	23.57%
Capital Goods Sector Skill Council	10.38%
Food Industry Capacity and Skill Initiative	6.10%
Electronics Sector Skill Council of India	4.64%
Handicraft & Carpets Sector skill council	3.39%
BFSI Sectoral skill council	3.25%
Tourism and hospitality Skill Council	2.83%
Textile Sector Skill Council	2.76%
Retail Sector Skill Council	2.61%
Life sciences Sector skill development council	2.58%
Rubber Skill Development Council	1.55%
IT-ITES Sector Skill Council	1.13%
Beauty and wellness sector skills council	0.34%
Healthcare Sector skill Council	0.29%
Furniture and fittings skills council	0.23%
Apparel made ups and home furnishing sector skills council	0.20%

Labour Market



As per estimates a total labour force of 38,62,810 is expected to be available by 2022 , a growth of 3,68,943.



Source: 6th Economic Survey

The labour force is informal with dominant self-employment trends ,with regular wage labour forming a minority proportion

Skill Gap- Agriculture Skill Council of India (ASCI)

Agriculture			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	225588	223769	45	
Bageshwar	97647	99561		
Chamoli	130321	133376		
Champawat	71605	75658		
Dehradun	142503	158674	2	
Haridwar	261061	291503	20	
Nainital	210126	229228	0	
Pauri	164513	163186		
Pithoragarh	152836	155833		
Rudraprayag	88819	90217		
Tehri	197937	199508		
Udham Singh Nagar	362686	404978		
Uttarkashi	133818	139947		
Total	2239460	2365438	67	149
5.63 %	Expected Growth	125978	216	

The Sector has the **highest number of unskilled resources**, thus poses a huge area of skilling in innovative ways and techniques of farming and irrigation, to improve yield and save time.

A skill gap of approximately **1,26,000** by 2022 is expected

Skilling focus areas:

- Apple Growing and Pruning Techniques
- Harnessing of Natural Water Streams
- Bamboo and Ringal craft offers employment to thousands, however access to Bamboo is restricted in the forest area, therefore focus on growing **bamboo locally (non forest areas)** should be dealt with in the Bamboo grower NOS.
- Modernization of the sector is urgently required, therefore training on using modern equipment has to be focused upon. Also it would be prudent to encourage diversification in the field.
- In addition to these special modules on the value chain and about integration with other sectors like food processing needs to be introduced

- NOTE:
- A substantial proportion of the agricultural workers (Cultivators & Agricultural Workers alike) pursue other jobs during lean seasons during the year.
 - A large proportion of the population is mobile and travels to the plains and other bigger cities for short duration employment and then return during the sowing and harvesting seasons.
 - A lot of farmers have taken to Horticulture especially growing of Apples in the higher altitudes in the past few years that are unaccounted for currently.

Agriculture Job Roles Specific to Uttarakhand

Sector Skill Council	Domain	Job Roles/QPs	Occupational Standards (OS)	Qualification
Agriculture	Apple Farming	Apple Grower	Apple Orchard making	No entry barrier, 5th standard passed preferable
			Apple Tree Pruning Technique	No entry barrier, 5th standard passed preferable
	Land Preparation	Making Step - Farms in Hilly Terrain	Understanding and choosing the Slopes and Soil that could be used for Agriculture	No entry barrier, 5th standard passed preferable
			Digging and Leveling Techniques	No entry barrier, 5th standard passed preferable
			Maintaining the Farms during various Seasons	No entry barrier, 5th standard passed preferable
	Irrigation	Making Irrigation Canals in Hills	Understanding the Flow of Water	No entry barrier, 5th standard passed preferable
			Building Canals on slopes (Designing Irrigation and Drainage Systems)	No entry barrier, 5th standard passed preferable

Skill Gap- Apparel made ups and home furnishing sector skills council

Apparel & Furnishing			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	459	473	0	
Bageshwar	280	288		
Chamoli	709	730	2	
Champawat	394	406	0	
Dehradun	5075	5229	38	
Haridwar	2093	2268	17	
Nainital	463	477	0	
Pauri	1148	1183	28	
Pithoragarh	648	785	6	
Rudraprayag	642	661	0	
Tehri	2799	2884	24	
Udham Singh Nagar		11	34	
Uttarkashi	1281	1339	19	
Total	15991	16735	168	1050
4.65 %	Expected Growth	744	1218	

We expect the employment in the sector to grow by 4.65% till 2022. While the skilling training level is higher than the incremental demand, training needs to be provided across the districts and not limited to few

Training penetration in Nainital, Rudraprayag, champawat, bageshwar and Almora is negligible in this sector, thus need for centers and focus in these, while the expected growth locally is marginal the sector has significant demand and growth in the national market, therefore the growth prospects are multifold.

Integration of **local art forms in Apparel and made** ups will be beneficial to both the handicrafts as well as the Apparel sector. Therefore courses on local art form in terms of training could be looked at

Apparel made ups and home furnishing sector skills council Job Roles Specific to Uttarakhand

The Apparels and Made-ups have a very strong traditions In Uttarakhand. Though Traditional Apparels like Bididi, Pichora, dhantu (scarf), etc., have been losing out to modern attire but the Traditional Designs of Aipan have remained in vogue.

Sector Skill Council	Domain	Job Roles/QPs	Occupational Standards (OS)	Qualification
Apparels Made-up & Home Furnishing	Aipan	Aipan - Block Printing	Aipan Block Making	Preferably, Standard XII
		Aipan - Fabric Painting	Aipan Painting on Fabric	Preferably, Standard XII
		Hand Embroiderer	Aipan Embroidery	Preferably, Standard XII

Skill Gap- Automotive Skills Development Council (ASDC)

Automotive			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	2419	3181	20	
Bageshwar	1988	2605		
Chamoli	2294	3035	19	
Champawat	2176	2822	19	
Dehradun	21487	27994	61	
Haridwar	66914	86116	58	
Nainital	3604	4736	16	
Pauri	3280	4284	60	
Pithoragarh	1560	2058	41	
Rudraprayag	2632	3466		
Tehri	4154	5535	19	
Udham Singh Nagar	187330	240165	43	
Uttarkashi	2555	3367	0	
Total	302393	389365	356	240
22%	Expected Growth	86972	596	

An additional employment expectation of approximately **87000** by 2022.

Automotive Manufacturing

Key skills on which training is required:

- CNC operator
- Plastic Moulding Operator
- Welding Technician
- Automotive painting Technician
- Auto Body technician
- Automotive electrician

Commercial Drivers

- Commercial Vehicles Driver
- Taxi Driver for both App-Based & Solicitation
- Service Advisor
- Service technician 2 wheelers

Automotive Sector Occupational Standards Specific to Uttarakhand

In Uttarakhand, 10 out of the 13 districts have mountainous terrain. The 3 districts in the plains are connected by Rail, Road and Air routes. However, the rest of the districts are only connected through road. Hence, the Commercial Driver community becomes the lifeline for the State. Further, the drivers in the state need to have a specific set of skills that help them drive through forests, snow and water streams.

Sector Skill Council	Domain	Job Roles/QPs	Occupational Standards (OS)	Qualification
Automotive	Drivers - Commercial Vehicles		Mountain Driving - including driving through forests without disturbing the wildlife;	Preferably, 8th Standard
			Navigating through Snow tracks and water streams;	Preferably, 8th Standard
			Rescue drills in case of fall of vehicles into Mountain Slopes, Gorges, etc;	Preferably, 8th Standard
			Survival Techniques for both climate and medical emergencies	Preferably, 8th Standard

Skill Gap- BFSI sectoral skill council

BFSI			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	2904	3833	42	
Bageshwar	973	1284	0	
Chamoli	1616	2133	26	
Champawat	1052	1389		
Dehradun	8282	10932	118	
Haridwar	4237	5593	93	
Nainital	4099	5411	36	
Pauri	3107	4101	70	
Pithoragarh	1866	2464	23	
Rudraprayag	872	1151	0	
Tehri	2247	2966	52	
Udham Singh Nagar	5273	6960	104	
Uttarkashi	983	1298	0	
Total	37512	49516	564	425
32 %	Expected Growth	12004	989	

An additional employment of approximately **12000** by 2022 is expected

Banking, Finance and Insurance is one of the fastest growing sector and contributes highly in the economy and have witnessed positive employment in the sector, employing over 37512 resources in the state, with a significant growth prospects (32%).

Key skills on which training is required:

- Business Correspondents
- Life Insurance Agent
- Mutual Fund agent
- Account Executive
- GST Accountant
- Microfinance Executive

Apart from the above, Crop insurance is a very important role that will be dominant in the coming days. However, currently no QPs are available for the following roles:

- Crop Insurance Executive
- CCE Executive
- Crop Loss assessor

Skill Gap- Beauty and wellness sector skills council

Beauty & Wellness			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	595	617		
Bageshwar	245	260		
Chamoli	467	508		
Champawat	270	296		
Dehradun	1655	1891	20	
Haridwar	2053	2773		
Nainital	878	981		
Pauri	604	619		
Pithoragarh	535	576		
Rudraprayag	269	290		
Tehri	664	708		
Udham Singh Nagar	315	1729		
Uttarkashi	1604	449		
Total	10154	11697	20	1248
14.47 %	Expected Growth	1244	1268	

The Beauty and Wellness Sector Skill Council assumes great importance for Uttarakhand. The State is a destination of choice for health and wellness seekers. The State is a Treasure Trove for Himalayan Beauty herbs and Practices.

The Present set of Occupational Standards for beauty and wellness are very generic in nature. The State Specific knowledge and practices have not found space in the curriculum. It is imperative that UKSDM takes up the task of harnessing these opportunities.

Beauty and Wellness Sector Job Roles Specific to Uttarakhand

Yoga and Ayurveda are two sectors which are **perceptually dominated** by the state, however have **low participation of the locals**. This is a concern area that needs to be addressed urgently. Further details on the same are provided in the traditional skills sector.

Sector Skill Council	Domain	Job Roles/QPs	Occupational Standards (OS)	Qualification
Beauty and Wellness	Yoga		Foreign Language Skills	Graduate Preferably
			Internet Marketing Skills	Graduate Preferably

Skill Gap- Capital Goods Sector Skill Council

Capital Goods			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	425	443	45	
Bageshwar	222	270		
Chamoli	225	234		
Champawat	404	422		
Dehradun	8227	12467	2	
Haridwar	41003	52007	20	
Nainital	4761	6722	0	
Pauri	2063	4572		
Pithoragarh	535	629		
Rudraprayag	412	424		
Tehri	997	1811		
Udham Singh Nagar	42175	59728		
Uttarkashi	337	347		
Total	101786	140077	67	99
37.62 %	Expected Growth	38291	166	

An additional employment of approximately **38000** by 2022 is expected

Key skills on which training is required:

In Heavy and Medium industries:

- Welders (Including SMAW, FCAW,MIG,GTAW)
- Fitters
- Machine operator (Including CNC Machine Operator and Programmer)
- Painters (Metal Spray, Machine &Manual)
- Semi-Skilled

In the Small and Micro Organization

- Sheet Metal Worker - Hand Tools and manually operated machines
- Service Engineer – Installation & Break Down
- Tool and Die Maker
- Grinder Hand tools Handheld Power Tools
- Semi-skilled

There is a need for good number of workers in the manufacturing segment to manage and service machineries and equipment's, all the registered institutions has a huge role to play to skill and train as many resources it can, as the current numbers are almost negligible.

Skill Gap- **Electronics Sector Skill Council of India**

Electronics			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	5350	5519	74	
Bageshwar	234	241	15	
Chamoli	220	227	55	
Champawat	196	202	61	
Dehradun	5360	5576	531	
Haridwar	18732	31575	111	
Nainital	816	2329	1283	
Pauri	2438	2512	265	
Pithoragarh	327	337	68	
Rudraprayag	285	294	39	
Tehri	638	666	97	
Udham Singh Nagar	10994	13206	176	
Uttarkashi	395	407	41	
Total	45985	63090	2816	568
37.20	Expected Growth	17105		3384

There is a huge demand in the sector, with more than 17000 resources needed in the next 5 years, and requires exponential supply from the training institutes. A better district level planning needs to be put in place to optimize the skilling output

Key skills on which training is required:

- Field Technician – Networking and Storage
- Field Technician – Computing and Peripherals
- Field Technician – Other Home Appliances
- Mobile Phone Hardware Repair Technician
- DTH Set Top Box Installation & Service Technician
- Data Networking and Cable Technician
- Field Engineer –RACW
- Domestic Electrician
- Electrical Technician
- Mechanical Fitter
- Field Technician – UPS and Inverter
- Wireman – Control Panel

The SSC also needs to work with the Automotive Skills Development Council (ASDC) closely in order to identify overlaps in form of training and optimize the output

Skill Gap- Food Industry Capacity and Skill Initiative

Food Processing			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	1224	1375		
Bageshwar	763	797		
Chamoli	1114	1149		
Champawat	1427	1739		
Dehradun	3711	4171	82	
Haridwar	10954	12840		
Nainital	2546	4314		
Pauri	2165	2838		
Pithoragarh	987	1200		
Rudraprayag	921	951		
Tehri	2047	5824		
Udham Singh Nagar	18395	31178		
Uttarkashi	941	1326		
Total	47195	69703	82	358
47.69 %	Expected Growth	22508		440

An additional employment of approximately **22000** by 2022 is expected.

Key skills on which training is required:

- Dehradun Bakery Cluster → Mixing technicians and Plant biscuit production specialist
- Nainital, U.S Nagar, Haridwar → Fruit ripening technician, Fruits & Vegetables, Drying technician, Fruit & vegetable canning technician and Fruit & Vegetable selection in charge
- Across Uttarakhand → Dairy product processor, dairy processing equipment operator, butter and ghee processing operator, icecream processing technician, cottage cheese maker, milling technician, grain mill operator, traditional snacks and savoury maker, convenience food maker, pickle maker technician, squash and juice processing technician, jam jelly and ketchup processing technician, food products processing technician , modified atmosphere storage technician

With the make in India focus, and growing market of organic food and products, the sector has guaranteed growth prospects and need for employment, mainly into fruits, vegetables and dairy products. There is huge gap between the demand and supply in the segment and requires radical move to bridge it.

Food Processing Job Roles Specific to Uttarakhand

The Himalayas are home to some of the finest fragrances and flavours on Earth. There is a huge potential for these fragrances and flavours in Indian and internal Markets. The Food Processing Skill Council as of now has no Occupational Standards addressing these opportunities.

One of the strong food traditions of the Hills is Heritage Wines. The State has been brewing Soor, a local Wine, for hundreds of years. However, the State has to be cautious with the unregulated manufacture of these wines.

Sector Skill Council	Domain	Job Roles/QPs	Occupational Standards (OS)	Qualification
Food Processing	Fragrances &Flavours	Fragrances Extraction - Specialist	Fragrances Extraction Techniques from Himalayan Flowers	No entry barrier, 5th standard passed preferable
	Fragrances &Flavours	Flavours Extraction - Specialist	Grinding and Storing Techniques for Himalayan Spices	No entry barrier, 5th standard passed preferable
	Brewery	Heritage Wine Brewer - Soor	Brewery Techniques	Graduate Preferably

Skill Gap- Furniture and fittings skills council

Furniture & Fitting			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	496	511		
Bageshwar	223	230		
Chamoli	601	619		
Champawat	224	259		
Dehradun	2763	2847	16	
Haridwar	3381	3483		
Nainital	1313	1380	0	
Pauri	996	1109	0	
Pithoragarh	308	526		
Rudraprayag	741	763		
Tehri	1532	1578		
Udham Singh Nagar	1088	1143		
Uttarkashi	1750	1803		
Total	15416	16252	16	90
5%	Expected Growth	836	106	

At the current level of training , the demand in this sector **can be met**

Key skills on which training is required:

- Carpenter wooden furniture
- Sofa maker
- Cane seat weaver
- Lead furniture maker (bamboo)
- Assembler modular furniture
- Fitter-modular furniture
- Cabinet maker-Modular furniture- Kitchen
- Lead interior designer

Relevant training needs to be done across the state and should not be limited to certain districts

Skill Gap- Handicraft & Carpets Sectoral skill council

Handicrafts			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	3010	3564		
Bageshwar	7095	8248		
Chamoli	2879	3113		
Champawat	2504	2876		
Dehradun	17385	19881		
Haridwar	1915	2083		
Nainital	16477	18810		
Pauri	9391	10594		
Pithoragarh	5885	7113		
Rudraprayag	1946	2193		
Tehri	2219	2525		
Udham Singh Nagar	14670	16505		
Uttarkashi	3520	3911		
Total	88896	101416	0	0
14%	Expected Growth	12520	0	

Biggest traditional segment and window to exhibit state's cultural heritage, expected to provide employment to 12500 plus resources in the next 5 years

Organized and sustained training in this sector needs to be introduced, as it is more of a traditional and inherited art form, with great prospects,

The State has displayed strength in the following crafts:

- Aipan based Products
- Bamboo & Ringal
- Copper Craft
- Iron Craft
- Wood Craft

Note: More details in the Traditional sector

Skill Gap- Healthcare Sector skill Council

Health			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	411	527		
Bageshwar	159	205		
Chamoli	278	344		
Champawat	118	150		
Dehradun	434	561	391	
Haridwar	477	592		
Nainital	754	986	1167	
Pauri	330	418	0	
Pithoragarh	364	463		
Rudraprayag	116	144		
Tehri	158	195		
Udham Singh Nagar	180	233	62	
Uttarkashi	215	261		
Total	3994	5081	1620	323
27 %	Expected Growth	1087	1943	

The Heath Services are depended on Medical and Paramedical Staff. From the point of Skilling Program the Paramedical staff assumes great importance.

Further, we have interviewed the Private Hospitals and they have informed that they have tie-ups with Nurses and Ward Boy Training centers

Need more beds and centers for Ayurvedic treatment, and high numbers of trained medical staff and doctors in the next 5 to 10 years to meet the growing demand locally, nationally and internationally.

Healthcare is one of the most promising sector, with a shift of focus towards Ayurvedic and Naturopathy, with the advent of science and technology, the sector is expected to generate over 7000 resources in the next 5 years (16.41% Expected Growth).

Skill Gap- IT-ITES Sector Skill Council

IT & ITES			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	146	209		
Bageshwar	157	225	5	
Chamoli	233	334		
Champawat	171	245		
Dehradun	5256	7527	79	
Haridwar	659	944	0	
Nainital	287	411	7	
Pauri	521	746	159	
Pithoragarh	142	203		
Rudraprayag	161	231		
Tehri	419	600	32	
Udham Singh Nagar	1241	1777	72	
Uttarkashi	277	397	0	
Total	9670	13847	354	343
43.2	Expected Growth	4177	697	

The organized IT and ITES employment is concentrated in the Dehradun. The training pace is in sync with the demand requirement of the state and should be able to meet/come close to the incremental demand in the next 5 years

Key skills on which training is required for the following products :

- CRM Domestic Voice
- CRM Domestic Non-Voice
- Desktop Publisher
- Hardware Engineer
- Software Engineer
- Web Developer

With the huge focus on digital India campaign, we have seen sporadic but relevant initiatives being taken in the state. Specially in the field of Rural BPOs that have began. The state has an inherent advantage owing to high literacy rates and a very soft and welcoming nature of the people to take up these jobs.

Skill Gap- Life sciences sectoral skill development council

Life sciences			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora				
Bageshwar				
Chamoli				
Champawat				
Dehradun	3274	3827		
Haridwar	8520	15920		
Nainital		170		
Pauri	357	1120		
Pithoragarh				
Rudraprayag				
Tehri		13		
Udham Singh Nagar	3665	4287		
Uttarkashi				
Total	15816	25336		55
60.20%	Expected Growth	9520	55	

Since the state is a manufacturing hub of pharmaceutical products most of the employment opportunities arise in the field are for persons who have a science background and understand chemicals. With a strong educational infrastructure , posing an opportunity of 60.2% employment growth in the next 5 years

Key skills on which training is required for the following products :

- Production/ Manufacturing Chemist – Life Sciences
- Production Manufacturing Biologist
- Production/Machine Operator – Life Sciences
- Fitter Mechanical – Life Sciences
- Medical Sales Representative – Life Sciences
- Medical Store Sales Entrepreneur – Life Sciences

Pharma has the key focus and need to be pushed to bridge the gap, the training institutions are not been able to provide enough skilled pharmacist and machine operators in the state, creating a huge gap in the sector

Skill Gap- Retail Sector Skill Council

Retail			Trained Resources (2016-17)	
Districts	2017	2022(Future)	ITI	PMKVY
Almora	9057	9021		
Bageshwar	3747	3784		
Chamoli	6644	6723		
Champawat	5171	5319		
Dehradun	53887	57034		
Haridwar	50057	53063		
Nainital	20438	21389		
Pauri	10462	10420		
Pithoragarh	8622	8707		
Rudraprayag	3233	3259		
Tehri	7457	7487		
Udham Singh Nagar	34789	36878		
Uttarkashi	4183	4280		
Total	217749	227364		516
4.42%	Expected Growth	9615	516	

Retail sector is the among the largest employer in the state after agriculture. Due to the very nature of the trade the sector is all pervasive and is present in every place of settlement of the state. Predominantly, the entire sector is dominated by “Sasta Galla” Shops which sell items sourced from FMCG companies and local producers.

Key skills on which training is required for the following products :

- Individual Sales Professional
- Business Builder/Retailer
- Retail Sales Associate
- Retail Team Leader
- Cashier
- Self-employed e-tailer

The above mentioned job roles will need to be focused upon by the skilling bodies, with special focus on two job roles which has application outside the retail Sectoral skill council. Job roles ‘Individual sales professional’ and ‘Self-employed e-tailer’ are two job roles which will be relevant to self-employed individuals in other sectors like Handicrafts , Tourism etc.

- One of the primary requirements of the retail business is to manage inventory and in some cases of different categories. Therefore a module on inventory management needs to be developed exclusively for the retail sector. The same needs to be developed basis for different categories and sizes
- Self-employed retailers form approximately 70% of the retail human resource requirement, therefore suitable courses based on entrepreneurship and business growth are strongly recommended.

Skill Gap- Rubber Skill Development Council

Rubber			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	5	5		
Bageshwar	21	22		
Chamoli	40	41		
Champawat	56	58		
Dehradun	218	225		
Haridwar	3942	5344		
Nainital	30	31		
Pauri	26	27		
Pithoragarh	12	12		
Rudraprayag	16	16		
Tehri	45	106		
Udham Singh Nagar	1908	6137		
Uttarkashi	27	28		
Total	6346	12052	0	0
89.91%	Expected Growth	5706		0

An Additional Employment of 5700 people is expected by 2022.

Key skills on which training is required for the following products :

- Bead Room Operator
- Assembling & curing Operator – Footwear & Sports Good
- Building Operator – Hoses
- Building Operator-Cables
- Building Operator-Rubber Roller
- Tyre Retreading - Building & Curing Operator
- Building Operator-V belts for Transmission
- Autoclave Operator
- Solid Tyre Moulding Operator
- Tyre Balancing Operator
- Radial Building Operator
- Pneumatic Tyre Moulding Operator

The Rubber Skill Development Council is intrinsically linked with the Auto industry and is of prime importance to the state. Therefore the training goals could be set jointly

- Urgent training requirement exists in the sector and therefore suitable modules of the above mentioned job roles should be incorporated across all the training institutions
- Repairers of tire form a large part of the human resource requirement in the sector, however no job roles under the SSC is currently available on the same
 - The training needs to focus on modern tools and techniques to be able to repair faster and better

Skill Gap- Textile Sector Skill Council

Textile			Trained Resources (2016-17)	
Districts	2017 (Current)	2022(Future)	ITI	PMKVY
Almora	1753	2185		
Bageshwar	632	788		
Chamoli	1679	2093		
Champawat	660	823		
Dehradun	3733	5832		
Haridwar	5961	7455		
Nainital	1161	1511		
Pauri	333	461		
Pithoragarh	2443	3049		
Rudraprayag	168	210		
Tehri	313	404		
Udham Singh Nagar	8814	12633		
Uttarkashi	1665	2075		
Total	29317	39518		624
34.8%	Expected Growth	10201		624

The Textile Sector has been earmarked as the area of priority of growth by the Government of Uttarakhand. The State has announced the development of a Mega Textile Parks at Sitargunj and Jaspur, Udham Singh Nagar, to promote the sector. The cluster will essentially cater to Cotton and Polyester yarn manufacturing, Cloth weaving and processing. The announcement has generated a lot of enthusiasm in the industry

Key skills on which training is required for the following products :

- Speed Frame Operator – Tenter & Doffer
- Fitter – Post Spinning
- Fitter – Ring Spinning
- Shuttle less Operator –Air jet, Projectile, Rapier
- Fitter – Spinning/Weaving Preparatory
- Powerloom Operator
- Shuttle less Weaver – Air jet, Projectile, Rapier
- Fitter - Knitting Machine
- Knitting Machine Operator – Circular,
- Two shaft Handloom Weaver
- Jacquard weaver Handloom
- Handloom Entrepreneur

With a rapid growth of the textile sector, urgent training requirement exists in the sector and therefore suitable modules of the above mentioned job roles should be incorporated across all the training institutions

Modernization in the sector , especially amongst the traditional practitioners strongly required

A large number of practitioners in this segment are self-employed and should therefore be trained on managing business as well as on selling skills

Skill Gap- Tourism and hospitality Skill Council

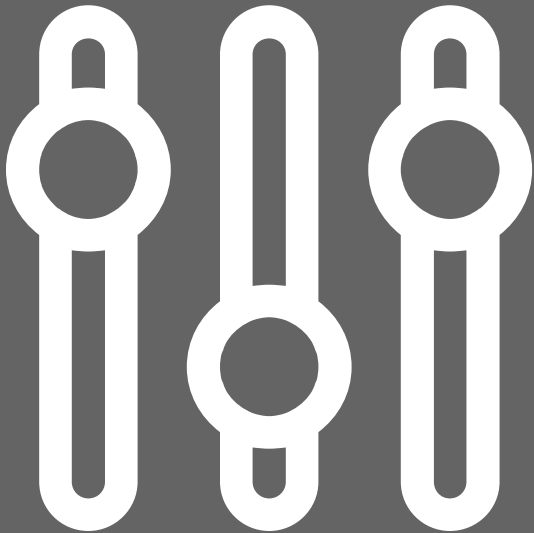
Tourism & Hospitality			Trained Resources (2016-17)		
Districts	2017 (Current)	2022(Future)	ITI	PMKVY	Hotel Management
Almora	13658	14072			
Bageshwar	3603	3712			
Chamoli	25272	26038			
Champawat	4121	4246			
Dehradun	50594	52127			
Haridwar	58984	60771			
Nainital	35833	38026			
Pauri	15865	16346			
Pithoragarh	7106	7321			
Rudraprayag	23214	23917			
Tehri	32172	33147			
Udham Singh Nagar	6472	6668			
Uttarkashi	30849	31784			
Total	307743	318175	1262		
3.39%	Expected Growth	10432	1262		

Uttarakhand is Ranked 13th for Domestic Tourist Arrivals and 20th for Foreign Tourist Arrivals. This is very low in comparison to the vast potential of the State.

Key skills on which training is required for the following products:

- Food & Beverage Service – Steward
- Multi-Cuisine Cook
- Street Food Vendor – Standalone
- Front Desk Officer – QSR
- Room Attendant
- Housekeeping Attendant (Manual Cleaning)
- Heli - Ski Guide
- Hot-Air Balloon Guide
- Mountaineering Guide
- Rafting Instructor
- River Rafting Guide
- Trek Coach
- Paragliding Coach
- Water Sport Vehicle Operator
- Tour Guide
- Personality development and soft skills should be available in all front facing job roles
- While nature/eco tourism is a key attraction from Uttarakhand’s perspective, suitable training module for the same needs to be introduced
- Introduction of courses and training on special tour guides like wildlife or religion based needs to be arranged
- Safety training for adventure sports and TOT guidelines

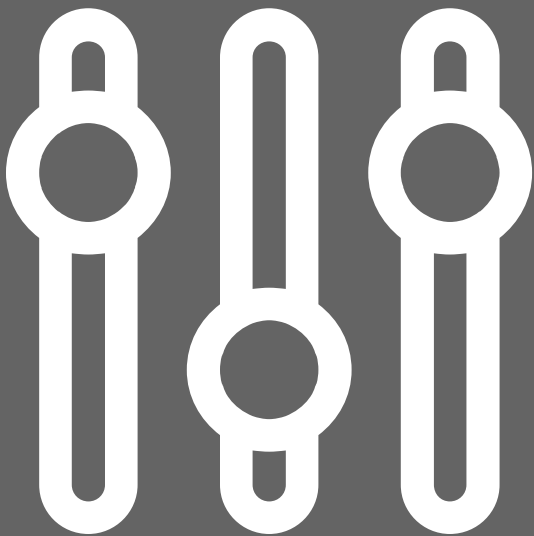
District-Wise Labour Market Supply Projections



District-Wise Labour Market Supply Projections

DISTRICT	2011	2017	2022
Almora	229,967	300,421	379,613
Bageshwar	114,984	150,210	189,807
Chamoli	153,312	200,280	253,076
Champawat	114,984	150,210	189,807
Dehradun	651,574	851,192	1,075,571
Garhwal	268,295	350,491	442,882
Haridwar	728,230	951,332	1,202,109
Nainital	344,951	450,631	569,420
Pitthoragarh	191,640	250,351	316,344
Rudraprayag	76,656	100,140	126,538
Tehri Garhwal	229,967	300,421	379,613
Udham Singh Nagar	613,247	801,122	1,012,302
Uttarkashi	114,984	150,210	189,807
Total	3,832,791	5,007,012	6,326,889

Traditional Skill Filters, Potential for Growth, Employment Generation, Trade Enhancement, Investment Attraction & Perceptual Map



Traditional Skill - Filters

Traditional Skill means the use of elementary tools and a very high degree of human ingenuity to manufacture goods and provide services to the community.

Industrial Skills means the use of best of technologies and logistics developed across the world to manufacture goods and provide services.

We have for the purposes of our study used the following filters to differentiate between traditional and industrial skills:

- **Human Skill:** The Traditional Skills use a lot of ingenuity in the production process. The Industrial Skills are about running and maintaining powerful tools which deliver precision and standardized output.
- **Tools Employed:** The Traditional artisans use elementary tools to complete tasks. They essentially use items that are available locally to operate. The Industrial Units use machines that have been developed in any part of the world to deliver the intended goods and services.
- **Outputs:** The Industrial Outputs are generally standardized and in bulk. The traditional products on the other hand have a very high degree personalization and produced one at a time. It is based on these that the skills practiced in Uttarakhand have been categorized between Traditional and Industrial.

Potential for Growth

The potential for growth for the traditional skills is dependent upon a lot of factors. However for the sake of Simplicity, we have identified the following factors:

- **Degree of Awareness** - High degree of awareness at the local level, however, beyond their areas of influence there is either negligible or no awareness of these Arts & Crafts.
- **Degree of Substitution** – Industrial Alternatives compete with Traditional Skills in the same Market
- **Availability of Raw Material** – The Outputs/Outcomes relied upon availability of raw material. These have been restricted due to over-exploitation, Environmental and Legal reasons.
- **Availability of Financial Support** – The Growth of Traditional Skills has been scuttled owing to the lack of financial support provided by the existing financial infrastructure.
- **Other Factors** – The aforesaid factors identified are a macro level grid to identify the growth potential. However, all skills have unique dynamics which have a very high degree of impact on their growth prospective.

Employment Generation

The Traditional Skills are highly individualistic skills. The barometer for the success of any intervention will clearly reflect in the number of new people joining the skill. In the ensuing section on the findings of Traditional Skills, we have estimated the employment generation for each of the skills under two scenarios, namely,

- **Without Intervention:** This projection is based on the premise of Ceteris paribus, all things remaining equal. In our case, it is assumed that if the current state of affairs continues what will be the status of employment in 2022.
- **With Intervention:** These Projections have factored in the assumption that recommendations made for Growth and Enhancement of each of the Traditional & Relevant skills are implemented. The resulting impacts of these implementations have been studied and presented.

Trade Enhancement

Trade Enhancement is one of the most important Outcomes of interventions recommended. For the Traditional Skills, the Trade Enhancement would be reflected under two metrics:

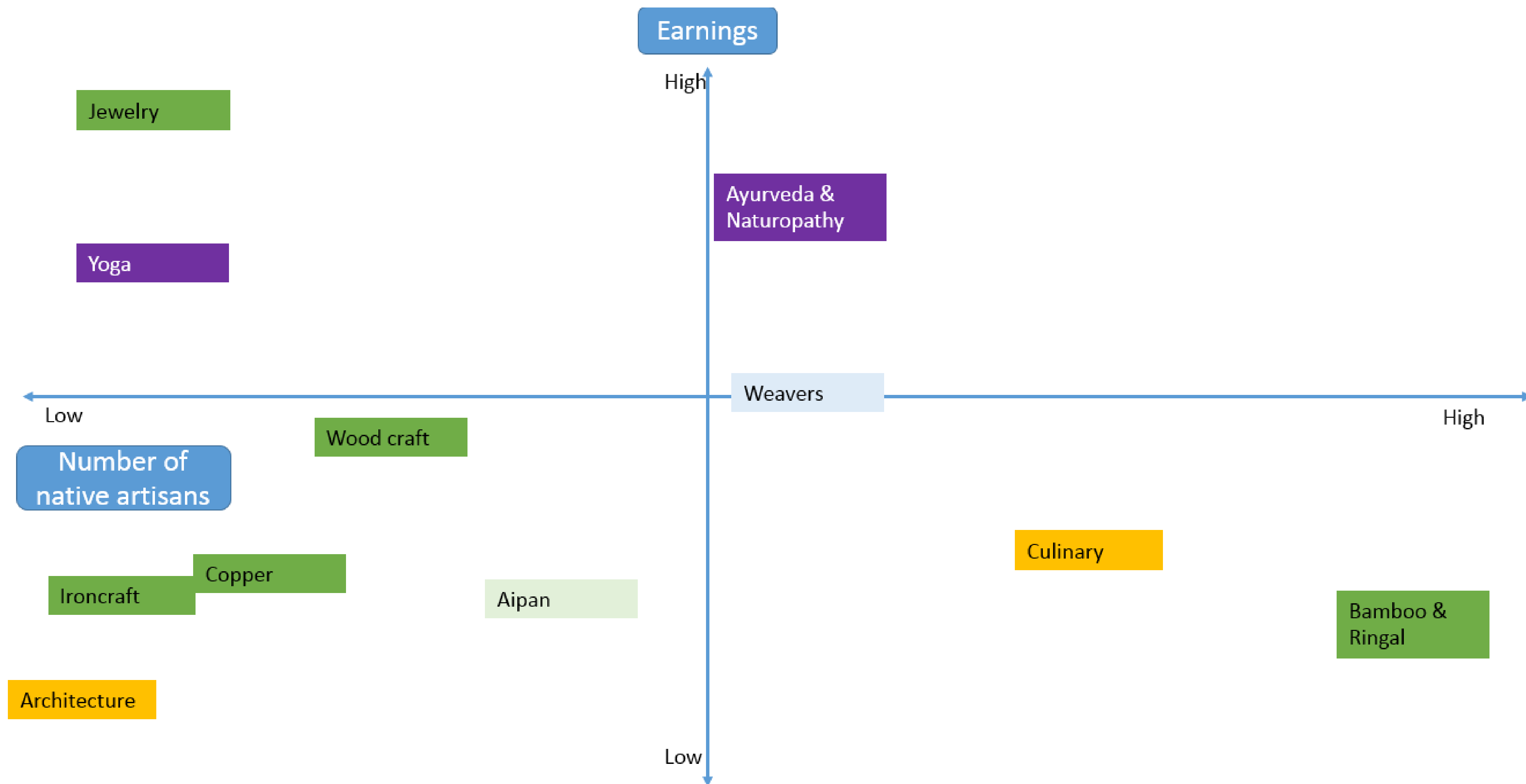
- **Growth in Market Size:** The Expansion of the Market Size will indicate the success of the Interventions. These will be reflected in the rise in the turnover of the sector measured periodically.
- **Rise in Individual Practitioners Incomes:** The rise in the Income Levels of Practitioners income will also capture the qualitative aspects of trade enhancement. Assuming Ceteris paribus, there can be two trends which lead to trade enhancement at the practitioner level:
 - Wherein the existing State-of-the-art is maintained but the number of projects, products, performances, etc., increase;
 - Wherein higher levels of consumer surplus is captured by the Art & Crafts, by significantly increasing the quality of the projects, products, performances, etc;

Investment Attraction

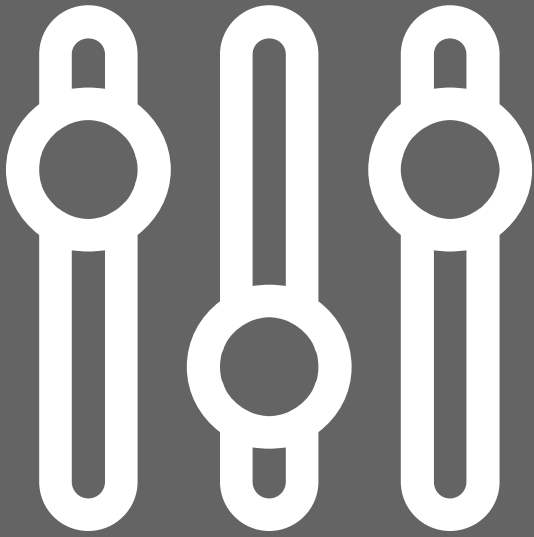
The various Components of Investment Attraction activities as follows:

- **Mapping the Status Quo** – Mapping the current status of Skilling;
- **Understanding the Desirable State** – Setting forth the Vision for Skilling and Establishing Periodic Targets
- **Current Practices and Resources** – Identifying the Gaps between the two Stages Charted above;
- **Investments Attraction** – Breaking down the Gap into components and the nature of Investments Required to be made, such as
 - **Quality Skilling**
 - **Capital Support**
 - **Branding Support**
 - **Channel Support**

Scalable Traditional Skills



Relevant Traditional Skills of Uttarakhand



State picture, overall Perspective

Bamboo & Ringal - Overview

- With 90 Lakh Hectare of Bamboo forests, India captures **only about 4.5 per cent** of the **world market** of Bamboo. The challenge exists because of our rules
 - Despite this, Bamboo plays a crucial role in the country and **approximately 50% of the tribal population is dependent** on it for their livelihood
- In 2018 budget, the allocation of ₹1,290 crore for a restructured National Bamboo Mission (NBM) has raised hopes for a range of bamboo-based industries. Further bamboo that is grown outside forest areas have been removed from the definition of trees.
- Only about **0.3% of the total bamboo area** is available in Uttarakhand, however close to **460 villages or approximately 3% of the villages*** are completely dependent on bamboo for their livelihood



District wise availability of the skill

Bamboo & Ringal – Skill Based Learning

Dominant Bamboo and Ringal products

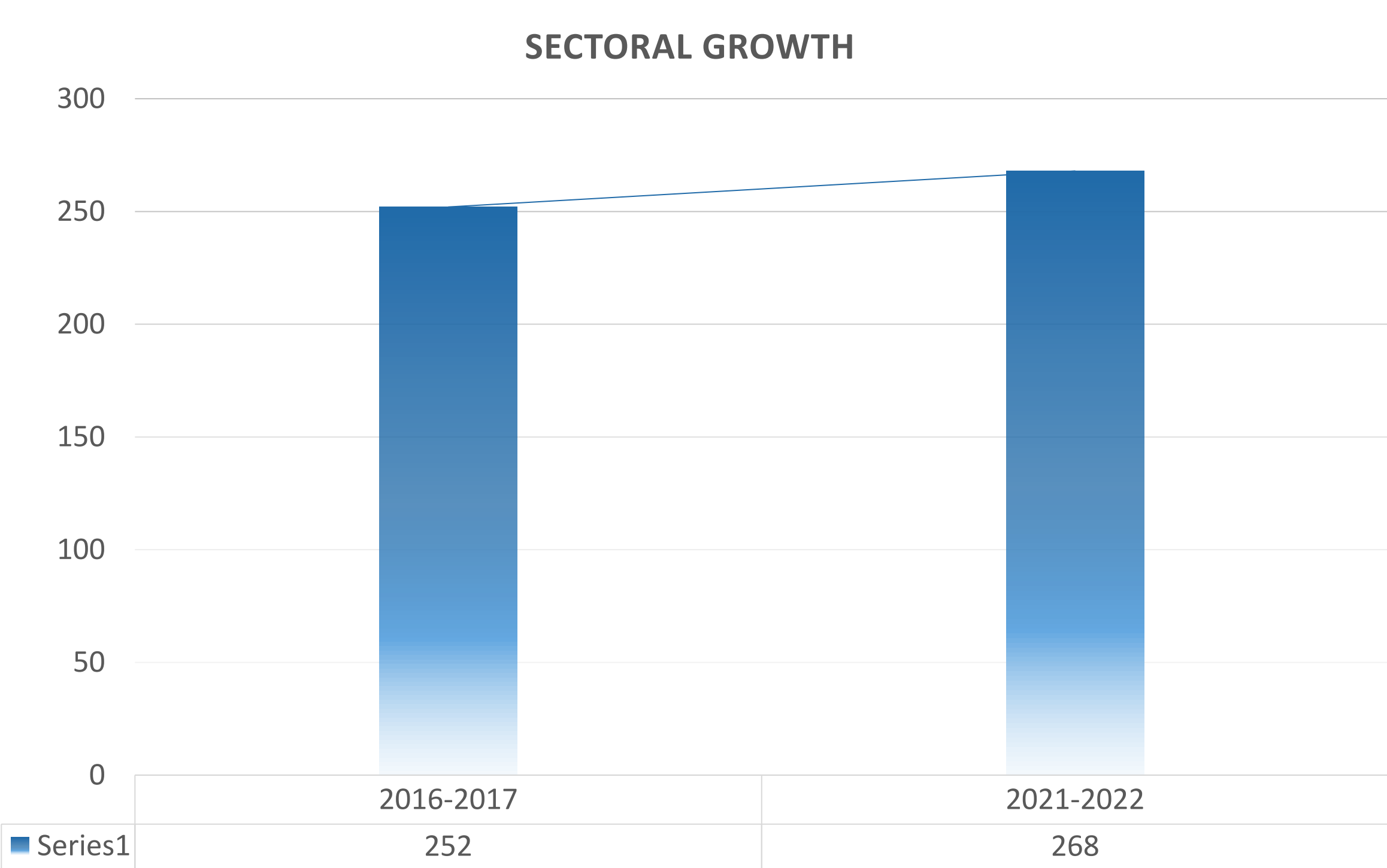
S.No	Baskets	S.No.	Others
1	Big Basket	8	Winnowing Tray
2	Big Basket with Handle	9	Mat
3	Small Basket	10	Hat
4	Small Basket with handle	11	Mouth Trap
5	Round Basket	12	Round sleeping Basket
6	Small round Basket	13	Carrying Basket (Doka)
7	Food grain storage Basket	14	Carrying Basket (Solta)

- While Bamboo and Ringal have over **1500 documented uses**, the artisans in Uttarakhand mainly produce **only 14 products**
 - This is in stark contrast to the national consumption of Bamboo and is concentrated around only **8-10% of the national consumption pattern**.
- In most cases the craftsmen have acquired the skill over time and from their previous generations, however the craftsmen met during the course of this research claim that **a 3-6 months is sufficient to train a new person**
 - It is possible for people to weave products such as mat and baskets after short –term training. Much more experience and higher levels of skill are required to weave superior quality handicrafts and these can only be learnt from master craftsmen.
- NABARD, NISBUD and DIC**, Uttarakhand have been conducting skill workshops for training the artisans on newer product lines.

Challenges

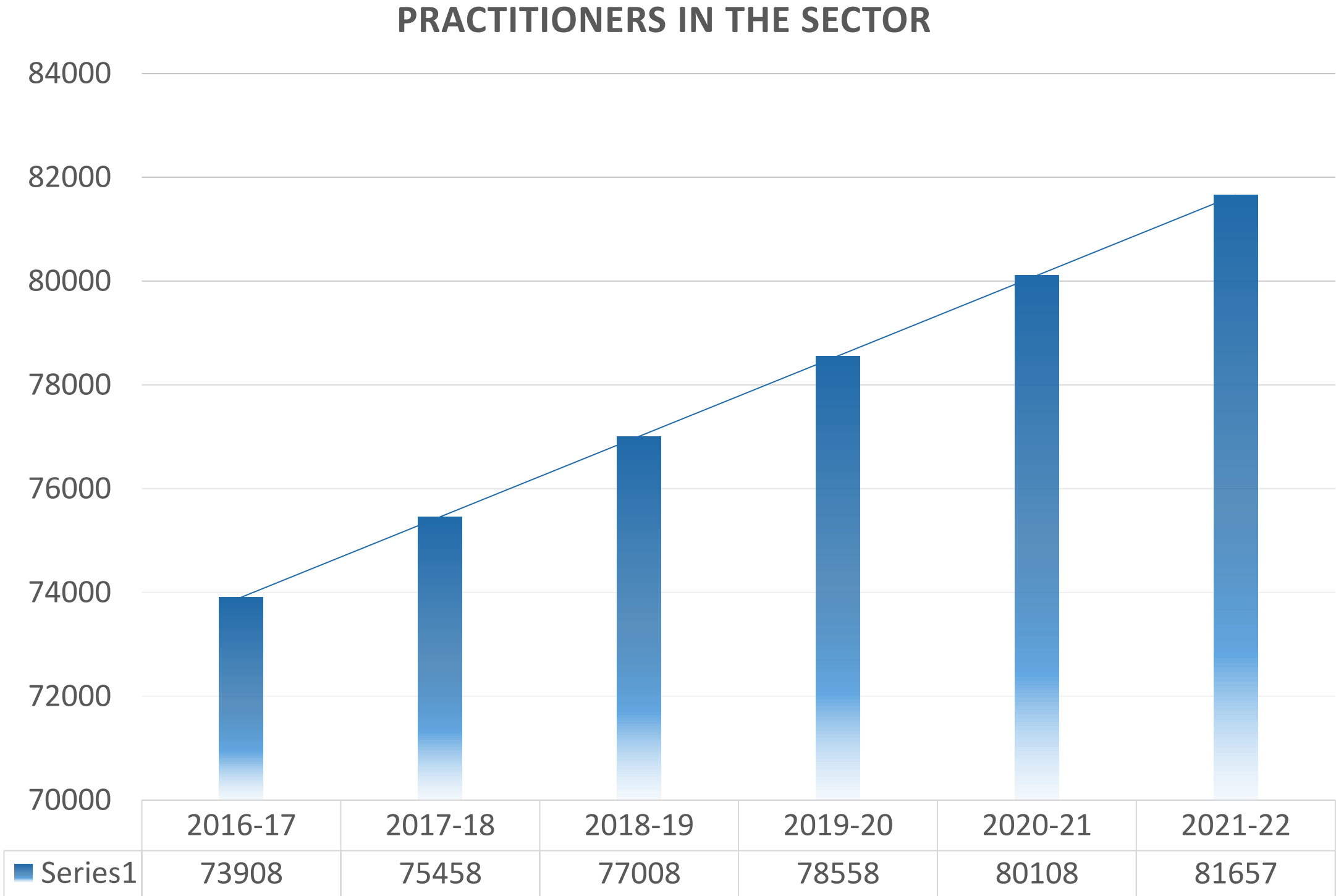
- Substitutes**: Industrial products like Plastic and Asbestos sheets have impacted the sale of bamboo and Ringal products , especially in the urban districts
- Lack of choices**: Focused around the 14 products with little which are primarily utility driven and also restricted to about 10% of the entire possibility of Bamboo
- This labour intensive process consumes not only a lot of time but also blocks up the craftsman’s money till sale. The income of Bamboo and Ringal workers is anything between **INR 3000 to INR 6000 per month**. This when compared to industrial workers is a very small percentage and therefore discouraging younger population to enter in the industry.

Bamboo & Ringal- Key Numbers



Estimates from various studies peg the annual village consumption of bamboo and ringal products in the range of **600-3000*** item per year depending on the village size.

As per conservative estimates the current market of bamboo and ringal within Uttarakhand is to tune of **Rs. 252 cr and is projected to grow upto Rs. 268 cr in the next 5 years**



As per our estimates approximately **73,908** bamboo craftsmen are working on bamboo either part time or full time. While Bamboo craftsmen can be found across all districts and their concentration is the highest in Bageshwar, Pithoragarh and Nainital.

Looking at the district trends as well as the consistent demand of the category another **7,750** practitioners are likely to join the trade naturally, across the state over the next 5 years.

Economic Potential of Bamboo & Ringal

Annual Estimates	2017-18	2021-22
	Current Estimate	Future Projection
No. of practitioners	75,340	83,288
Average Productivity	33,448	32,178
Income from Practice (per Person)	30,000	30,000
Market Size	252 Crs	268 Crs
Trade Enhancement (In % Terms)		6%
Estimated Working Capital Cycle	1 month	
Working Capital Requirement per Artisan	1672	1609
Working Capital Requirement for the Industry	12.6 Crs	13.4 Crs

Bamboo & Ringal- Suggestions

Skill Gap	Skill intervention
Sourcing→ availability of raw material as well as the time and challenges with going to forest to extract raw material.	<p>Currently <u>93% of all Ringal</u> is gathered from the forest. A skilling program is required to be undertaken to <u>cultivate ringal on industrial scale on waste lands in the hills</u>. These will help cultivators with additional income from waste lands.</p> <p>The <u>land requirement for setting up the unit is negligibly small</u> and the investment required low. However, technical assistance and training is required for this.</p>
Innovation→ The products are currently catering to rural market and are only functioning at 8-10% of the potential uses.	<p>Newer categories which could be relevance to the urban as well as to outside consumers outside the state and country can help fetch better returns on investment as well as create a more interest amongst the younger population.</p> <p>A lot of scope for <u>Innovation and adaption</u> is required to bring back ringal and bamboo in the mainstream. Designers and Product Craftsmen have to come together to expand the range of products being manufactured. Rather than these items becoming souvenirs, they should start competing against the industrial substitutes on the market.</p>
Productivity→ Lack of machines make the process cumbersome and time consuming.	<p>The main machines are cross-cutting machine, sliver-making machine, splitting machine and width sizing machine. <u>Providing training and assistance in acquiring these machines could be looked at.</u></p> <p>- <u>Division of labour across</u> the various stages from supply to selling can also be looked at as an alternative to increasing productivity and output across the entire chain.</p>
Selling skills	<p>All the bamboo and ringal artisans are involved in the selling of their products. A skilling course on selling these handicrafts based on feedback of various stakeholders will help the artisans generate higher premiums on their products. <u>Especially how to sell Ringal and Bamboo products to Tourists has to be the mainstay of the courses.</u></p>

Job Roles (Handicraft & Carpet Skill Council)

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Bamboo Basket Maker	3	Carry out weaving & twining of bamboo slivers to achieve the final product as per requirement	Possess the knowledge of Preparing Bamboo Slivers and Weaving and twining	Possess the Skill of Weaving and Twining on a frame	Ability to weave and twine Bamboo Slivers to make different shapes and forms of baskets. It also requires the ability to provide strength at the same time manage the weight of the basket	The Craftsman works independently on Basket Making of Standard Dimensions. However, for baskets that are made - to - order require the skills of a Master Craftsman.
Bamboo Mat Weaver	3	Carry out Weaving and Twining of Bamboo Slivers to make Mats and sheets	Possess the knowledge of Preparing Bamboo Slivers and Weaving and twining	Possess the Skill of Weaving and twining of Bamboo slivers without the use of looms	The Craftsman can communicate the processes followed in the making and price the material used & the efforts put in.	The Mat Weaver works independently using on standardised mats. However, may not possess the ability to understand and deliver Made-To-Order items.
Master Bamboo Craftsmen	6	He can deliver a wide range of Bamboo and Ringal utilities, with his experience and proven knowledge	Understanding of various varieties of bamboo and canes, and possible utilities items made of them.	He has the required Cognitive and Practical Skills required to provide conventional and Made-To-order solutions.	Reasonably good understanding on the amount and quantity of raw material required to deliver conventional and made-to-order jobs. Ability to understand the quality of bamboo and ringal to deliver in various forms and gauges.	Fully Functioning as a Master Craftsmen. Engaging other craftsmen on various jobs of conventional and made-to-order nature.

NOS Codes (Handicraft & carpet Skill Council)

Job Role	Level	NOS Available	NOS Name	NOS Proposed
Bamboo Basket Maker	3	HCS/N8711	Carry out preparation of bamboo slivers	OS units to understand improvement of material strength, quality and look
		HCS/N8712	Carry out weaving & twining of bamboo slivers to achieve the final product as per requirement	
		HCS/N8713	Carry out finishing, varnishing, drying & storage of bamboo basket	
		HCS/N 8714	Contribute to achieve quality in bamboo basket making	
		HCS/N 9908	Working in a team	OS units to understand improvement of material strength, quality and look
		HCS/N 9912	Maintain work area and tools	
		HCS/N 9913	Maintain health, safety and security at workplace	
		HCS/N 9904	Basic business management	
Bamboo Mat Weaver	3	HCS/N 9908	Working in a team	OS units to understand improvement of material strength, quality and look
		HCS/N 9912	Maintain work area and tools	
		HCS/N 9913	Maintain health, safety and security at workplace	
		HCS/N 9904	Basic business management	
		HCS/N 9912	Loom and Tools for Bamboo Mat Weaving	OS units to Maintain safe and clean work environment
		HCS/N 8705	Preparatory Processes of Bamboo Mat Weaving	
		HCS/N 8706	Bamboo Mat Weaving: Operating a Loom	
		HCS/N 8707	Quality Appraisal	
Master Bamboo Craftsmen	6			OS units for Supervision role
				OS units for design and expresssions
				OS for advanced business practices
				OS units to understand improvement of material strength, quality and look

Job Roles & NOS Codes (Agriculture & Allied Skill council)

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Bamboo Collector	4	Collects Bamboo and Ringal from the Forest which is fit for making Utilities and Artifacts	Knows about the Bamboo Plants their Age and their availability in the Forest	Has traditional knowledge and Skill to Identifying the right kind of Bamboo and Ringal	Collects Bamboo and Ringal from the Forest which is fit for making Utilities and Artifacts	The Bamboo and Ringal collector is entirely responsible for his work. However, they often work in teams made up of members of the family or the village.

Job Role	Level	NOS Available	NOS Name
Bamboo Collector	4	AGR/N6101	Prepare and manage nursery in bamboo growing
		AGR/N6102	Prepare planting material for Bamboo cultivation
		AGR/N6103	Prepare land and plant the planting material
		AGR/N6104	Manage soil nutrient in bamboo growing
		AGR/N6105	Weed management in bamboo growing
		AGR/N6106	Irrigation management in bamboo growing
		AGR/N6107	Integrated pests and diseases management in bamboo growing
		AGR/N6108	Harvest and post harvest management in bamboo growing
		AGR/N9901	Basic farm management
		AGR/N9902	Assimilating market information
		AGR/N9903	Maintain health and safety at the workplace

Recognition of Prior Learning (RPL) Opportunity

- Bamboo and Ringal Arts is one of the most pervasive traditional skills of the state. During our research we found that despite the large number of existing practitioners in the state very few of them have a range and depth in the skill. Usually they make very limited range of items using standard techniques. Very few have the ability to manufacture make-to-order products.
- The Handicraft and Carpet Sector Skill council has developed Qualification Packs (QP) with defined National Occupational Standards (NOS) on Bamboo and Ringal Arts.
- As observed earlier, the Socio-economic Status of Bamboo and Ringal artisans is extremely precarious. The RPL program can be a boon to the artisan community.
- The Benefits of the RPL program for the Artisans are stated below:
 - The existing Artisans in the state can **qualify the QPs and NOSs at their existing competency levels laterally and then progress to high competencies**.
 - The Certification of their competencies and manufacturing capabilities will help them gain **access to bigger markets** where they can get a better price for their efforts.
 - The NSQF certification will also help in **greater labour mobility** across the states where the earning opportunities are higher.
 - The **Incentive of around Rs. 2200** of joining the NSQF could be of great help and encouragement.
- There is a huge potential for RPL scheme to cover around 74000 Bamboo and Ringal workers on various Job Roles defined by the Handicraft and Carpet Sector Skill Council for PMKVY.

Aipan- Overview

Aipan is a **traditional folk art specifically made by women of Uttarakhand**. This art is done on floor over brick red background with white paste made out of rice flour. The typical art is done on all **special occasions and household ceremonies and rituals**. It is believed that these motifs evoke divine power which brings good fortune and wards off evil.

Uttarakhand **Aipan painting has its unique identity** which is always done on the empty walls and on the ground which is a **symbol of fortune and fertility**. The art form is used to decorate floors and walls at the Puja room (place of worship) and entrance of homes and practiced by many other communities of different region.

Though it can be said that Kumaon is the origin of the Aipan but now the other regions of Uttarakhand practice it as well.



Dominant District wise availability of the skill

Aipan- Skill based learning

Commercial Application

S.No	Application
1	Suvenior
2	Coasters , tablemats, key chains
3	Shawls and Stoles
4	Wall hanging and paintings
5	Bookmarks
6	Photo frames
7	Cards & Stickers
8	Jewelry boxes

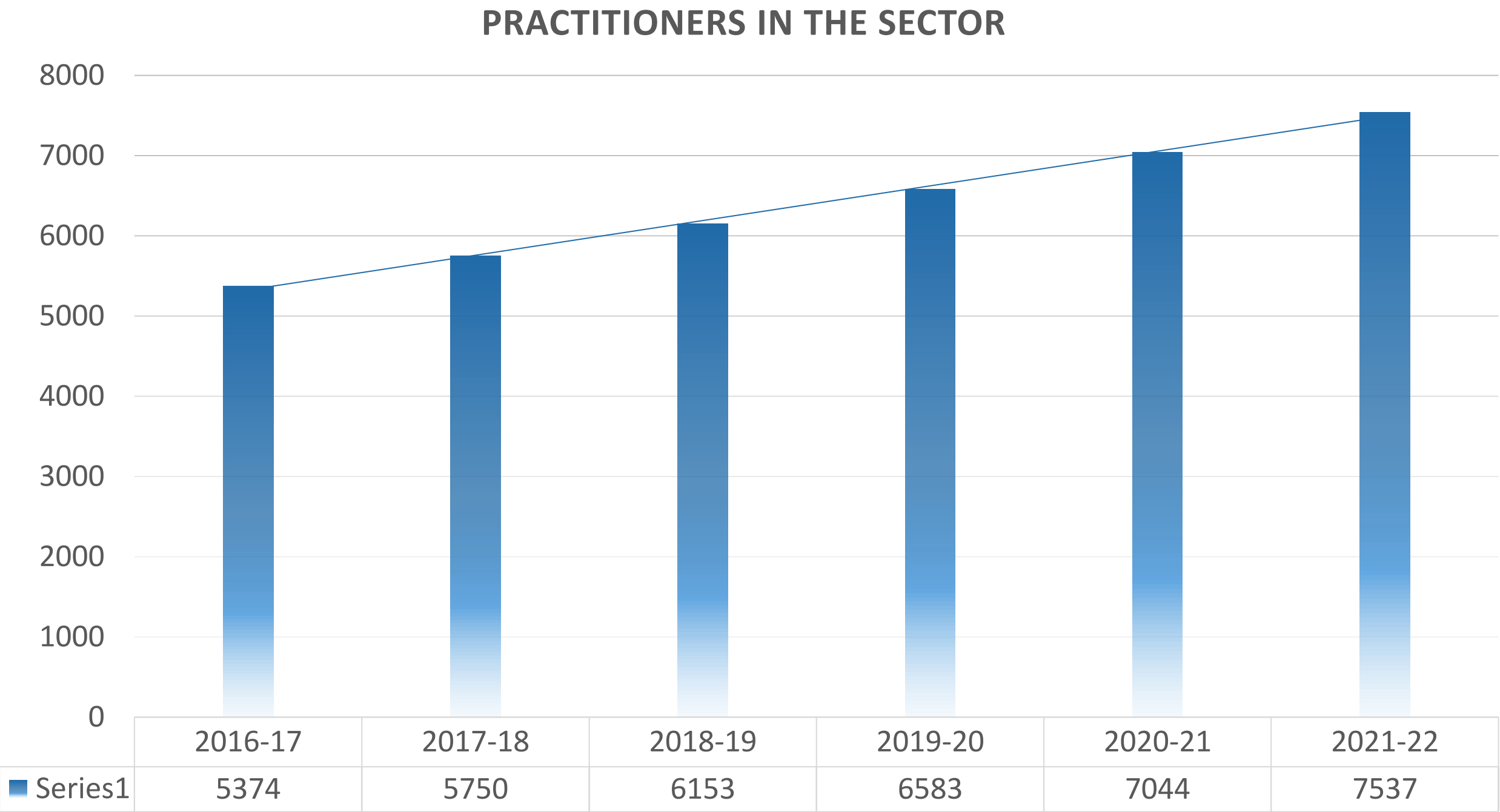
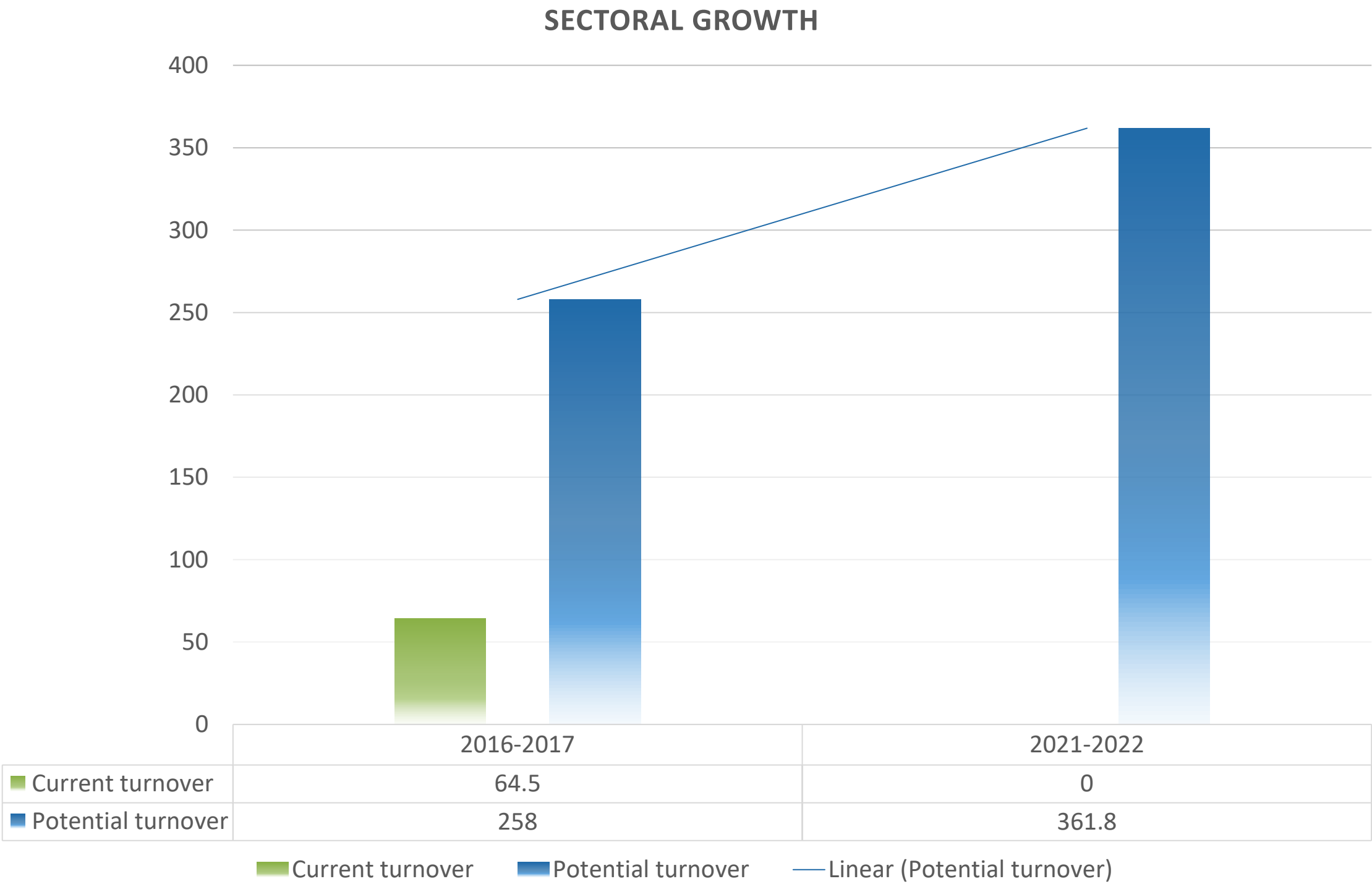
A lot of individuals have helped this art to revive and thrive by displaying the Motifs on items and dress material. Some have been able to successfully integrate block printing methodology on cloth using Aipan design.

Since every girl in the region of Kumoan knows Aipan, number of Practitioners is very high. However, the commercial earnings from sale of Aipan arts and artifacts is not available.

Challenges

- **Awareness :** Aipan is known only in Western UP and Uttarakhand. The Art needs recognition from a wider audience. A brand dedicated to Aipan will go a long way in establishing a universal appeal of the Art
- **Integration and scaling up:** the range of products which display Aipan motifs can be increased to more popular bases like Bed Sheets, Bed Covers, Cushion Covers, Suit Designs, etc.
- **Training:** Structured courses are required for women who do not know Aipan at all but would like to learn the discipline and start making their own items.
- **Credit:** Since Aipan is done by women of the villages, their financial status does not allow them the require flexibility to start a business. If the Seed capital for the small businesses can be provided, it will help incubate their business.

Aipan-Key Numbers



Aipan as a craft is currently practiced in **limited forms and has the potential to grow further with the adoption of more popular renditions**. Currently the market is pegged at **Rs. 64.5 cr in Uttarakhand** , however with right skilling and promotion of the form, it has the potential for a turnover in the **range of Rs. 258cr.**

The average annual output of a craftsmen in similar more premium categories is approximately Rs. 4.8 Lakhs, while the average annual output incase of Aipan craftsmen is Rs.1.2 Lakhs per annum . One of the aims for skilling should be to try to attain higher throughput per person in order to earn higher from the skill and keeping them engaged. A higher earing would also help attract newer talent

At the highest level of throughput , the number of practitioners could go up from **5374 to 7537**. however most of the existing practitioners would also need to be trained to give higher throughput in the process

Economic Potential of Aipan

Annual Estimates	2017-18		2021-22
	Current Estimate	Potential With Intervention	Future Projection
No. of practitioners	5,374		7,537
Average Productivity	120,000		480,032
Income from Practice (per Person)	48,000		192,013
Market Size	65.4Cr.	258 Cr.	360 Cr.
Trade Enhancement (In % Terms)			450%
Estimated Working Capital Cycle	3 month		
Working Capital Requirement per Artisan	18000		72005
Working Capital Requirement for the Industry	9.67 Crs		54.2 Crs

Aipan- Suggestions

Skill Gaps	Skill Intervention
Marketing and Innovation	<p><u>Wider application of Aipan</u> needs to be sought out, in order to make the art form more relevant. Chikan is a prime example of the route Aipan can take in the long run</p> <p>In order to make the art form more relevant promotions around the same need to be looked at</p> <p>Like most other skills the practitioners need to learn the art of selling and should be trained on the same as well</p> <p><u>Aipan centric fashion shows</u> and tie up with Fashion institutes for the same</p>



Aipan Job roles (Handicraft & Craft Skill Council)

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Aipan - Helper	1	Prepares the work area by Arranging Tools and Blocks, preparing the Cloth for Aipan Work, cleaning of the area.	Helper is familiar with the Cloth specifications, Blocks, colors, and pastes that are used in Aipan Work	Supports the Head Artist on various activities involved in Aipan	She can read write and make basic measurements.	She is not responsible for any activity at any stage of the Aipan Art
Aipan - Apprentice Block Printing	2	Prepares Blocks as per the specifications of the Shead Block Printer. She does block printing on cloth under supervision of the Shead Block Printer.	Learnt to prepare colors for block printing. She is also aware of the processes to clean the blocks after work and disposing of the color wastes. She does block printing on cloth under supervision of the Shead Block Printer	Block printing done by the apprentice is basically is of basic nature and may not involve complex multi-colour block printing.	She can read, write and make basic arithmetic operations. Is fully aware of the religious significance of Aipan Paintings and the restrictions on its usages	The Apprentice may perform the basic functions in Block printing under the close supervision of the Head Block Printer
Aipan - Apprentice Painter	2	Prepares Colors and Pastes as per the specifications of the Head Aipan Painter. She does Aipan on cloth under supervision of the Head Block Printer.	Prepare Colors for Aipan paintings. Does Aipan on Cloth under the Supervision of the Head painter. Knows the process of disposing of Color and Material Waste	Aipan Painting done by the Apprentice is of basic nature with established design patterns	She can read, write and make basic arithmetic operations. Is fully aware of the religious significance of Aipan Paintings and the restrictions on its usages	The Apprentice may perform the basic functions in Aipan Painting under the close supervision of the Head Aipan Printer.
Aipan - Hand Block Printer	4	Prepare for block printing by hand as per given specifications. Carry out block printing by hand as per given specifications. Contribute to achieve quality in hand block printing	She performs All basic Activities of a Aipan - Block Printer.	Performs the tasks of preparing colors, blocks and spreading the cloth for printing and then removing the cloth after printing without allowing the colors to staining.	The Block Printer is able to engage with the Head Block Printer on tasks assigned with reasonable degree of proficiency .	The Block Printer is able to deliver products working in team.
Aipan - Artist	4	Prepare for painiting by hand as per given specifications. Carry out painting by hand as per given specifications. Contribute to achieve quality in hand block printing	She performs All basic Activities of a Aipan - Painter.	Performs the task of preparing the colors, spreading the cloth. Marking and design tracing and then applying the paints. He knows how to remove the cloth without spoiling the painting.	The Aipan painter is able to engage with the Head Aipan Painter on tasks assigned with reasonable degree of proficiency .	The Aipan Painter is able to deliver products individually and in teams.
Designer (Aipan)	5	Conceptualize the Aipan design and its presentation on various items and fabrics according to customer's requirement	Complete Knowledge of the Aipan Art and its Possibilities with Fabric and Non-Fabric Bases	She is able to make to order Conventional Designs and Make to-Order Customer specifications	Has the desired level of Mathematical Skills understanding of readjusting the proportions of theAipan Designs as per the requirements of the customer.	Responsible for own Work and Learning and can deligate and monitor the work of colleagues

Aipan NOS Codes

Job Role	Level	NOS Available	NOS Name	NOS Proposed
Aipan - Helper	1	HCS/N9908	Working in a Team	-
		HCS/N 9912	Maintain work area and tools	-
Aipan - Apprentice Block Printing	2	HCS/N9908	Working in a Team	QP on rules related to Aipan
		HCS/N 9912	Maintain work area and tools	
		HCS/N 7201	Prepare for block printing by hand as per given specifications	
Aipan - Apprentice Painter	2	HCS/N9908	Working in a Team	QP on Hand Painting
		HCS/N 9912	Maintain work area and tools	QP on rules related to Aipan
Aipan - Hand Block Printer	4	HCS/N 7202	Carry out block printing by hand as per given specifications	Marketing and Selling skills
		HCS/N 7203	Contribute to achieve quality in hand block printing	
		HCS/N9908	Working in a Team	
		HCS/N 9904	Basic business management	
		HCS/N 7204	Carryout and supervise the preparatory processes of hand block printing	
		HCS/N 7205	Carry out hand block printing as per given specifications	
Aipan - Artist	4	HCS/N9908	Working in a Team	Marketing and Selling skills
		HCS/N 9904	Basic business management	
		HCS/N 7351	Carry out tracing of designs on the given material as per given requirements	
		HCS/N 7206	Supervise the printing and post printing processes	
Designer (Aipan)	5	HCS/N 7352	Carry out finishing of embroidered products	Marketing and Selling skills
		HCS/N 9912	Maintain work area and tools	Innovation and experimentation with newer formats and forms
		HCS/N 9913	Maintain health, safety and security at workplace	
		HCS/N 9915	Supervise hand embroidery production	

Optional NOS codes for Embroidery patterns

HCS/N 7301	Prepare and carry out Phulkari embroidery as per given specifications
HCS/N 7302	Prepare and carry out Chikankari embroidery as per given specifications
HCS/Q 7303	Prepare and carry out Zari-Zardozi embroidery as per given specifications

Recognition of Prior Learning (RPL) Opportunity

The Art of Aipan Painting and its Artisans have a unique situation. The NSQF till now does not recognize Aipan as a Job Role or NOS like Chikankari, Phulkari and Zaridozi. Similar to the aforesaid Handicraft Traditions, an Aipan Artist faces the same constraints with regard to basic Business and Marketing Skills.

The following benefits are expected to come to the existing artisans who join the RPL program.

The Artisans will be able to better negotiate their earnings with the buyer citing the certification.

The RPL Certification will endorse the level of the artisan and his ability to deliver the expected level of sophistication desired of the products produced by him.

The Program can cover an estimated 5000 Artisans currently at different levels of the RPL Program.

Weavers- Overview

There are three different traditions of weaving in Uttarakhand, **Garhwali, Kumaoni and Bhotia**. The art of weaving is passed from generation to generation. **Women are the primary practitioners** of this art.

As per the **Handloom census of 2009-10 , Uttarakhand has over 15,468 , handloom weavers in the state. This constitutes for only .3%** of the national weaver population. The number is quite low despite the heritage and the variety of fibers available in the state. This number is reflective the weavers commercially working and doesn't include **subsistence weaving which forms a large part** of the weaving community of Uttarakhand. **The Kumaon region and plains have a high number of commercial weavers; however Garhwal region has a higher incidence of subsistence weaving**

Currently **Khadi Gram Udyog , Pancha choli women weavers and Avni** are actively engaged in training the weavers associated with them and keep them abreast with the latest trends in the national and international market. However the **Bhotia weavers of Dharchula and Munsiyari** continue with their conventional practices, designs and raw materials.



District wise availability of the skill

Weavers- Skill based learnings

- The Skill of the **Garhwal weavers** is limited to **making utilities with wool**,
 - Local people do not invest in the proper cleaning of the wool before spinning
 - The designs they make are very simple and common, Other Weaving communities like the Bhotias have better craftsmanship
 - Traditionally the Garhwali women used natural dyes from tree barks, roots, fruit coverings, flowers and from other natural substances to colour the wool but now they prefer to buy chemical dyed wool from the market.
 - The reason for stopping the natural dyeing they say is that the government has put restrictions on them for taking away the natural resources from the forest and the other reason being that natural dyeing is a long and tedious process which they women are not motivated enough to follow.
- **Kumaoni Weavers** weave simple Shawls, blankets, and finer material for clothing using natural fibers like Cotton and Hemp. They did have certain distinct Kumaoni Patterns. The coloring was usually done using natural agents like roots, flowers, fruits, etc.
 - But the traditions quickly eroded with the advent of the products from the plains. The Majority of the people became **net consumers of textiles**.
 - They have been using both Plant and Animal Fibers for production of various items. Very interestingly they have been importing expensive wool from abroad like Pashmina from Mongolia and Alpaca from Peru to manufacture articles.
- **Bhotia community** has a very strong presence in the upper regions of Kumaon. As a tribe, they have a very distinct ethnicity, culture and religious practices. Their **unique culture** has evolved over hundreds of centuries and has **found expression in their handicrafts and handlooms**. They use more of animal fiber than plant fiber to make their cloth.
 - The common fibers used by them are Sheep, Pashmina Goats and Angoori Rabbits. They have a very strong understanding of rearing these animals. The main clusters for Bhotia Textiles are Munsiyari and Dharchula in Pithoragarh district.

Weavers-Challenges

Market – The weaver communities have been for ages selling their products at a decent margin. However, the market dynamics have changed with increased mobility of goods. They are facing direct competition from weavers of different regions. Goods from Himachal, Kashmir are eating into their margins.

Low Wages for weavers – Due to the increased competition in the market the wages are experiencing the squeeze. The Youth are getting alienated as they feel that the wages are not commensurate with the effort that it takes to practice the craft.

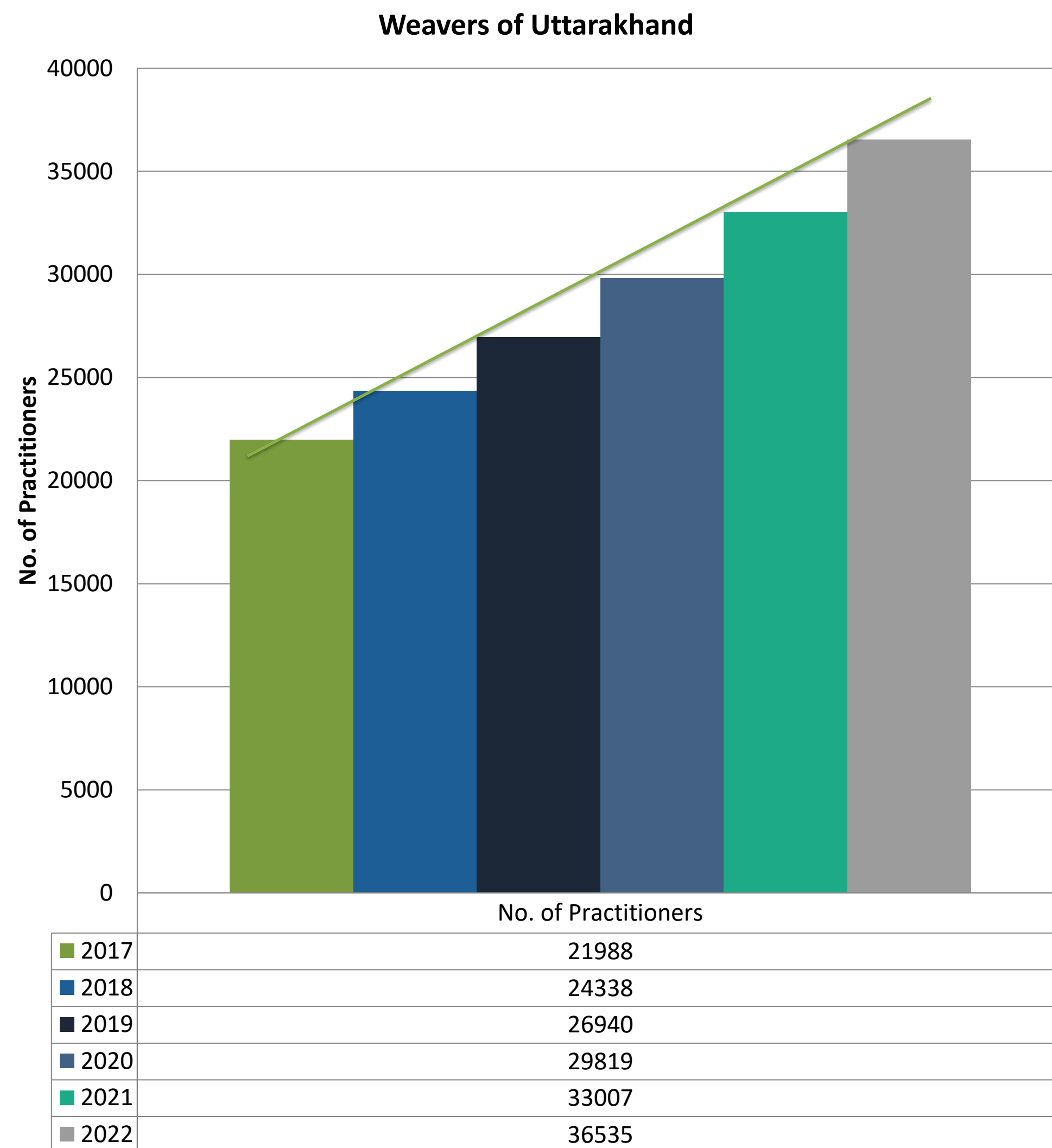
Industrial substitutes – Industrial substitutes like Nylon, Acrylic, Rayon and Acetate have been competing with the natural animal fibers as they can be manufactured at industrial scale. They have caused the prices to fall drastically making woolen items expensive in comparison. These synthetic fibers are being used extensively used to manufacture blankets, shawls, sweaters, jackets and carpets.

Inabilities to harness the internet technology – The weavers are aware about the e-marketplaces and would like to harness its potential. The younger generations have been using social media to market their product and designs. But the effort has been few and far between. However, the main problems have been:

- *Cost of logistics:* The Artisans usually reside in their villages. Any order they received will have to be first made and then transported out of the hills to the destination. The cost of servicing the order will be far more than the cost of the item.
- *Time of Fulfillment:* The e-marketplace has a distinct preference for instant gratification. Most of the portals want the items to be shipped within 24 hrs. Handcrafted items can take days even months to get completed before it could be shipped. The traffic on the internet does not appreciate such timelines.

Identity and differentiation of Products: The Bhotia Community insist that their patterns and designs are distinct from other Himalayan Communities like Tibetan, Garhwalis, Kumaounis, etc. They say that every time they have to explain their patterns and identity to the customer to appreciate the differences.

Weavers-Current state & Suggestions



Skill Gap	Skill intervention
Modernization → The products prepared are standardized and have been similar in form and design for generations	<ul style="list-style-type: none"> • Skilling intervention required for bridging the gaps in making wool ready for the yarn. Training has to be imparted <u>for cleaning and washing</u> of wool before yarn is made. Washing machines also have to be installed to multiple locations to stream line the process. • Installation of <u>metal handlooms and their training for usage</u> has to be provided to the weavers to increase finesse of the produce. Most of the Handlooms are Wooden and very old. • Training to introduce new <u>raw material and experiment with mixed materials</u>. • Training on <u>modern design and patterns trends</u> to make the product more relevant for newer customers. • Cross pollination of weaving traditions from other cultures to upgrade current skill levels has to be organized.
Marketing & Selling skills	<ul style="list-style-type: none"> • Creating <u>suitable differentiation</u> in the product designs and pitching the differentiation well to the customers • Skills to acquire new customers

Economic Potential of Weavers

Annual Estimates	2017-18	2021-22
	Current estimates	Future Projection
No. of practitioners	21988	36534
Average Productivity	240,000	240,000
Income from Practice (per Person)	96,000	96,000
Market Size	527.7 Crs	876.81 Crs
Trade Enhancement (In % Terms)		66%
Estimated Working Capital Cycle	6 months	
Working Capital Requirement per Artisan	72000	72000
Working Capital Requirement for the Industry	158.3 cr	263 cr

Weaver Job Roles (Textile skill Council)

Job Role	Level	Process Required	Professional knowledge	Professional skill	Responsibility
Handloom - Helper	1	These include Tasks of preparing the Yarn of different colors for Handloom Weaving	Familiar with common trade terminology, instructional words meaning and understanding	Ability to Identify different Yarns and arrange them for Handloom Weaving	Only Performs Tasks that are basic and supervised by the Master Craftsman. No Decision making tasks are Assigned.
Handloom - Apperentice	2	Performs Basic tasks Like Weighing and measuring Yarns procured for Handloom Weaving	Clearly understands the processes involved in Loom set up. These Include Setting up Warp and Weft for Weaving.	Performs independent tasks repetitive in nature	Carries out Tasks assigned, instructed and supervised by the Master Craftsmen.
Yarn Opener	3	Unreeling the yarn hank, To ply the yarns together from single to several plys (threads) as per requirement and Convert into ball form (pindi) needed for weaving	Is aware of the Basic terminologies involved in the process of preparing the Yarns for Weaving	Unreeling the yarn hank, To ply the yarns together from single to several plys (threads) as per requirement and Convert into ball form (pindi) needed for weaving	The yarn Opener is under close supervision of the Weavers
Two shaft Handloom Weaver	4	Run manually operated looms (equipped with very little mechanization) efficientlyso as to get maximum output with minimum defects.	He performs All basic Activities of a Craftsman and deliver utensils	Run manually operated looms (equipped with very little mechanization) efficientlyso as to get maximum output with minimum defects.	The Weaver is Responsible for Weaving various Textiles as per the standard Designs and Specifications
Handloom Entrepreneur	5	Is able to perform both Conventional and well as Made-to-Order Weaving Jobs	Complete Knowledge of the Weaving processes. Ability to handle Queries of weavers on product and Processes.	He is able to deliver conventional Designs as well as Made-To-Order Textile Garments.	Responsible for own Work and Learning and can delegate and monitor the work of colleagues

Weaver NOS Codes (Textile skill Council)

Job Role	Level	NOS Codes	NOS Name	NOS Proposed
Handloom - Helper	1	TSC/N9008	Comply with work place requirements in handloom Sector	
		TSC/N9005	Maintain work area and tools in handloom sector	
		TSC/N9006	Working in a team in handloom sector	
Handloom - Apprentice	2	TSC/N9008	Comply with work place requirements in handloom Sector	
		TSC/N9005	Maintain work area and tools in handloom sector	
		TSC/N9006	Working in a team in handloom sector	
		TSC/N 7305	Carry out pre weaving activities	
Yarn Opener	3	TSC/N 7202	Carry out dyeing of hank yarn	
		TSC/N 7203	Carry out finishing of dyed yarns	
		TSC/N9008	Comply with work place requirements in handloom Sector	
		TSC/N9005	Maintain work area and tools in handloom sector	
		TSC/N9006	Working in a team in handloom sector	
Two shaft Handloom Weaver	4	TSC/N9008	Comply with work place requirements in handloom Sector	
		TSC/N9005	Maintain work area and tools in handloom sector	
		TSC/N9006	Working in a team in handloom sector	
		TSC/N7502	Build harness for handloom jacquard weaving	
		TSC/N7308	Undertake pre-weaving activities for jacquard weaving - handloom	
		TSC/N7309	Operate the handloom for jacquard weaving	
		TSC/N 7306	Operate the loom	
		TSC/N 7307	Contribute to achieve quality in handloom weaving	
		TSC/N9008	Comply with work place requirements in handloom Sector	
		TSC/N9005	Maintain work area and tools in handloom sector	
		TSC/N9006	Working in a team in handloom sector	
Handloom Entrepreneur	5			OS on Business skills
				OS on design and innovation
				OS on Operations management and production

Weaver Job Roles (Handicrafts and Carpet)

Job Role	Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Carpet - Helper	1	These include Tasks of preparing the Yarn of different colors for Carpet Weaving	Familiar with common trade terminology, instructional words meaning and understanding	Ability to Identify different Yarns and arrange them for Carpet Weaving	Maintaing Clean Safe and Healthy Environment while Working yarns and Handlooms	Only Performs Tasks that are basic and supervised by the Master Craftsman. No Decision making tasks are Assigned.
Yarn Opener	3	Unreeling the yarn hank, To ply the yarns together from single to several plys (threads) as per requirement and Convert into ball form (pindi) needed for weaving	Is aware of the Basic terminologies involved in the process of preparing the Yarns for Weaving	Unreeling the yarn hank, To ply the yarns together from single to several plys (threads) as per requirement and Convert into ball form (pindi) needed for weaving	Is Able to communicate with the Weavers with respect to the yarn	The yarn Opener is under close supervision of the Weavers
Hand Loom Weaver	3	Run manually operated looms (equipped with very little mechanization) efficientlyso as to get maximum output with minimum defects.	He performs All basic Activities of a Craftsman and deliver utensils	Run manually operated looms (equipped with very little mechanization) efficientlyso as to get maximum output with minimum defects.	Run Handlooms Efficiently	The Weaver is Responsible for Weaving Carpets as the standard Designs and Specifications
Weaver – Knotted	4	Install loom for knotted carpet weaving. Prepare warp structure for knotted carpet weaving and fix into the loom. Perform advanced knotted carpet weaving as per a range of designs	Has full knowledge of the Craft both theory and practical	He independently finishes carpets and makes market Ready units	The Craftsman can communicate the processes followed in the making and price the material used & the efforts put in.	Takes the full responsibility of the Quality and the Processes followed for Carpet Weaving.
Loom Supervisor – Knotted Carpet		Loom supervision of knotted carpets being weaved by the weavers.	Complete Knowledge of the Knotted Carpet Weaving processes. Ability to handle Queries od weavers on product and Processes	He is able to deliver conventional Designs as well as Made-To-Order Carpets.	Has the desired level of Mathematical Skills understanding of readjusting the proportions of the Carpet based on Customer Specifications	Responsible for own Work and Learning and can delegate and monitor the work of colleagues

Weaver NOS Codes (Handicrafts and Carpet)

Job Roles	Level	NOS Codes	NOS Name	NOS Proposed
Carpet - Helper	1	HCS/N9906	Maintain work area, tools and machines	
		HCS/N9908	Working in a team	
		HCS/N9909	Maintain health, safety and security at work place	
Handloom Weaver (Carpets)	3	HCS/N5415	Run the hand operated loom efficiently	OS on Designs of DAN Carpets of Uttarakhand
		HCS/N9906	Maintain work area, tools and machines	OS on Various kinds of rungs woven of different dimensions of Uttarakhand
		HCS/N9908	Working in a team	
		HCS/N9909	Maintain health, safety and security at work place	
Yarn Opener	3	HCS/N5001	Operation of hand operated Charkha	
		HCS/N9906	Maintain workarea, tools and machines	
		HCS/N9907	Maintain Health, Safety and Security at Workplace	
Weaver – Knotted	4	HCS/N5708	Install loom for knotted carpet weaving	OS on Designs of DAN Carpets of Uttarakhand
		HCS/N5709	Prepare warp structure for knotted carpet weaving and fix into the loom	OS on Various kinds of rungs woven of different dimensions of Uttarakhand
		HCS/N5710	Perform advanced knotted carpet weaving as per a range of designs	
		HCS/N9907	Receive, track and handle payments as per work done	
		HSC/N9908	Use basic health and safety practices while weaving carpets	
		CSC/N1336	Work effectively with others	
Loom Supervisor – Knotted Carpet	5	HCS/N5411	Loom supervision of knotted carpets	OS on Designs of DAN Carpets of Uttarakhand
		HCS/N5412	Maintenance of Knotted Weaving Records	OS on Various kinds of rungs woven of different dimensions of Uttarakhand
		HCS/N9906	Maintain workarea, tools and machines	
		HCS/N9910	Manage and lead a team	
		HCS/N9909	Maintain Health, Safety and Security at Workplace	

Recognition of Prior Learning (RPL) Opportunity

- The Weaving traditions of the state have two distinct product lines, namely, textiles and carpets. The Textiles would be covered under the Textile Skill Council and the Carpets will come under the Handicraft and Carpets Skill Councils.
- Currently there are around 42000 handloom weavers in the State of Uttarakhand. The RPL Scheme has the following pronounced benefits for the community:
- Getting into the NSQF framework will help them enter the program laterally at their existing competency levels. It will give them the opportunity to acquire business related skills.
- The Skill Training can give them a greater flexibility in terms of experimenting with new designs and items.
- The Weavers can then apply for various further certifications like, Craftmark, Khadimark, etc. for their products and gain access to larger and better markets.
- Most of the weavers in the state are using only the old looms which have very little flexibility in making designs. With training on better looms the weavers can upgrade the quality of their produce. They can even apply for better financial assistance based on their NSQF qualifications.
- The Incentive of around Rs. 2200 for artisans joining the RPL Scheme can provide the right encouragement.
- The skill department has a huge challenge to prepare new weavers who are proficient and market ready to harness the opportunities emerging in the handloom sector.

Woodcraft- Overview

Wood is available **in abundance in the hills.** People of Uttarakhand have for ages been using wood to build houses, carts, household utensils, Agricultural tools, toys, etc.

The splendor of the Wood Craftsmanship of the region is elegantly on display in the old houses of the region. The intricate designs that are on display on the doors and windows are a visual delight. Different woods are used for different purposes in the hills

The **Ordh and Badhaiya Communities** have been the traditional wood craftsman for Kumaon. They have evolved their craft over hundreds of years. We can see the influence of other traditions in their designs. Kholi the traditional Kumaoni carvings on the doors and Window facades have reminiscence of the Chand Dynasty Styles.

The **Utensil markings** have an influence of Aipan designs and carvings that are inherent to Uttarakhand. One of the highlight of the artisans is their ability to **carve our entire utensil from a single block of wood.**



District wise availability of the skill

Woodcraft- Skill based learning

S.No	Popular utensils made of wood
1	Paali - (Big sized plate)
2	Naali - (An instrument used for measuring land),
3	Theki - (Used for making and keeping curd)
4	Hudipya - (Used for keeping ghee and other sticky edibles),
5	Thaali - (which in present era are made of steel),
6	Farva - (For measuring food grains),
7	Doukau - (Used for making mathha)

During our study we met Artisans from the Ordh community both in Kumaon and Garhwal. They are extremely **proud of their skill and legacy**. They are however extremely **worried about the future of their skill** and have expressed their dismay over the apathy of the government and the people towards their craft. They **don't see a future of their skill in the next decade**.

The craftsmen however, are extremely willing to share their traditional knowledge with the unemployed youth. They are sure that within a period of **3 months** they will be able to teach the basics of woodcraft to interested pupils. However, finesse and perfection will require at least 3 to 4 years of practice.

Woodcraft -Challenges

Access to Raw Material: Procuring wood for woodcraft is a challenge. The Strict Forest laws do not allow the artisans to have free access to the wood in the forest. The artisans can procure it from the forest department when they auction but it is not feasible as they auction only large logs.

Access to Working Capital: The entire trade is cash driven. Credit is available from banks but only for capital investments like setting up of a workshop or a showroom. The bank does not finance the working capital requirements of their business. They have employ helpers and pay them on a daily basis. Credit can be availed only if the customers commission any large work and pay advance.

Wages : The artisans usually were well paid when they were commissioned for building construction. They would charge premiums when elaborate Kholi designs were to be carved for doors and windows. But lately such commissions have dried up and they have to live by selling simple household utensils. The utensils are paid on apiece basis and so wages have to be recovered from the sales proceeds.

Industrial Substitutes: The articles manufactured from wood are increasingly being replaced by plastic. Most of the old wooden containers are being replaced by plastic as they are lighter, transparent and much cheaper. Further aluminum and iron frames have become more popular for building doors and windows as they are lighter and convenient.

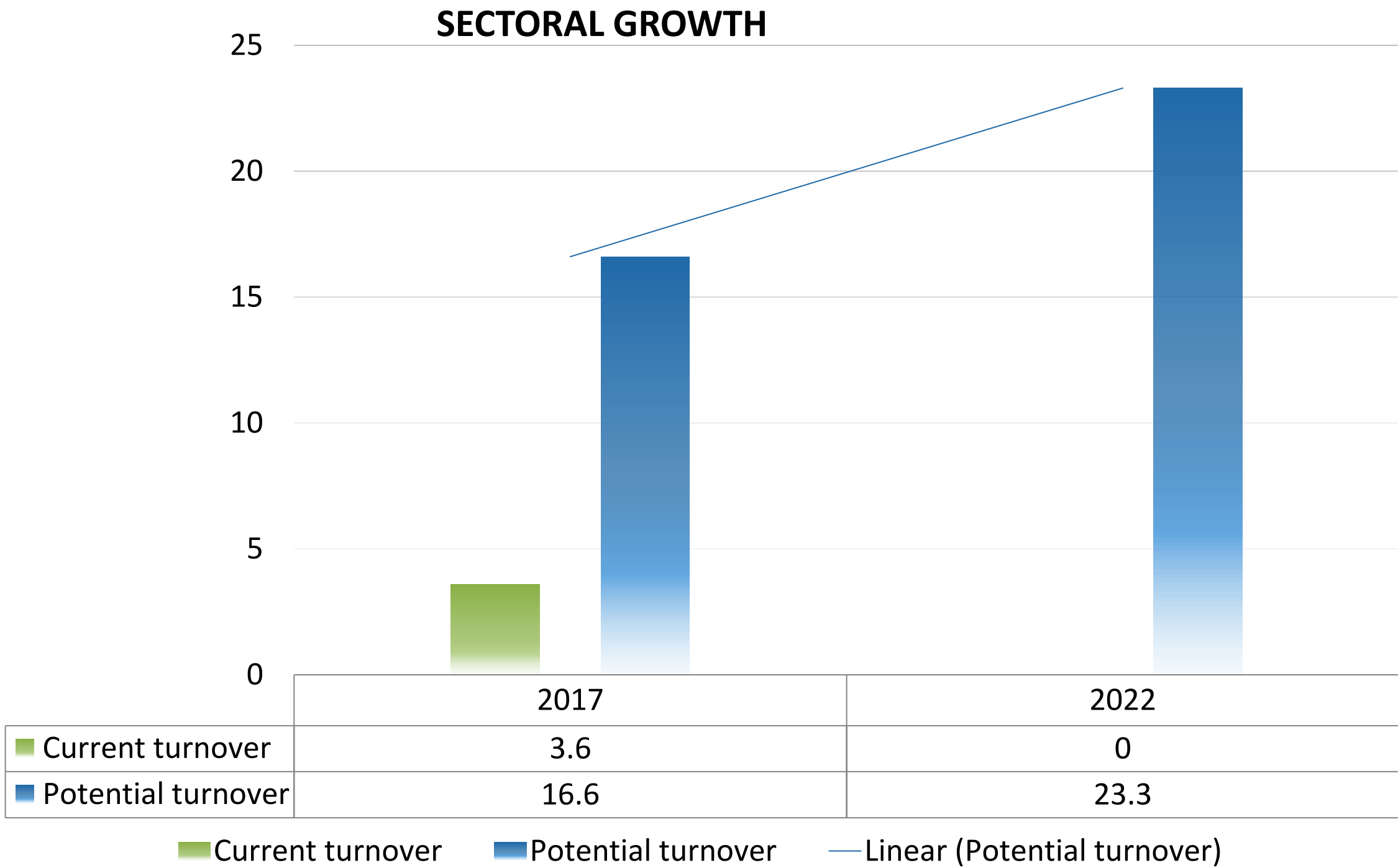
Lack of infrastructure and tool upgradation: One of the primary requirement of the artisans is the access to power tools. Currently they use water mills or Gharat for rubbing and polishing the articles. They would like to have Electric Saws as they currently use axe which consumes a lot of their time and effort. Buffing is a common machine used these days to finish workpieces or articles after fabrication.

In-ability to harness the Internet: The Artisans have been unable to harness Internet technology and access larger market for their products. During our interviews with the Artisans we came to know that they were aware of the potential of the internet but could not align with it.

Cost of logistics: The Artisans usually reside in their villages. Any order they received will have to be first made and then transported out of the hills to the destination. The cost of servicing the order will be far more than the cost of the item.

Time of Fulfillment: The e-marketplace has a distinct preference for instant gratification. Most of the portals want the items to be shipped within 24 hrs. Handcrafted items can take days even months to get completed before it could be shipped. The traffic on the internet does not appreciate such timelines.

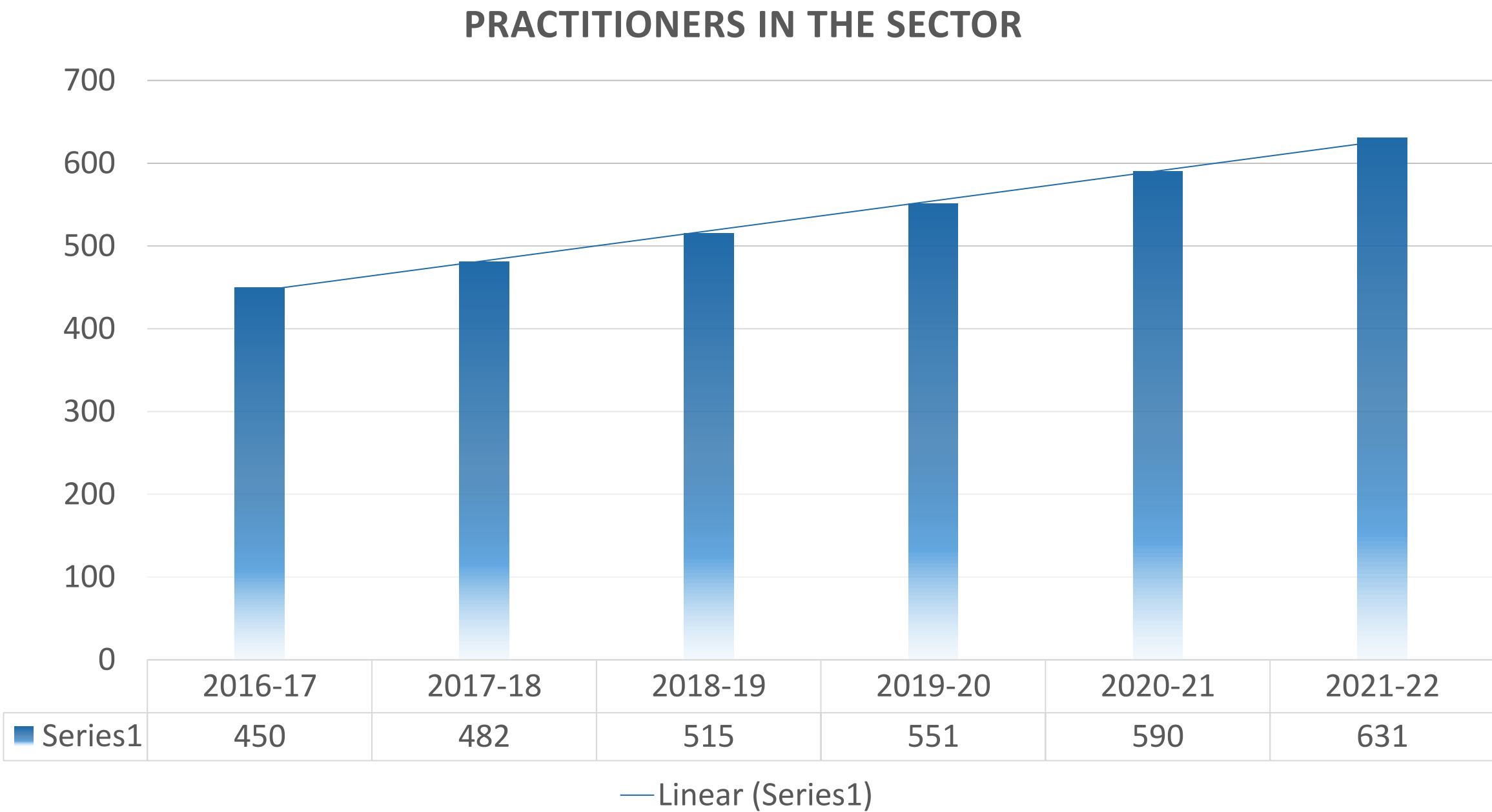
Woodcraft –Key Numbers



While the current turnover of the industry in Uttarakhand is **pegged at Rs. 3.6 cr,** it has the potential of reaching **16.6 cr** and grow **upto Rs. 23.3 cr in the next 5 years.**

The current output of a practitioner is around **Rs. 80000 per annum,** however in wooden clusters the output is almost **3.5 times** .

The potential however can be achieved only with sufficient interventions from the government and its departments to promote the skill



The number of practitioners is currently pegged **at 450** , which could potentially go up **to 631**, with intervention however in order to fully utilize the potential, the current craftsmen also have to be upskilled

Economic Potential of Woodcraft

Annual Estimates	2017-18	2021-22
	Current estimates	Future Projection with intervention
No. of practitioners	450	631
Average Productivity	80,000	263,074
Income from Practice (per Person)	72,000	236,767
Market Size	3.6 cr	16.6 cr
Trade Enhancement (In % Terms)		361%
Estimated Working Capital Cycle	1 month	
Working Capital Requirement per Artisan	4000	13154
Working Capital Requirement for the Industry	0.18 Crs	0.83Crs

Woodcraft- Suggestions

Skill Gap	Skill intervention
Innovation → Current craftsmen are focused primarily around making utilitarian products which have limited scope	<ul style="list-style-type: none"> • Experimentation with <u>different materials like plywood and softwoods</u> to come up with innovative designs and cheaper products • Create and design new products <u>like shoe horns and hangers</u>, which have higher commercial and earning potential • <u>Miniature wood products</u> are in high demand across the globe and could also be looked
Marketing training	<ul style="list-style-type: none"> • Training to differentiate, position and sell the produce in the market

Woodcraft Job Roles

Job Role	Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Woodcraft_apprentice	2	Prepares the work area by Arranging Tools, getting the wood, cleaning of the area	He is familiar with the different kinds of woods and Plywoods. Understands the various tools employed for the tasks	He supports the Master Craftsman on various activities involved in woodcraft	He can read write and make basic measurements.	He is not responsible for any activity at any stage of the Wood Craft process
Master Wood Craftsmen	6	He can deliver a wide range of utensils, figurines and Artifacts using his knowledge and experience with the woods	Understanding of woods and its possibilities reasonably explored by the Craftsmen	He has the required Cognitive and Practical Skills required to provide conventional and Made-To-order solutions.	Reasonably good understanding on the amount of raw material required to deliver conventional and made-to-order jobs.	Fully Functioning as a Master Craftsmen. Engaging other Wood craftsmen on various jobs of conventional and made-to-order nature.

Woodcraft NOS Codes

Job Roles	Level	NOS Codes	NOS Name	NOS Proposed
Woodcraft_apprentice	3	HCS/N6608	Use basic health and safety practices in a wood working environment	
		HCS/N7104	Prepare the lacquer	
		HCS/N7106	Apply lacquer for achieving final finish	
Master Wood Craftsmen	6	HCS/N6605	Create samples for client interaction	OS units on business practices including work scheduling
		HCS/N6607	Finalize the raw material quality and quantity for the production process	OS units on selling and marketing
		HCS/N6608	Use basic health and safety practices in a wood working environment	OS units on innovation and design
		HCS/N7104	Prepare the lacquer	
		HCS/N7106	Apply lacquer for achieving final finish	
		HCS/N6608	Use basic health and safety practices in a wood working environment	
		HCS/N7102	Complete the final finish	
		HCS/N7103	Ensure that the product gets the final finish as per the approved sample	
		HCS/N6607	Finalize the raw material quality and quantity for the production process	
		HCS/N7102	Complete the final finish	
Optional				OS units on miniature designs

Recognition of Prior Learning (RPL) Opportunity

- The Wood Craft has been one of the Signature crafts of the State. Though the current status of the skill is unsustainable, the potential for the skill is still there but the product mix needs to change from **Utilities** to **Expressions of Arts**. The Skill comes under the stewardship of the Handicraft and Carpets Sector Skill Council.
- The RPL program is an important step towards arresting its downward slide and putting it back on a growth trajectory. The Artisans can gain immensely by joining the RPL program.
- Some of the benefits for the Artisans could be as follows:
 - The Artisans can enter the Framework based on their current skill competencies.
 - The Woodcraft artisans can get the exposure of other Woodcraft Traditions of the country and present opportunities for cross pollination.
 - The Artisans can gain access to better paying markets for the products manufactured by them based on the NSQF.
 - The Certification can help in greater Labour Mobility across the country.

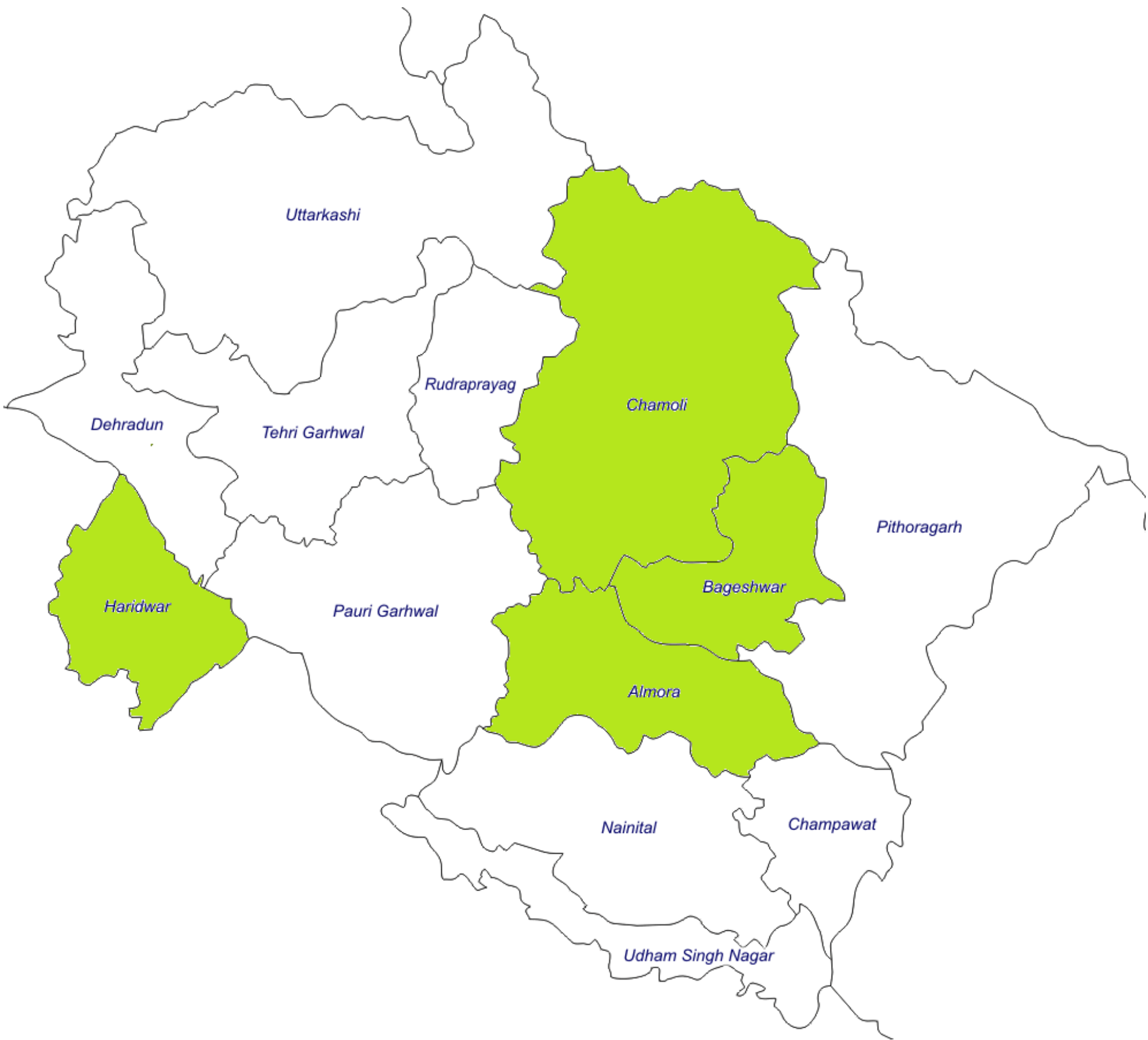
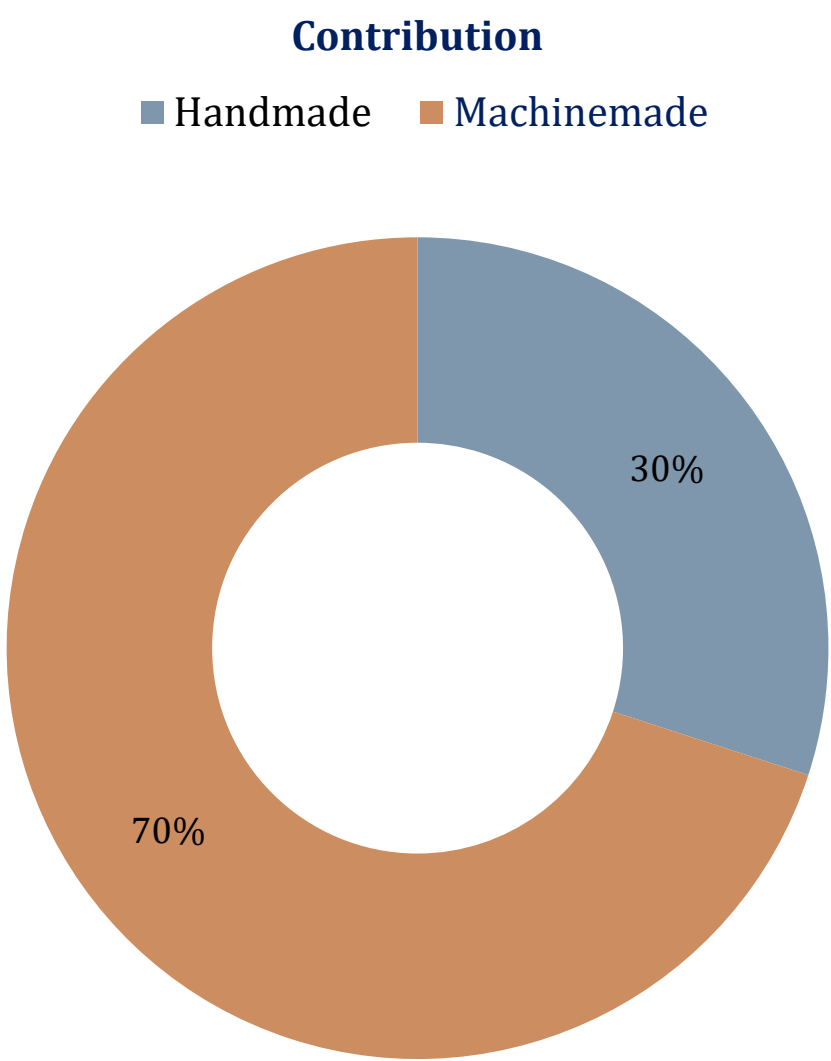
Copper craft- Overview

Copper production in India is only about 0.2 percent of world production, yet it is amongst the top 20 producers in the world.

While 14 states including Uttarakhand have copper reserves, entire copper extraction in India is now concentrated in 3 states, M.P, Jharkhand and Rajasthan.

Traditionally copper has been of high importance for people in Uttarakhand and has been a part of several customs and practices including **marriage and child birth**. Therefore despite having stopped extraction in the state, several copper craftsmen still exist and continue with their trade.

However the trade has been under **immense pressure** in the past few years owing to the **machine produced** copper ware, which has a better finish and produces higher output.



District wise availability of the skill

Copper craft- Skill based learnings

S.No	Dominant Copper produces in the state
1	Standing lamps, aarati (votive lamps), hand lamps – Lighting during religious ceremonies
2	Shallow dishes circular, hexagonal, octagonal and oval shapes – Household usages
3	Plates are characterized by designs of deities, birds, flowers, and geometric patterns beaten out from the back of copper – Decorative and religious purposes
4	Panchpaatra – used in religious rituals and ceremonies
5	Lota, Water Filters, Ghadas – Water Storage and purification
6	Metal toys – Children engagements
7	Musical Instruments – Bhonkara, Ranasingha, Damau, Dhol, etc.
8	Standing lamps, aarati (votive lamps), hand lamps – Lighting during religious ceremonies
9	Shallow dishes circular, hexagonal, octagonal and oval shapes – Household usages
10	Plates are characterized by designs of deities, birds, flowers, and geometric patterns beaten out from the back of copper – Decorative and religious purposes

- Since most of these items are traditional in nature the artisans required to fabricate them should be **aware of the culture and significance** of these items and the roles they play in the rituals.
- At present there is **hardly any new apprentice** (young) in the market and the current practitioners are hesitant in inducting trainees because of the **high copper prices**. Youngsters also get discouraged by the low earning potential in the trade viz-a-viz the effort required to pursue the craft.
- The entire process of copperware can be learnt by anyone with a training and **apprenticeship of 1 year**. The training will be able to acquaint the students with the basics of the trade. The finesse of the art will come after years of practice.
- DIC , Uttarakhand has recently distributed copper toolkits to all registered copper craftsmen, however the feedback from the artisans have not been very encouraging as they did not find some of the tools relevant for the trade. Some craftsmen also talk about the challenges with training, since most of the training programs do not provide copper for practice.

Copper craft- Challenges

Rising prices of copper: The copper rates have shot up over the last decade by almost 3 times. Due to this, craftsmen find it difficult to make the products and sell them. The decline in usage and demand for copper articles has reduced drastically, which renders the artisans unemployed. The current rate of copper fluctuates around Rs. 450 per kg.

Lack of working capital: The entire trade cycle for the copperware is conducted on cash. The suppliers of copper sheets have to be paid cash; the time cost of making utensils has to be borne by the craftsman. Further, if he employs any helpers or workers they have to pay daily wages. Finally, the cycle gets completed only on realization of sale proceeds from the customer in cash. Most of the Tamta artisans are economically below the poverty line (BPL); hence, they cannot generate the required initial investment or the working capital to start production on their own. This makes them vulnerable to exploitation by the merchant or trader, on whose mercy and terms these artisans are surviving.

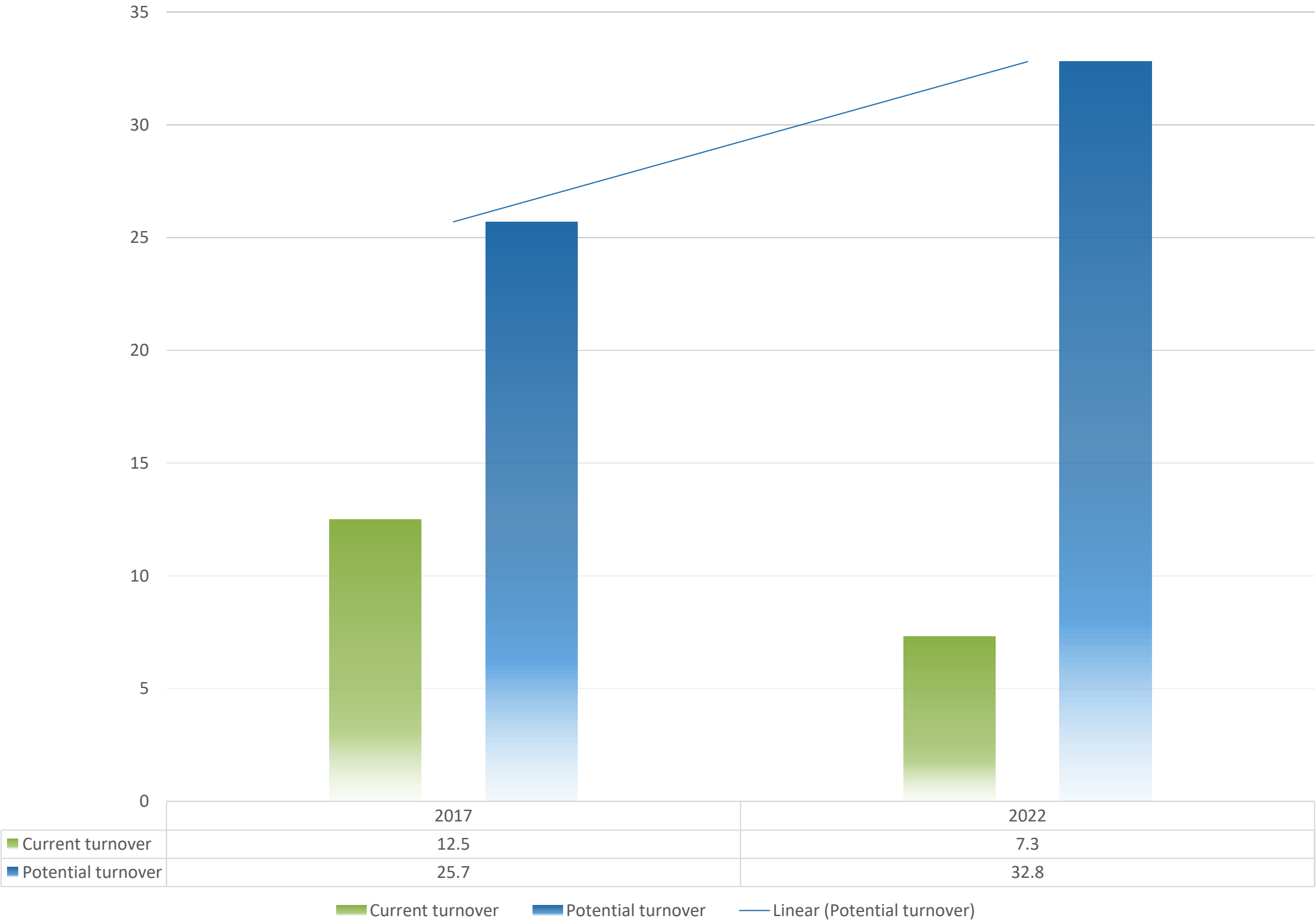
Low wages for craftsmanship: We have spoken to Uttarakhand Shilp Ratna Awardees about the wages. All have observed that the market is unwilling to provide a premium for the craftsmanship. Even after the government has recognized and rewarded them but they are hardly able to provide for their families. During one of our interviews we found that one of the artisans had worked for a merchant for 20 years at Moradabad but had to quit his employment as he was asking for higher wages. Even the award winners mention that the highest potential of earning in this trade currently is about Rs. 10000 a month. This is how much they earn in the peak season

Industrial Substitutes: The Handcrafted Copper Utensils have been facing the heat from **machine made utensils**. But, we have to understand that that competition has **not just emerged** from the factories that **manufacture copper** utensils at industrial scale but also for copper itself. Today the market is flooded with **steel, ceramic, glass, porcelain and the most formidable substitute, Plastic**. Even at the Uttarayani Mela'18 the number of stalls selling copperware was just a couple compared to the traders selling utensils made from substitutes.

Lack of infrastructure and tool upgradation: The artisans are still using ancient techniques and equipment for making their products. **Finishing equipment such as buffing machines, and machines to cut and vary the thickness of the metal are not available to most of the artisans**. In order to avail of these facilities, the artisan has to go all the way to Almora to get the work done. Innovative tools such as hand-held stamps and cutting machines have not yet been introduced for the benefit of the artisans. The introduction of these equipment will reduce the production time, economize the process and help develop innovative designs for the products.

Copper craft- Key numbers

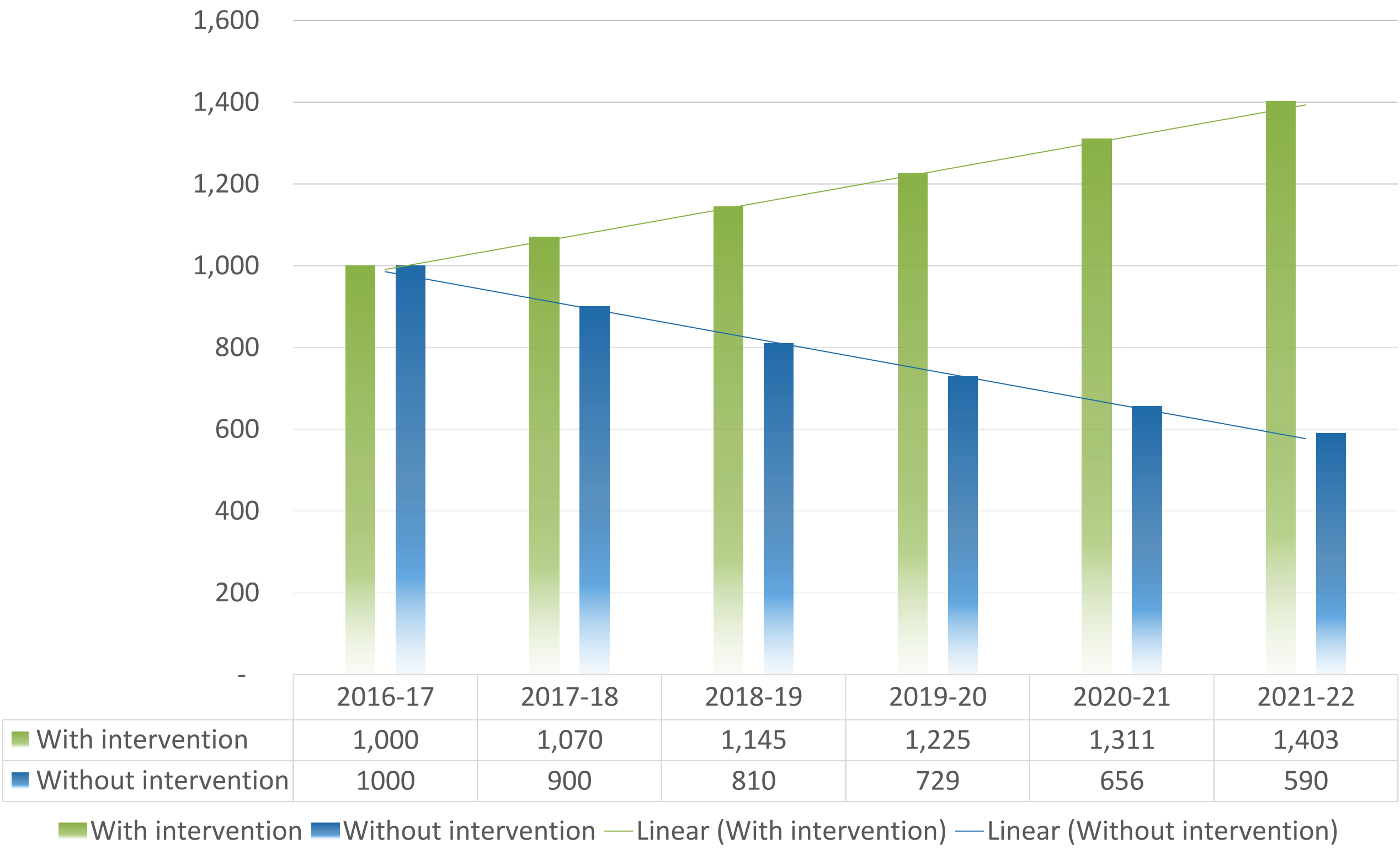
SECTORAL GROWTH



The market is currently pegged at 12.5 cr, however with higher productivity and sufficient skill and trade interventions, it has the potential to be at 25.7 cr currently and grow upto 32.8 cr. Without intervention it is likely to fall to 7.3 cr

The higher potential is subject to sufficient interventions from government and NGOs to promote and train craftsmen

PRACTITIONERS IN THE SECTOR



The number of practitioners have been dwindling rapidly , amongst this approximately 70-80% work part time. The skew towards the senior age group is also a concern for the skill and the number of practitioners is expected to fall drastically in the next 5 years.

Economic Potential of Copper Craft

Annual Estimates	2017-18	2021-22	
	Current Estimate	Potential Without Intervention	Future Projection with Intervention
No. of practitioners	1,000	500	1,403
Average Productivity	125,000	100,000	233,785
Income from Practice (per Person)	48,000	40,000	93,514
Market Size	12.5 Cr	5 Crs	32.8 Crs
Trade Enhancement (In % Terms)			162%
Estimated Working Capital Cycle	1 month		
Working Capital Requirement per Artisan	6250		11869
Working Capital Requirement for the Industry	0.625 Crs		1.64 Crs

Copper craft-Suggestions

Skill Gap	Skill intervention
<p>Innovation & Modernization→ The products prepared are standardized and have been similar in form and design for generations</p>	<ul style="list-style-type: none"> • Training to improve <u>quality of design</u> and making the metal designs contemporary. Skilling intervention required to acquaint the artisans to Tastes of the Urban Customer. • Training for use of <u>modern and efficient machinery</u> for buffing and finishing of products. • New <u>products innovations</u> like flasks and hot water geysers, • The Artisans have to be provided support to use copper as a medium of <u>expression for Arts and Artifacts.</u> Currently they want to continue surviving by making kitchen utensils which is a shrinking market. • The <u>Ayurvedic Benefits of copperware need to be communicated through the tourism industry</u> and built upon to make wider and more relevant product in forms like lotas with cover, copper shot glasses, etc.
<p>Selling skills</p>	<ul style="list-style-type: none"> • Catering to only local needs is unlikely to be sufficient in the long run. Therefore <u>newer and urban markets</u> need to be looked at. This would also mean modernization and innovation for the industry • Potential customers need to be educated about the benefits of cooper and the selling skills need to be built around these benefits • Training in ayurvedic and wellness properties of copper

Copper Craft Job Roles

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Copper Craftsman Helper	1	These include Tasks of preparing the Metal Sheets, Cutting & Hammering Tools, Heating & Welding Apparatus	Familiar with common trade terminology, instructional words meaning and understanding	Routine and repetitive, takes safety and security measures.	Maintaining Clean Safe and Healthy Environment while Working with Heated Instruments, Sharp Metal Cutters, Heating & Welding Apparatus	Only Performs Tasks that are basic and supervised by the Master Craftsman. No Decision making tasks are Assigned.
Copper Craftsman - Apprentice	2	Performs Basic tasks Like Weighing and Marking of Metal Sheets. Metal Cutting, Welding and Joining Metal Sheets. Has started Hammering of Sheets	Understands and Clearly understands the processes involved in preparing the Utensils and other items	Performs independent tasks repetitive in nature	The Apprentice is able to converse with a master craftsman and engage with him on the tasks Assigned	Carries out Tasks assigned, instructed and supervised by the Master Craftsmen.
Junior Copper Craftsman	3	Performs the tasks of Marking Metal Sheets, Metal Cutting, Welding and Joining Metal Sheets and Hammering Sheets to Desirable Shapes.	He performs All basic Activities of a Craftsman and deliver utensils	Performs the tasks of Marking Metal Sheets, Metal Cutting, Welding and Joining Metal Sheets and Hammering Sheets to Desirable Shapes.	The Apprentice is able to engage with the master Craftsman on tasks assigned with reasonable degree of proficiency .	He is able to make unfinished Utensils. Still requires supervision and guidance of the Master Craftsman to complete the utensils
Copper Craftsman	4	He independently finishes his utensils and able to make market ready utensils	Has full knowledge of the Craft both theory and practical	He independently finishes his utensils and able to make market ready utensils	The Craftsman can communicate the processes followed in the making and price the material used & the efforts put in.	Takes the full responsibility of the utensils delivered and the functionality of the Units.
Senior Copper Craftsman	5	He independently finishes his utensils and able to make market ready utensils. He able to take Specifications from Customers and deliver familiar Products accordingly	Complete Knowledge of the metal and processes involved in delivering marketable units of familiar Items	He is able to make to order general items and requiring realignment and balancing of utensils as per the proportions specified by the customer	Has the desired level of Mathematical Skills understanding of readjusting the proportions of the utensils as per the requirements of the customer.	Responsible for own Work and Learning and can delegate and monitor the work of colleagues
Master Copper Craftsmen	6	He can deliver a wide range of utensils, figurines and Artifacts using his knowledge and experience with the metals.	Understanding of the Metal and its possibilities reasonably explored by the Craftsmen	He has the required Cognitive and Practical Skills required to provide conventional and Made-To-order solutions.	Reasonably good understanding on the amount of raw material required to deliver conventional and made-to-order jobs. Ability to understand the strength that the metal delivers in various forms and gauges.	Fully Functioning as a Master Craftsmen. Engaging other Copper craftsmen on various jobs of conventional and made-to-order nature.

Copper Craft NOS Codes



Job Role	Level	NOS Available	NOS Name	NOS Proposed
Copper Craftsman Helper	1	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Copper Craftsman - Apperentice	2	HCS/N 2801	Handicraft material and their handling	
		HCS/N 2802	Handicraft material and their handling	
		HCS/N 9904	Basic Measurements	
		HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Junior Copper Craftsman	3	HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	
		HCS/N 9904	Basic Measurements	
		HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Copper Craftsman	4	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N2902	Preparation for Engraving	
		HCS/N2903	Engraving Design on Metal Surface	
		HCS/N9901	Team Work	
		HCS/N 9902	Mold Making	
Senior Copper Craftsman	5	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N2902	Preparation for Engraving	
		HCS/N2903	Engraving Design on Metal Surface	OS unit on selling and marketing skills
		HCS/N9904	Basics of Business Management	
		HCS/N9901	Team Work	
		HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	
Master Copper Craftsmen	6	HCS/N2903	Engraving Design on Metal Surface	OS unit on design skills
		HCS/N9904	Basics of Business Management	OS unit on selling and marketing skills
		HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	
		HCS/N 2801	Casting operations	

Recognition of Prior Learning (RPL) Opportunity

- Copper Craft is one of the most evolved traditional skills of the state. However, the artisans have failed to keep pace with the changing trends of the market and are on the verge of extinction. There are a handful of master craftsmen left who are the reminiscence of the prosperous past of the Craft. There is an urgent need to change the product mix of the artisans. Currently they are manufacturing only Utility Items like Copper Pots and other water holding utensils.
- They are expected to do better if they shift to products which have more room for Artistic Expression. This would require a massive upgradation of their current skills and put them on a different trajectory.
- The RPL program can be extremely useful in this quest. Some of the benefits of joining the scheme are mentioned below:
- The artisans can have a lateral entry into the NSQF at a level which is commensurate to their competency and flair for the skill.
- The Skill Training can give them a greater flexibility in terms of experimenting with new designs and items.
- The Certification can help in greater Labour Mobility across the country.
- The Products manufactured by the NSQF Qualified Artisans may have access to bigger and better markets.
- The Incentive of around Rs. 2200 for artisans joining the RPL Scheme can provide the right encouragement.
- Currently, there might be an opportunity to cover around 1000 artisans under the various Levels and Job Roles of the NSQF.

Iron craft- Overview

Iron craft is one of the **oldest skills of the state**. It has evolved owing to the requirement of better weapons for fighting and stronger agricultural tools. The Art grew at the time of Chand Dynasty when the kingdom required quality swords and shields to be made. The Arya were an ironsmith caste which had their roots in plains. This community was given lands and encouraged to come and settle in Champawat, District of Uttarakhand.

The art is concentrated in the Lohaghat tehsil of Champawat District of Uttarakhand, however it does get practiced in some other districts as well, in small numbers

The craft is a particularly difficult because **large pieces of iron have to be beaten into shapes of a Kadhi and tawa.**

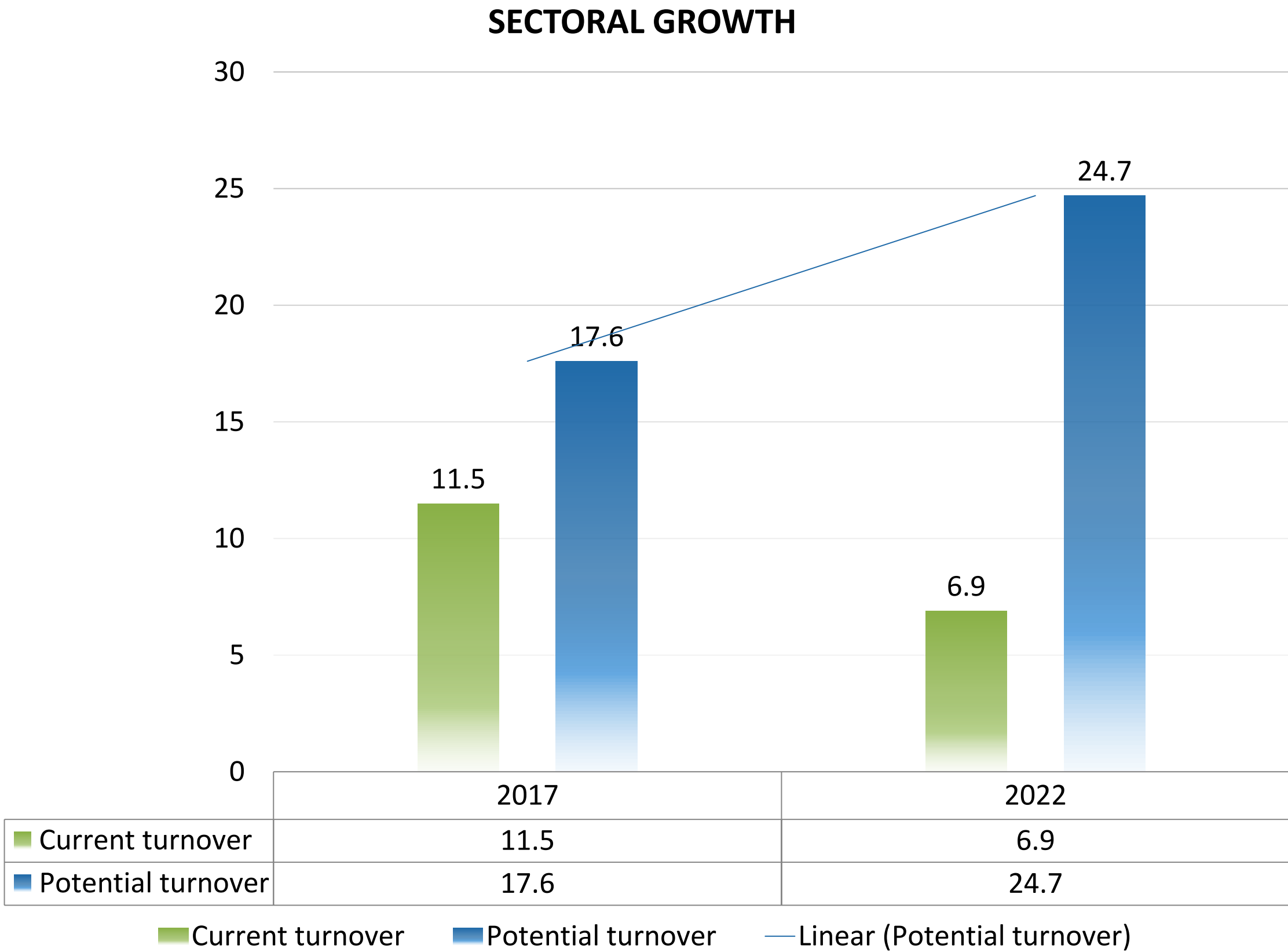
The potential demand for hand-made utensils has been seeing a **steady decline** in the last couple of decades with the advents of industrial substitutes. However, the **demand for metal artifacts has maintained and even grown** over the last decades.

This opens new avenues for the metal Artisans to shift to other lucrative streams which fundamentally remain in-tune with metal craft.

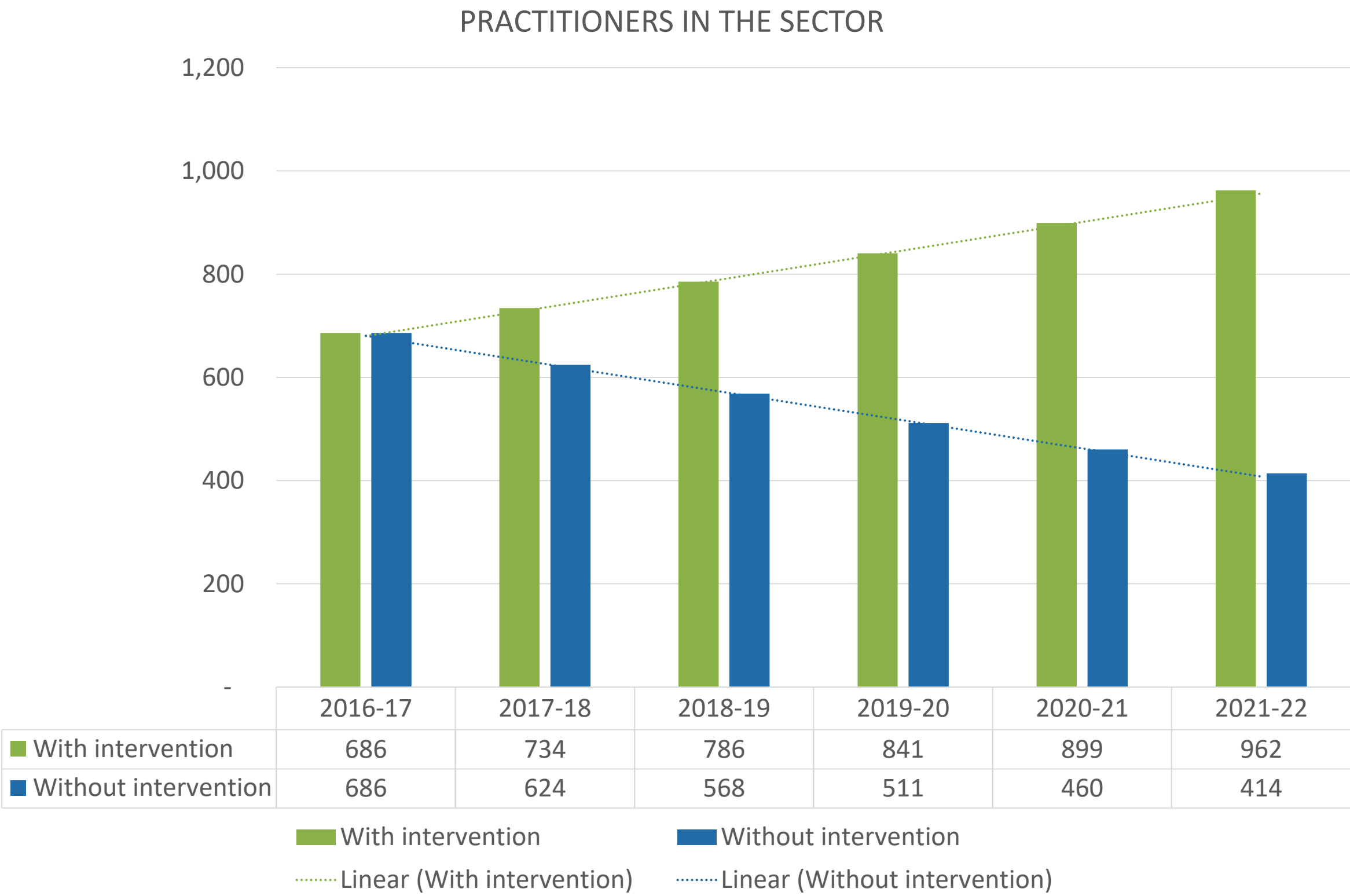


District wise availability of the skill

Iron craft- Market size



The market is currently pegged around **11.5 cr**, however the potential is higher. The market potential for this could go upto **24.7 cr** in the next 5 years . This is with adequate intervention for the skill in form of promotion and skilling



We estimate that around 700 artisans are practicing Iron craft in Uttarakhand. Without skill intervention we expect their numbers to fall to 400 in the coming 5 Years.

Re-skilling and up-skilling in may help check the fall and may make it lucrative for new persons to join the skill as well.

Economic Potential of Iron Craft

Annual Estimates	2017-18	2021-22	
		Potential Without Intervention	Future Projection with Intervention
No. of practitioners	686	412	962
Average Productivity	167,638		256,757
Income from Practice (per Person)	67,000		102,700
Market Size	11.5 Crs		24.7 Crs
Trade Enhancement (In % Terms)			115%
Estimated Working Capital Cycle	1 month		
Working Capital Requirement per Artisan	8328		12838
Working Capital Requirement for the Industry	0.57 Crs		1.2 Crs

Iron craft-Suggestions

Skill Gap	Skill intervention
Innovation & Modernization→ The products prepared are standardized and have been similar in form and design for generations	<ul style="list-style-type: none"> • Training to improve <u>quality of design</u> and making the metal designs contemporary. Skilling intervention required to acquaint the artisans to Tastes of the Urban Customer. • Training for use of <u>modern and efficient machinery</u> for buffing and finishing of products. • New <u>products innovations</u> like flasks and hot water geysers, • The Artisans have to be provided support to use copper as a medium of <u>expression for Arts and Artifacts</u>. Currently they want to continue surviving by making kitchen utensils which is a shrinking market.
Selling skills	<ul style="list-style-type: none"> • Catering to only local needs is unlikely to be sufficient in the long run. Therefore newer and urban markets need to be looked at. This would also mean modernization and innovation for the industry

Iron Craft Job Roles

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Iron Craftsman Helper	1	These include Tasks of preparing the Metal Sheets, Cutting & Hammering Tools, Heating & Welding Appratus	Familiar with common trade terminology, instructional words meaning and understanding	Routine and repetitive, takes safety and security measures.	Maintaing Clean Safe and Healthy Environment while Working with Heated Instruments, Sharp Metal Cutters, Heating & Welding Apparatus	Only Performs Tasks that are basic and supervised by the Master Craftsman. No Decision making tasks are Assigned.
Iron Craftsman - Apperentice	2	Performs Basic tasks Like Weighing and Marking of Metal Sheets. Metal Cutting, Welding and Joining Metal Sheets. Has started Hammering of Sheets	Understands and Clearly understands the processes involved the preparing the Utensils and other items	Performs independent tasks repetitive in nature	The Apperentice is able to converse with a master craftsmen and engage with him on the tasks Assigned	Carries out Tasks assigned, instructed and supervised by the Master Craftsmen.
Junior Iron Craftsman	3	Performs the tasks of Marking Metal Sheets, Metal Cutting, Welding and Joining Metal Sheets nad Hammering Sheets to Desirable Shapes.	He performs All basic Activities of a Craftsman and deliver utensils	Performs the tasks of Marking Metal Sheets, Metal Cutting, Welding and Joining Metal Sheets nad Hammering Sheets to Desirable Shapes.	The Apprentice is able to engage with the master Craftsman on tasks assigned with reasonable degree of proficiency .	He is able to make unfinished Utensils. Still requires supervision and guidance of the Master Craftsman to complete the utensils
IronCraftsman	4	He independently finishes his utensils and able to make market ready utensils	Has full knowledge of the Craft both theory and practical	He independently finishes his utensils and able to make market ready utensils	The Craftsman can communicate the processes followed in the making and price the material used & the efforts put in.	Takes the full responsibility of the utensils delivered and the functionality of the Units.
Senior Iron Craftsman	5	He independently finishes his utensils and able to make market ready utensils. He able to take Specifications from Customers and deliver familiar Products accordingly	Complete Knowledge of the metal and processes involved in delivering marketable units of familer Items	He is able to make to order general items and requiring realignment and balancing of utensils as per the proportions specified by the customer	Has the desired level of Mathematical Skills understanding of readjusting the proportions of the utensils as per the requirements of the customer.	Responsible for own Work and Learning and can deligate and monitor the work of colleagues
Master Iron Craftsmen	6	He can deliver a wide range of utensils, figurines and Artifacts using his knowledge	Understanding of the Metal and its possibilities reasonably	He has the required Cognitive and Practical Skills required to	Reasonably good understanding on the amount of raw material required to deliver conventional and made-	Fully Functioning as a Master Craftsmen. Engaging other Iron craftsmen on various jobs

Iron Craft NOS Codes

Job Role	Level	NOS Available	NOS Name	NOS Proposed
Iron Craftsman Helper	1	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Iron Craftsman - Apprentice	2	HCS/N 2801	Handicraft material and their handling	
		HCS/N 2802	Handicraft material and their handling	
		HCS/N 9904	Basic Measurements	
		HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Junior Iron Craftsman	3	HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	
		HCS/N 9904	Basic Measurements	
		HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N9901	Team Work	
		HCS/N 9902	Maintain personal health	
Iron Craftsman	4	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N2902	Preparation for Engraving	
		HCS/N2903	Engraving Design on Metal Surface	
		HCS/N9901	Team Work	
		HCS/N 9902	Mold Making	
Senior Iron Craftsman	5	HCS/N9903	Importance of Safety, Health & Hygiene	
		HCS/N2902	Preparation for Engraving	
		HCS/N2903	Engraving Design on Metal Surface	OS unit on selling and marketing skills
		HCS/N9904	Basics of Business Management	
		HCS/N9901	Team Work	
		HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	
Master Iron Craftsmen	6	HCS/N2903	Engraving Design on Metal Surface	OS unit on design skills
		HCS/N9904	Basics of Business Management	OS unit on selling and marketing skills
		HCS/N 2801	Mold Making	
		HCS/N 2802	Mold Making	
		HCS/N 9901	Mold Making	
		HCS/N 9902	Mold Making	

Recognition of Prior Learning (RPL) Opportunity

Iron Craft has a very pervasive presence owing to the strong agricultural traditions of the state. As discussed earlier, the Artisans essentially make farming tools and Kitchen utensils. Due to stiff competition coming from alternatives the skill have been facing pressures.

RPL is a very relevant skill for the Iron Craftsmen of the State as it can have the following advantages for the State:

- The artisans can have a lateral entry into the NSQF at a level which is commensurate to their competency and flair for the skill.
- The Skill Training can give them a greater flexibility in terms of experimenting with new designs and items.
- The Certification can help in greater Labour Mobility across the country.
- The Products manufactured by the NSQF Qualified Artisans may have access to bigger and better markets.
- The Incentive of around Rs. 2200 for artisans joining the RPL Scheme can provide the right encouragement.

Currently, there might be an opportunity to cover around 400 artisans under the various Levels and Job Roles of the NSQF.

Jewelry- Overview

Uttarakhand has a very evolved and unique style of jewelry. The women folk are quite fond **of Silver and Gold Jewelry**. The wearing of jewelry has not been limited to special occasions rather the **everyday attire of women** is incomplete without jewelry.

The Traditional jewelry used to have a preference of Silver over gold. Earlier women would wear 500g to 700g of silver daily while attending to their daily chores. This trend has changed

The challenges of the Jewelry in Uttarakhand are:

Hallmark – Kumaoni and Garhwal jewelry are made **in 24-Carat gold**, however, the jewelry in the plains is made of 22-Carat. Further, the BIS (Bureau of Indian Standards) Hallmark for purity of Gold Jewelry is given on **22-Carat Gold**. If to implement the Hallmark Standards the Kumaonis shift to 22-Carat they will lose the customers who prefer 24 Carat.

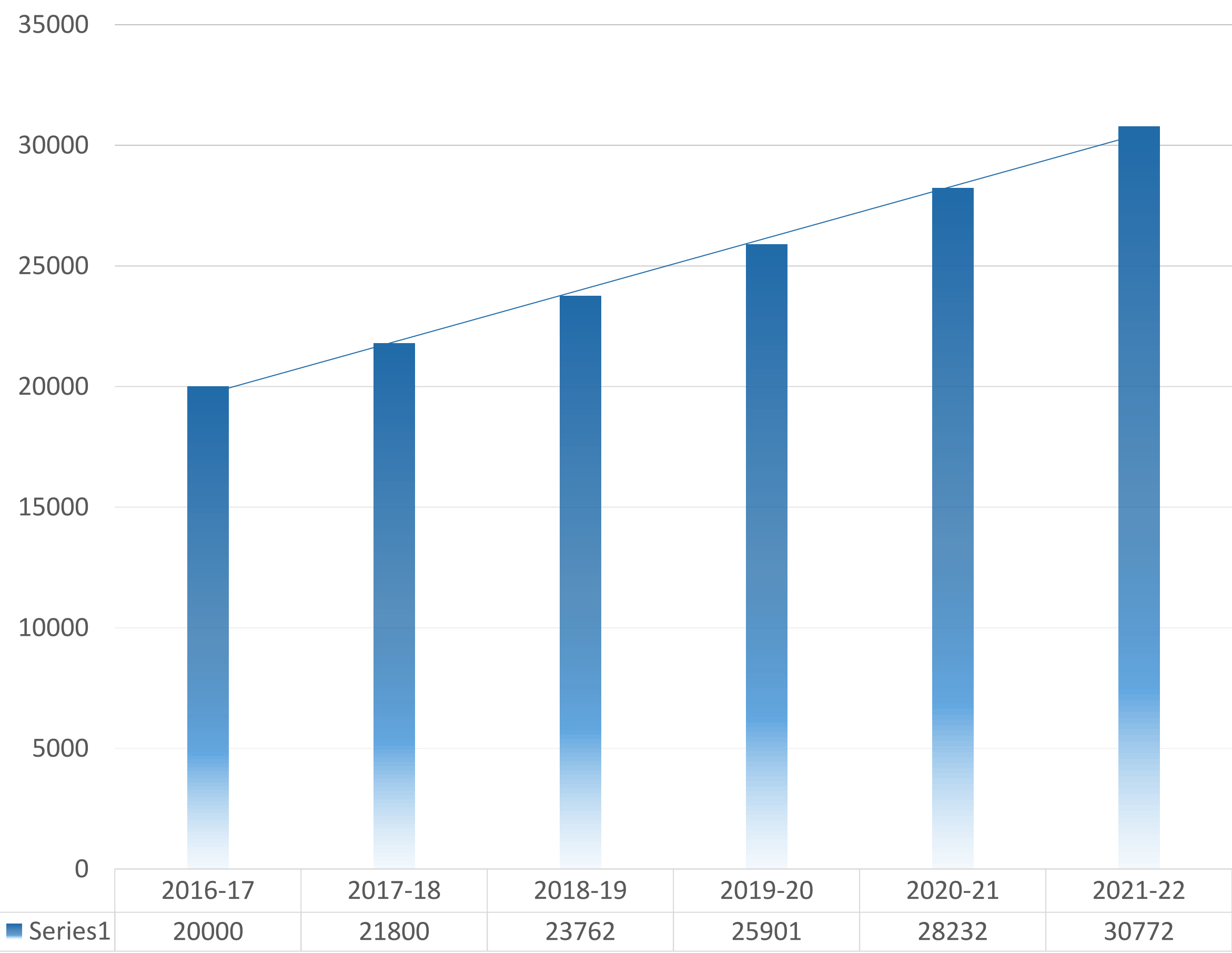
Skilled Workers – The skilled workers for the jewelry trade in Kumaon and Garhwal are **usually from Bengal**. There are hardly any workers from Uttarakhand. This reflects the gap in skill training opportunities for the unemployed youth.



District wise availability of the skill

Jewelry-Key numbers & Suggestions

PRACTITIONERS IN THE SECTOR



There is a **huge potential for the skill** in this state as approximately **20000 workers** from Bengal have been employed in the trade. DIC, Uttarakhand has arranged a few workshops on jewelry designing for the local youth in the past.

The jewelry workers in Uttarakhand are employed in an unorganized sector, wherein they work on a contractual basis depending the work load. They are paid in cash as well as metal waste, which has also been considered as a part of their earnings.

Skill Gaps	Skill intervention
Training of the locals	Training modules for younger women in the hilly regions for jewelry designs
Marketing and promotions	Fashion shows based on the traditional designs in conjunction with the institutes
Innovation	Metal experiments with junk jewelry to make the designs and patterns more suitable for regular use Integrating jewelry with fabric

Economic Potential for Jewelry

There is high potential for the skill in this state. The State has approximately 4000 Jewelry Shops spread across most of the towns and cities. There are two kinds of job roles available, namely,

- **Retailers** - We estimate that around 8000 sales persons are employed for retail of Jewelry.
- **Jewelry Makers/Workers** - As per the estimates provided by the industry practitioners, approximately 10,000 - 12000 workers from Bengal are employed in these Job - Roles.

Annual Estimates	2017-18	2021-22
	Current Estimate	Future Projection
No. of practitioners	20,000	30,772
Market Size	854.8 cr	1011 cr
Trade Enhancement (In % Terms)		18%

Jewelry Job Roles

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Goldsmith: Component Maker	3	Draw wire or strip from precious metal or alloy bar. Make ball from precious metal or alloy. Stamp on the gold sheet. Make gold chain	Has an understanding of the nature of Precious metals including their malleability and ductility of Precious Metals	Demonstrate Skill of making various kinds of designs out of metals using various processes	Has the understanding to interpret what the customer wants and make adjustments using arithmetic calculations on weights and nature of metals	Has to work in close coordination with the shop owner/Jeweller
Polisher and Cleaner	3	Polish, clean and finish the jewellery	Has the understanding of how the final workpieces should look and feel. He makes the Workpieces market ready	Demonstrates dexterity in cleaning and polishing of the Workpieces	Has the ability to understand and communicate with the customers and Jewellers	Has to work in close coordination with the shop owner/Jeweller
Setter	3	Set gemstones on jewellery frame	Has the knowledge and skill to set and precious stones in various metal workpieces	Demonstrates Dexterity in Setting Stones to Metal Workpieces	Has the ability to understand and communicate with the customers and Jewellers	Has to work in close coordination with the shop owner/Jeweller
Goldsmith: Enameller	4	Paint with enamel colours on jewellery frame	Has an understanding of Jewellery Design and appearances.	Demonstrate very fine skill of applying paint on metal to enhance the look of the workpiece	Has the ability to understand and communicate with the customers and Jewellers	works independently and engages with the Jeweller on contractual basis
Goldsmith: Frame Maker	4	Make the jewellery frame of gold or alloy	Has an understanding of Jewellery Design and appearances.	Demonstrates the ability to make jewellery frames out of metal sheets	Has the ability to understand and communicate with the customers and Jewellers	works independently and engages with the Jeweller on contractual basis
Master Maker (Hand)	5	Draw jewellery designs. Draw wire or strip from precious metal or alloy bar. Make ball from precious metal or alloy. Stamp the gold sheet. Make gold chain. Make the jewellery frame of gold or alloy. Set gemstones on jewellery frame	Has an understanding of Jewellery Design and appearances.	Demonstrates the ability to cast, Stamp, emboss and Engrave Metal Sheets with the Designs and patterns	Has the ability to communicate with the Jeweller, Customer and co-workers on all aspects of the Craft.	Holds the primary responsibility of the work and delivery of the workpieces. Engages with the Jeweller on employment and contractual basis but is the final authority on possibilities
Jeweller	6	Owns and Runs the business of Jewellery	A great deal of Knowledge and experience on the possibilities of the metal and Designs. He also understands the trends that emerge in the market and prepare to ride it.	He is capable of conducting the trade in precious metals, gemstones	Has the ability to price the efforts undertaken on the workpieces, engage with contractual artisans and schedule the works	He is fully responsible for the business and the relations with customers, Employees and Contractual Artisans

Jewelry NOS Codes

Job Role	Level	NOS Available	NOS Name	NOS Proposed
Goldsmith: Component Maker	3	G&J/N9916	Communicate with colleagues and seniors	OS unit on Uttarakhand traditional designs
		G&J/N9911	Coordinate with others	
		G&J/N0601	Draw wire or strip from precious metal or alloy bar	
		G&J/N0602	Make ball from precious metal or alloy	
		G&J/N9912	Coordinate with others	
Polisher and Cleaner	3	G&J/N0701	Polish, clean and finish the jewellery	
		G&J/N9911	Coordinate with others	
Setter	3	G&J/N0801	This OS unit is about selecting gemstones for setting in a jewellery as per design in terms of shape, size, weight, colour and type	OS unit on Uttarakhand traditional designs
Goldsmith: Enameller	4	G&J/N0902	Paint with enamel colours on jewellery frame	OS unit on Uttarakhand traditional designs
Goldsmith: Frame Maker	4	G&J/N0702	Supervise the cleaning and polishing department’s functions	OS unit on Uttarakhand traditional designs
Master Maker (Hand)	5	G&J/N1402	Draw jewellery designs	OS unit on Uttarakhand traditional designs
		G&J/N0601	Draw wire or strip from precious metal or alloy bar	OS unit on customer handling,
		G&J/N0606	Supervise frame making	
		G&J/N0607	Supervise components making	
		G&J/N0702	Supervise the cleaning and polishing department’s functions	
		G&J/N0805	Supervise gemstone setting	
Jeweller	6	G&J/N9915	Interact with colleagues, customers and vendors	OS unit on Basic business skills
		G&J/N9914	Maintain safe and clean work environment	
		G&J/N0303	Procure raw materials for jewellery manufacturing	
		G&J/N9910	Maintain IPR and respect copyright	
		G&J/N0101	Plan and manage production process	

Recognition of Prior Learning (RPL) Opportunity

- The Jewelry Industry is a business of trust. To get gainfully employed the Artisan has to have a very high level of integrity. Usually new artisans enter the trade based on reference of established and experienced senior artisans. Their career progression is at the mercy of the Senior Artisans.
- The RPL Program has a huge potential with the Jewelry Community as it will open the industry to meritocracy. The existing artisans can qualify the NSQF levels to get certified for their existing skills. They can also go for courses that they want to specialize into.
- The following benefits are expected to come to the existing artisans who join the RPL program.
- The Workers can negotiate their earnings with the Jewelers based on their certification.
- The RPL program will greatly improve labour mobility as artisans can move to any part of the country and the world and apply based on their certification.
- The Artisans become empowered to choose their career progression paths and will not have to depend on their community and geographical constraints.
- Currently the program has the potential to cover around 20,000 Jewelry Workers under the RPL Program.

Yoga- Overview

Rishikesh is widely recognized as the “Yog capital of the World”. World renowned Yog Practitioners like Swami Ramdev, Acharya Balkrishna, Swami Chidanand Saraswatiji, Yogrishi Vishvketu, etc. have made Uttarakhand their home. Despite the large number of potential yoga students as well as the reputation of the place , **only approximately 200** practitioners are registered with different bodies in Uttarakhand and as per AYUSH , as well the number of practitioners in Uttarakhand is 0.

There are 164 registered practitioners in Uttarakhand (as per Yoga Alliance) .According to a recent survey published in the Indian Express, the increase in the yoga practitioners in the recent past has been 30% within Indian metros. This is a reflection of the demand for the skill , however this may not translate into increase in the numbers in Uttarakhand in the recent future. The demand outside the state is likely to trigger outmigration of the practitioners who are not doing too well in Rishikesh.

There are several unregistered outfits which are operating and fulfilling the market potential. This has therefore led to a **lopsided development** of the sector in Uttarakhand , where several practitioner **also claim** that they are not **getting enough students** across the year to sustain their school/ashram. This is true primarily for the small and individual teacher .



District wise availability of the skill

Yoga- Challenges

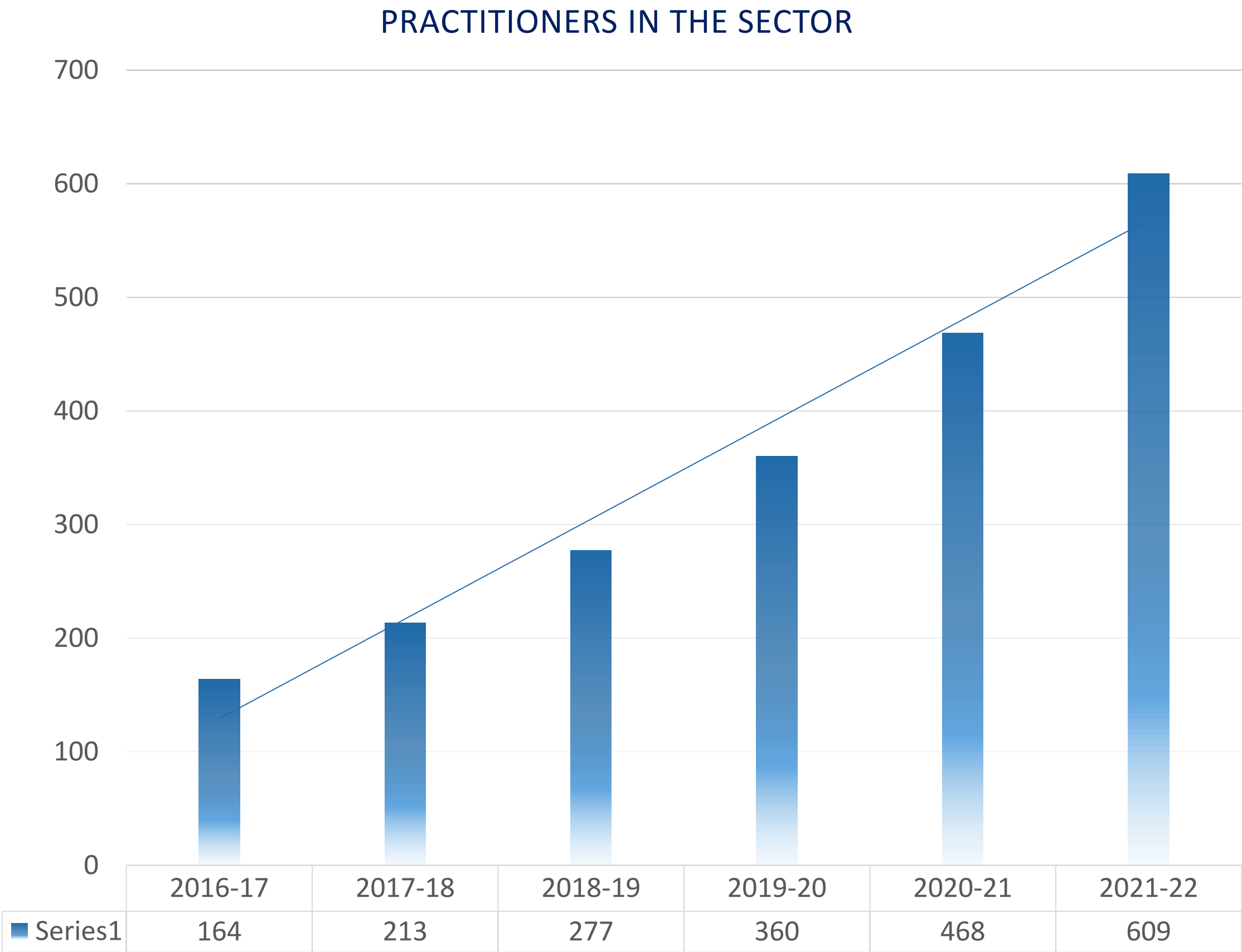
Standardization and Accreditation of Schools: There is a huge body of Knowledge of Yoga available. Multiple experts have interpreted these texts as per their own understanding. This has caused a wide variety of practices to emerge which might seem to be in conflict. An urgent need to identify the practices which are consistent with the ethos of yoga is required. This can bring in consistency and authenticity to the Yoga Discipline in the state.

Identification and Recognition of Yoga Practitioners: It would be interesting to note here that a simple Google search on Yoga Practitioners does not throw a single name of an Indian based out of Rishikesh. The Yoga Space on the Internet has to be reclaimed and Yoga Practitioners have to be recognized. A directory has to be built which acts as the principle point of reference for Yoga Shopping worldwide is required.

Maintaining a Log of Students enrolling at various courses: Students and Yoga Enthusiasts from around the world come to Uttarakhand to learn Yoga. No authentic records are maintained of these visits which can help us better manage the traffic. These Visitors are an asset for the state and recording of such data will help us better manage the Industry.

Ombudsman of Yoga: The state is in need of an Ombudsman of Yoga to help regulate the Yoga experience of Yoga Enthusiasts. The regulator will ensure that the schools teaching Yoga adhere to established guidelines on teaching and practicing Yoga. They also provide tight security and Hygiene for residential students.

Yoga-Suggestions



The actual registered number is quite low as compared to the several actual practitioners in Uttarakhand. The number of registered practitioners is likely to grow to 609 in the next 5 years

Skill Gap	Skill intervention
Marketing training	<ul style="list-style-type: none">• The native yoga practitioners are facing stiff competition from the international practitioners who have learnt and stayed back and attract the foreign tourists/ students easily. The native practitioners will have to be trained in <u>selling their skills better to the potential customers.</u>• Various focused <u>short duration course</u> have to be devised keeping in mind the goals of the consumer segments that come to the city for Yoga Shopping• <u>Presentation and Language course</u> have to be introduced for existing Yoga Teachers.• Courses on <u>Internet Marketing</u> are the need of the hour for Yoga Teachers to help them get students from distant places.

Economic Potential of Yog

Annual Estimates	2017-18	2021-22
	Current Estimate	Future Projection
No. of practitioners	224	609
Average Productivity	120,000	193,000
Market Size	2.7 Crs	11.7 cr
Trade Enhancement (In % Terms)		333%
Estimated Working Capital Cycle	1 month	
Working Capital Requirement per Artisan	10000	16000
Working Capital Requirement for the Industry	0.224 cr	0.974 cr

Yoga Job Roles

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill	Responsibility
Yoga Instructor	4	He has clear understanding the essentials for a Yoga Session	Has the clear understanding on the benefits of every Asana and Breathing Techniques	Has the Ability to perform the various Asanas and also knows the variations across the various Schools of Yoga Practiced	He is able to instruct the participants in the Sessions while performing the Yoga Asanas in a simple and explanatory language	He Independently conducts Yoga classes, with reasonable proficiency
Yoga Trainer	5	Yoga Trainer is required to know the following Yoga Practices: Hatha Yoga Ashtanga Vinyasa Yoga	Has a clear Understanding of the Benefits for the Asanas and Breathing Techniques	Has the Ability to perform the various Asanas and also knows the variations across the various Schools of Yoga Practiced	He is able to prepare asanas routines for Bal, Mahila and Vridha Clients	Fully Functioning as Yoga Trainer. Able to guide yoga Instructors on the various Aspects and Practices.
Senior Yoga Trainer	6	Able to Conduct Sessions on Advanced Levels of Ashtanga Yoga and Hatha Yoga	Aware of the Advanced Levels of Ashtanga Yoga and Hatha Yoga	Conduct the Advanced Yoga sessions and train the Yoga Instructors	Communicate and Clear the Queries of Yoga Enthusiasts and Students taking Courses of becoming Yoga Trainer & Yoga Instructor	Fully Responsible for advising Yoga Enthusiasts on the Choice of Asanas and Breathing Techniques. Has the ability to train Yoga Trainer & Yoga Instructor as per the NSQF.

Yoga NOS Codes

Yoga Instructor	4	BWS/N9001	Prepare and maintain work area	OS unit on Business practices and log maintenance
		BWS/N2201	Conduct the basic Yoga sessions	OS unit on Internet marketing
		BWS/N9002	Maintain health and safety at the work place	OS unit on foreign languages and interaction with foreigners
		BWS/N9003	Create a positive impression at the work place	
Yoga Trainer	5	BWS/N9001	Prepare and maintain work area	OS unit on Business practices and log maintenance
		BWS/N2204	Conduct the Advanced Yoga sessions	OS unit on Internet marketing
		BWS/N2202	Conduct Hatha Yoga sessions	OS unit on foreign languages and interaction with foreigners
		BWS/N2203	Conduct Ashtanga Vinyasa Yoga Sessions	
		BWS/N9002	Maintain health and safety at the workplace	
		BWS/N9003	Create a positive impression at the workplace	
		BWS/N2208	Conduct the Bal Yoga sessions	
		BWS/N2209	Conduct the Mathila Yoga sessions	
		BWS/N2210	Conduct the Vridha Yoga session	
Senior Yoga Trainer	6	BWS/N9001	Prepare and maintain work area	OS unit on Business practices and log maintenance
		BWS/N2207	Conduct the Advanced Yoga sessions and train the Yoga Instructors	OS unit on Internet marketing
		BWS/N2206	Conduct Advanced Ashtang a Vinyasa Yoga sessions and train the Yoga Instructors	OS unit on foreign languages and interaction with foreigners
		BWS/N2205	Conduct Advanced Hatha Yoga sessions and train the Yoga Instructors	
		BWS/N9002	Maintain health and safety at the workplace	
		BWS/N9003	Create a positive impression at the work place	

Recognition of Prior Learning (RPL) Opportunity

- As discussed above, Uttarakhand is the Yoga Capital of the world but has no Registered Yoga Instructors/Trainers. The only register of Instructors/Trainers is available on Yoga Alliance, a US based organization. They classify the practitioners based on the feedback received from practitioners and enthusiasts who attend courses with them.
- NSQF provides a robust mechanism to identify and certify the skill of Instructor/Trainers. The Job Roles created by the Beauty and Wellness SSC comprehensively maps the competency of the Instructor/Trainers.
- The RPL Program can have the followed pronounced benefits for the Enthusiasts and Instructors:
- It can give an assurance to the Practitioners and Enthusiasts that the Instructor/Trainers has the required theoretical & practical knowledge and has been tested for outcomes.
- The Instructors can gain an understanding of the outcomes that their participants expect out of the courses they undertake.
- The Instructors can enter the framework at their current levels and they move to higher levels of competency.
- Joining the scheme will increase their mobility across the country and overseas.
- All the current Instructor/Trainers, students at the various State Colleges learning Yoga can join the Scheme.

Ayurveda- Overview

Uttarakhand has been the hub of Ayurvedic practitioners since ancient times. This traditional healing system was pervasively practiced as a variety of medicinal plants mentioned in the texts were found in the Himalayas.

Today, the Himalayas are one of the most sought after destinations for availing Ayurvedic Treatments. A lot of Ayurvedic Hospitals and Spas have come up in the hills.

The most notable of these institutions based out of Uttarakhand are Patanjali Hospital at Haridwar and Ananda Spa at Rishikesh. People from across the country and the world come here to experience Ayurvedic Healing.



District wise availability of the skill

Ayurveda- Challenges

Despite these excellent initiatives this industry in Uttarakhand has the potential to grow substantially for the following reasons:

Inadequate Facilities: Ministry of AYUSH, has started registration of Ayurveda Hospitals and Practitioners in the country. There are just 7 registered Ayurvedic Hospitals with a total of 319 beds for the entire state of Uttarakhand.

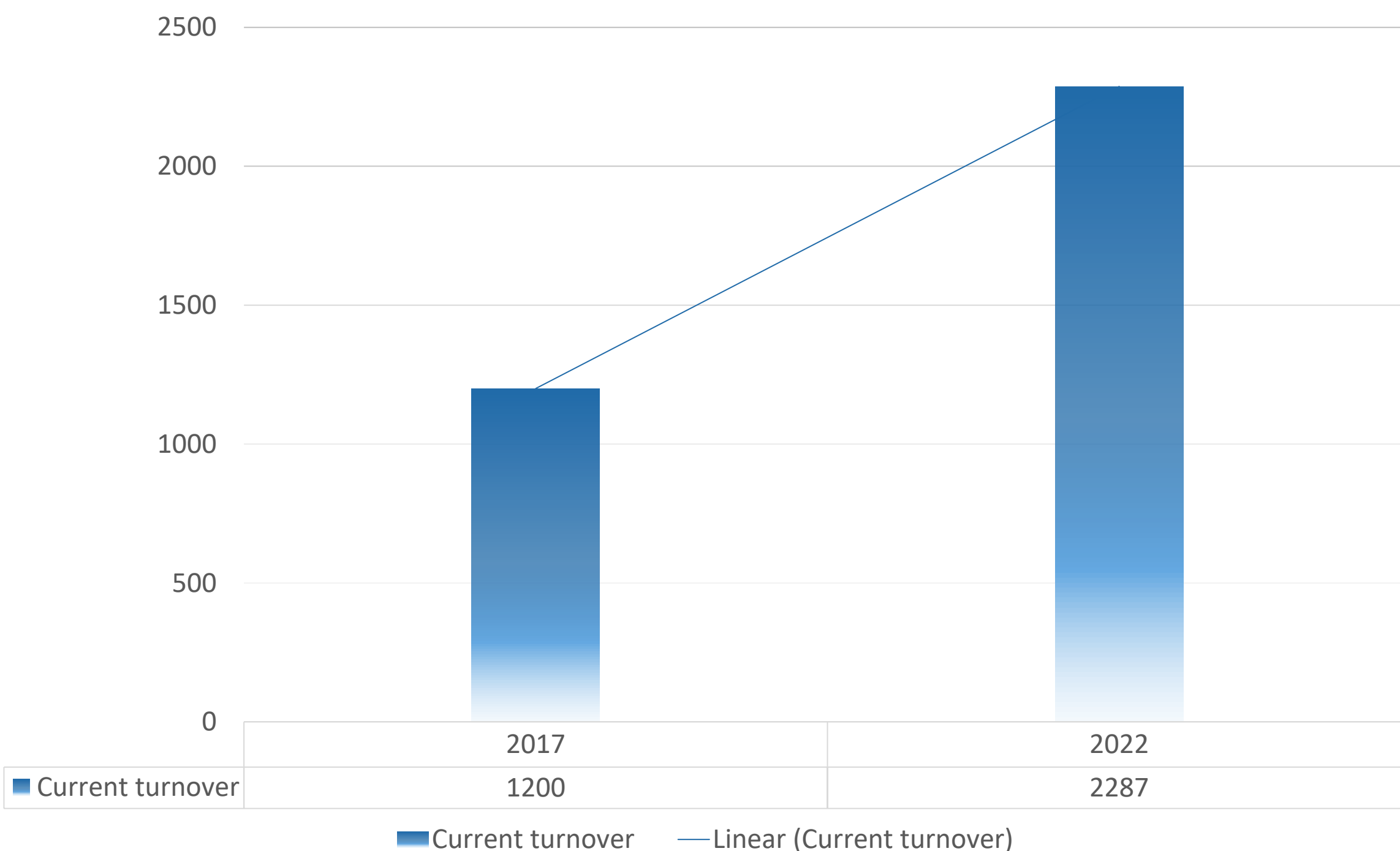
Very Low Number of Naturopathy/Ayurvedic Practitioners: The Ministry of AYUSH, data on Registered Naturopathy and Ayurvedic Practitioners has no records of the State of Uttarakhand. Even though there are qualified professionals, the state will not be able to devise interventions.

Brand: The Branding of Ayurvedic Services is of extreme importance. Ananda Spa that has been able to maintain this brand in this competitive market, other similar

Ombudsman: A regulator is required to streamline Ayurvedic Initiatives in the state. Standardization of Procedures which are consistent with the Ayurvedic principles have to implemented and regulated.

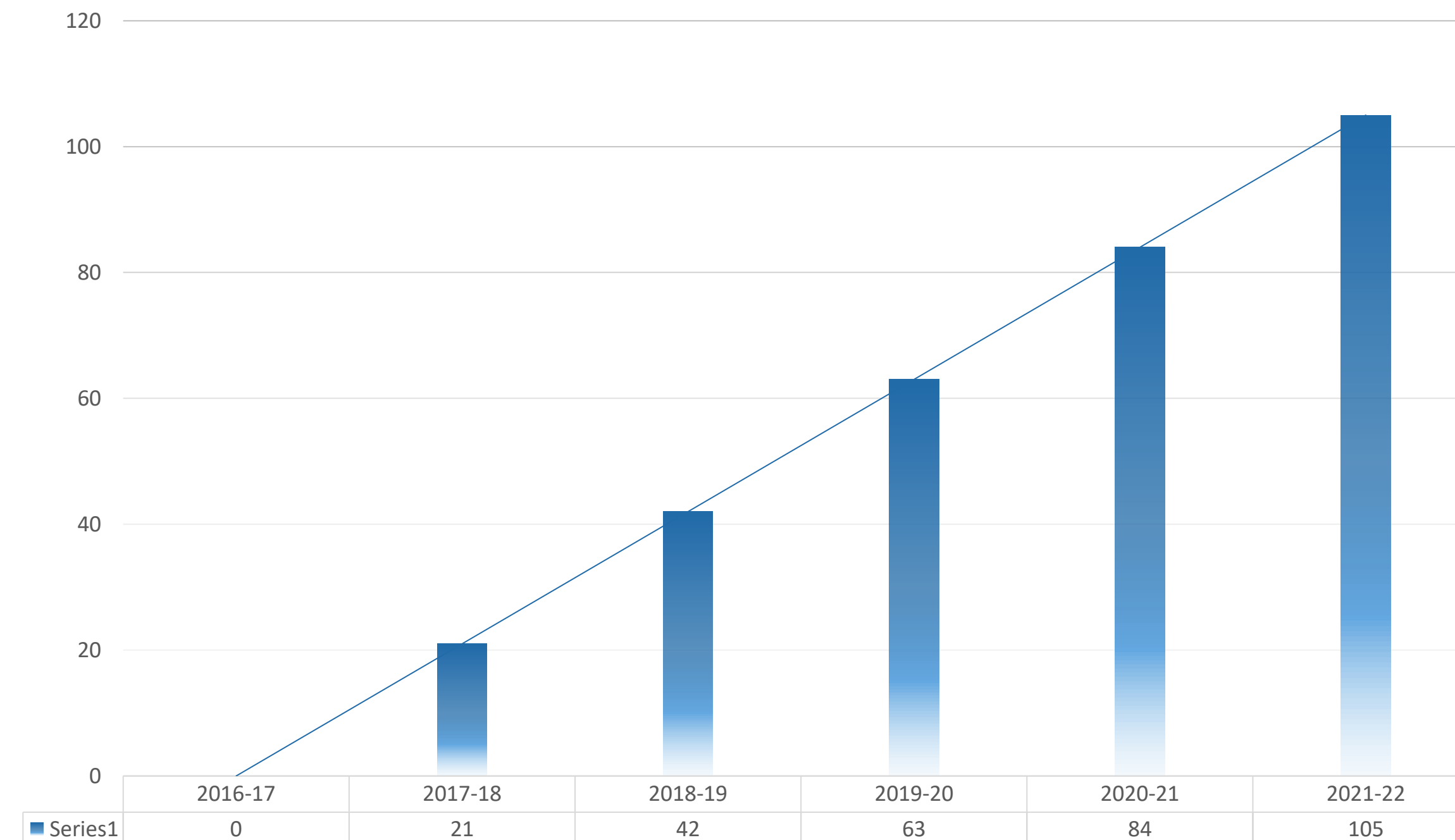
Ayurveda-Key numbers

CURRENT TURNOVER



The total Ayurveda market of India is pegged at Rs. 4205 cr and is expected to grow to 7000 cr in 2020 , as per the Exim Bank report. Two key states play a major role in Ayurveda, Kerela and Uttarakhand. **The current turnover of this industry in Uttarakhand is pegged at Rs. 1200 cr.**

PRACTITIONERS IN THE SECTOR



In stark contrast to this no registered Ayurvedic practitioner exists in Uttarakhand as per the data published by Ayush in 2015, no registered Ayurvedic practitioner exists in Uttarakhand. The top 3 states also have the best population to practitioner ratio with Karnataka having a ratio of 96057 .In order to achieve a similar ratio in the next 5 years Uttarakhand needs to train 105 practitioners

Welfare Potential of Ayurvedic Practitioners

The Ayurvedic Medical Infrastructure is predominantly managed by the Govt. of the State, barring a few exceptions, like Patanjali Ayurved. The Welfare Potential for the people of the state has been benchmarked to Karnataka. Currently, one Ayurveda Doctor is available for a population of 1.58 Lac population. We expect the Availability of Doctors' to increase from 630 to 1041.

Annual Estimates	2017-18	2021-22
	Current Status	Future Projection
No. of Ayurvedic Practitioners	630	1,041
1 Ayurvedic Practitioners for Size of population	158,730	96,057
Income from Practice (per Person)	As per Govt. Scale	As per Govt. Scale

Ayurveda-Suggestions

Skill Gap	Skill intervention
Recreating the experience at a smaller scale	<ul style="list-style-type: none"> Like the yoga practitioners, creating <u>Ayurvedic set ups with smaller investments and man power requirements</u> With 3 courses being offered by 4 different universities, integration with hospitals as well as hotels to offer these <u>ayurvedic experiences in 1-2 days</u> and along with other activities could be looked at. An extension from the typical spa massages to a more holistic ayurvedic experiences should be aimed at
Bridge courses	<ul style="list-style-type: none"> Certain government schemes are offering to bridge the gap between Ayurvedic and allopathic practitioners by offering bridge courses. Similar courses could be designed to attract more Ayurvedic practitioners



Ayurveda Job Roles

Job Role	Level	Process Required	Professional knowledge	Professional skill	Core skill
Ayurvedic Therapist	3	Person to carry-out Simple panchakarma therapy	Understanding the fundamental principles of panchakarma therapy	Administer the various processes of the Panchkarma Therapy	Ability to communicate and explain the fundamental principles of panchakarma therapy and its Application in healthy state of life to maintain health of an individual person. Further necessary knowledge and skill to apply panchakarma therapy convincingly and scientifically for the alleviation of disorders.
Ayurvedic therapist Dietetics	3	Person to possess skillful knowledge of Ayurvedic pharmaceuticals and preparation of Ayurvedic simple dosage	Understanding the fundamental principles of Ayurvedic pharmaceuticals	Preparation of simple dosage of Ayurvedic Pharmaceuticals as in an Ayurvedic Hospital	Ability to communicate and explain Ayurvedic dietetics and develop propensity to understand the importance of diet/dietary substances in healthy and diseased persons.

Ayurveda NOS Codes

While there are no existing NOS for the skill, new NOS units on the following could be designed

NOS Proposed
Basic Ayurvedic practices course
Business practices
Internet marketing
Maintenance of work place safety and cleanliness
Team work
Introduction to allopathic medicines

Recognition of Prior Learning(RPL) Opportunity

- Ayurveda & Naturopathy will fall under the Beauty and Wellness Sector Skill Council Domain. However, no Job Roles and NOS have been developed till date by the SSC. The growth in the sector warrants urgent attention to help develop a strong base of skilled professionals to address the skill gap.
- There are however, some course designed by the Ministry of AYUSH that could be a starting point for the NSQF. Further, there is tremendous awareness & growth in the world in the field of Ayurveda and other wellness practices of India. There is an urgent need to empower our existing practitioners to harness the potential.
- The RPL Scheme assumes a great significance in the wake of the growing opportunities in the field. Once the Job Roles and NOSs are established the RPL program can be floated.

Medicinal Plants- Overview

Geographically, Uttarakhand is dominated by the Himalayas. 10 of the 13 districts are in the mountainous regions. The state is dotted with Innumerable water streams that keep flowing across the region and it is these which have made human habitation possible.

In comparison to the plains the mobility in the high mountains was extremely difficult. This caused the villages to be self-reliant and independent. Most of the problems were required to be solved locally as help was far and hard to come. Health was one of the primary challenges that people had to address in these regions.

This caused them to turn to Himalayas to find solutions to their health and wellness problems. Over 1642 medicinal plants exist in Uttarakhand.

Most of the traders of these are from the high mountains and are gatherers of such exotic plants. The Bhotia community is also very aware of these herbs and they also trade in them. These plants were earlier supplied to village Ayurvedic practitioners, these days very large corporations manufacturing Ayurvedic Medicines are their clients. They are the primary collectors and traders of medicinal plants. An estimated 1800-2000 Bhotia tribesmen live in Uttarakhand at the moment out of the 1,20,000 population across the country. Even in the future the primary skill is likely to remain within the tribe therefore, the numbers are likely to stay similar in the next 5 years. The practitioners currently earn approximately Rs. 10000 a month.



District wise availability of the skill (trade)

Medicinal plants- Challenges

Given the recent surge in the interest that has been generated in natural sources, the upside potential for these is immense. However, to fully develop this option as a viable livelihood option the following challenges have to be addressed:

- **Relaxation of Forest Laws:** Currently the traders have been able to procure these plants and plant extracts as most of the forest are civil forests. Once the Forest department takes over and invokes the forest protection laws, it will be extremely difficult to procure them.
- **Cataloging of the knowledge:** There are multiple initiatives that are going on to document this knowledge. However, no comprehensive guide has emerged that could be adopted. Most of the people learn this knowledge as it gets passed on from their elders.
- **Financial Investment:** Financial Investment will be required to set up these plantations. Further, working capital investments will be required for the protection and upkeep of these plantations till they become mature for commercial exploitation.

Medicinal plants-Suggestions

Skill Gap	Skill intervention
Selling training	<ul style="list-style-type: none"> • The medicinal plants are primary sold within the hill regions which cannot pay suitable premium for these products. Suitable training to sell to customer in the plain region and outside Uttarakhand should be looked at • Associate with Vaidya and other similar practitioners to promote the category



Architecture Overview

Architecture is one of the most outstanding human achievements of the people of Uttarakhand. The ancient architects in the regions used all that was available locally to build magnificent structures. We see generous usage of wood, rubble stones, limestone, Reinforcement pastes made out of mud and nature seeds.

To build an understanding on the architecture of the state we need to make the following two distinctions:

- **Temple Architecture** → The Temple Construction held preeminence as religion was the mainstay of the lives of the people. Most of the Villages cite the beginning of their habitation in the region with the arrival of their Devta. The Village Devta stay in the Temple constructed most elaborately at the most prominent place in the Village. Usually the village settles in a specific pattern around the Temple. .The current state of Temple construction skill is very precarious. Very few practitioners are left and the skill is on the verge of extinction.

- **Household Architecture** → Household Architecture in Uttarakhand was traditionally been very scientific and artistically stimulating. There are many outstanding domestic buildings in this region. The Traditional of House building in Kumaon and Garhwal are distinctly different. Buildings of this construction type can be found in in the northern part of the state Uttarakhand and the Northern part of Uttarakashi Districts These buildings are typically found in flat, sloped and hilly terrain. They do not share common walls with adjacent buildings. In most cases, Koti Banal structures were erected separately without any buildings in the immediate vicinity. Koti Banal buildings are characterized by very simple rectangular plan Configurations while the lengths and widths are varying. The elevation of these buildings can go to three, four or five levels.



District wise availability of the skill (trade)

Architecture (Kothi Banal)- Challenges

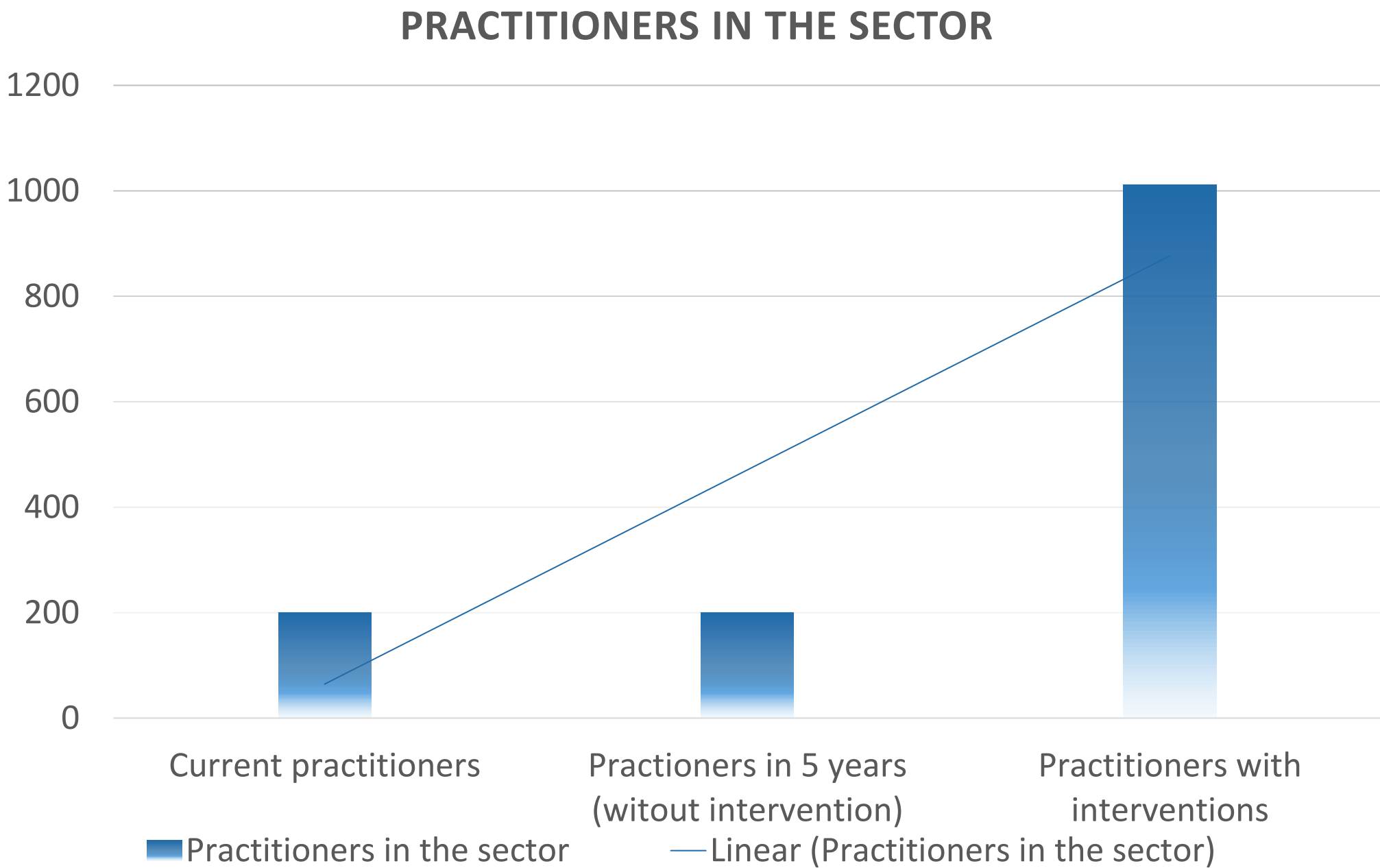
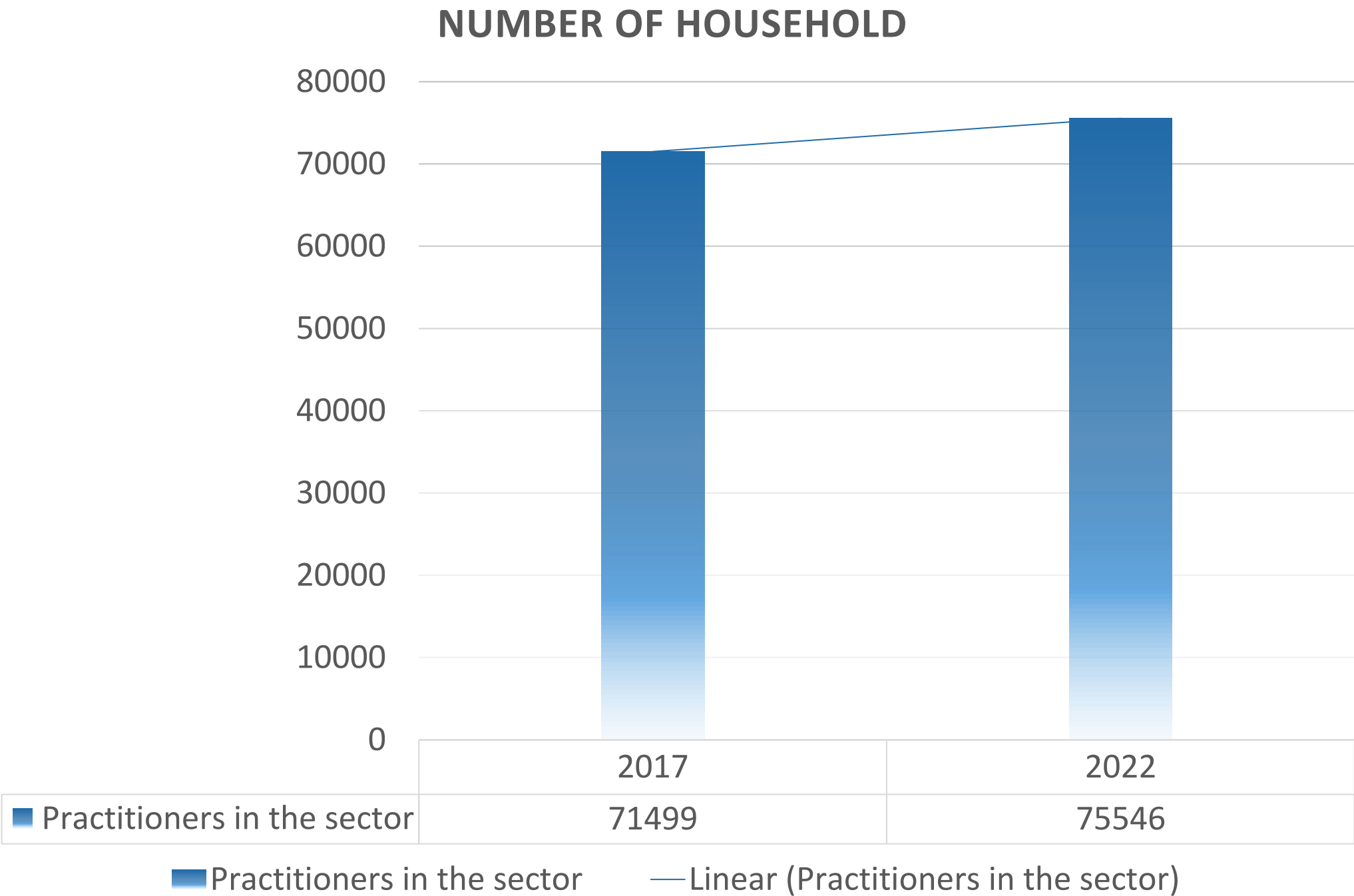
The Main Reasons cited for their fall are:

Space: The Traditional Kothis usually had one large room for all members of the family. The same room housed the kitchen. There was practically no private space available. Since privacy has become an integral part component of our lives the demand for more space has arisen. This has adversely affected the construction of these Kothis.

Separate Spaces for Animals: Staying with Animals is very difficult as they litter their places. It gives out a foul smell and requires regular cleaning. In the villages the cattle and animals have been shifted out of the house in separate sheds. This has made these designs irrelevant.

Raw Material: The Raw material for building these houses is essentially stone and wood. Both these materials have become very expensive. Wood is under the control of the forest department and has to be procured, earlier there was no such control and people would just cut a few tree and provide for their construction.

Architecture (Kothi Banal-Key numbers)



As per our estimates, the skill is currently practiced by **200 artisans across 50 Villages** in Uttrakashi. The practitioners claim that they do not get work frequently and are currently working on one or two projects in a year, therefore involved in the skill only part time. This is likely to continue in the same manner in the next 5 years, unless an intervention to promote the skill amongst potential audience and incentives to encourage the practitioner is offered in a major way.

Even with conservative estimates of the potential within Uttarkashi itself is high and sufficient to employ practitioners around the year. Looking at the 700+ villages in Uttarkashi and the household trends, the 71499 households is expected to go upto 75546 households in the next 5 years

Even with conservative estimates of the potential within Uttarkashi itself is high and sufficient to employ practitioners around the year. Looking at the 700+ villages in Uttarkashi and their growth trends a potential incremental demand of 812 practitioners exist. This is dependent on the acceptance of the architecture form amongst the home buyers

Architecture (Kothi Banal –Suggestions)

Skill Gaps	Skill intervention
Innovation → Challenges with privacy, smell etc.	<p>Most of the Design & innovation has happened in the building techniques in the plains. The convenience of staying in concrete houses scores by a very large margin these traditional houses</p> <p>Integrating the convenience of concrete with the utility of traditional design could be looked at in association with the premier engineering institutes and Architecture Instiutes</p>
Miniaturization (New Frontiers for growth)	<p>The Souvnier Market is one of the most lucrative markets in the handicraft industry. A course in Miniaturization of the Koti – Banal can be started. Agra Artisans are experts in the art of Miniaturization and could help develop this trend in Uttarakhand.</p>



Economic Potential of Architecture

The Current Estimates are based on the assumption that the practitioners of Koti-Banal Architecture would be identified and incentivized to share the basics of their Work with the prevailing Architects and Engineers. Further, the government also takes interest in promoting their craft realizing that the designs used by them are suitable for construction of houses in volatile seismic zones like the Himalayas.

Annual Estimates	2017-18	2021-22	
		Potential Without Intervention	Future Projection With Intervention
No. of practitioners	200	200	1,012
Income from Practice (per Person)	24,000	24,000	48,000
Market Size	71499 households		75546 households

Architecture Job Roles

Job Role	Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Koti-Banal - Helper	1	Gathering of the various materials required for construction like gathering wood and stones slabs (patal)	Familiar with the terminology and instructional words used by the Mistry (Mason)	Assists the Mistry in all the works but does not perform any specialized activity	Maintaining Clean Safe and Healthy Environment while Working with Sharp Metal instruments .	Only Performs Tasks that are basic and supervised by the Mistry. No Decision making tasks are Assigned.
Koti-Banal - Apprentice	2	Performs Basic tasks Like cutting wooden blocks and Stone Slabs as per the specifications of the Mistry	Clearly understands the processes involved in the making of Kothis	performs tasks which are regular and require basic skills	The Apprentice is able to converse with the Mistry and engage with him on the tasks Assigned	Carries out Tasks assigned, instructed and supervised by the Mistry.
Koti - Banal Mistry	4	He Undertakes the construction of houses on the principles of Koti-Banal Architecture	Has a an understanding on the principles required to be followed for laying foundation, making cribbage structures and tiling of outer walls with stone tiles or Patals	Recall and Demonstrate Practical Skill of Construction of Kothis using the Principles of Koti-Banal Architecture	Make Basic Calculation for construction of kothis which would include determining the dimensions of the structure, strength assessment and load distribution, material required, etc.	Perform all activities under the guidance of the Raj Mistry.
Koti-Banal Raj Mistry	6	He has a lot of experience in construction of Kothis	A great deal of Knowledge and experience on nature of wood and stones in relation of construction	He is capable of designing and erecting the structure from scratch employing his knowledge of Surveying, designing living spaces and construction	Make Basic Calculation for construction of kothis which would include determining the dimensions of the structure, strength assessment and load distribution, material required, etc.	Responsible for own Work and Learning of Mistries, Apprentices and Helpers.

Architecture NOS Codes

Job Roles	Level	NOS Codes	NOS Name	NOS Proposed
Koti-Banal - Helper	1	CON/N8001	Work effectively in a team to deliver desired results at the workplace	OS unit on Carrying Heavy Load on Slopes
		CON/N9001	Work according to personal health, safety and environment protocol at construction site	OS unit on Maintain Tools of the Mistry
Koti-Banal - Apprentice	2	CON/N8001	Work effectively in a team to deliver desired results at the workplace	OS unit on Splitting Wood and Breaking Stones Slabs as the Measurements
		CON/N9001	Work according to personal health, safety and environment protocol at construction site	OS unit on Maintain Tools of the Mistry
		CON/N0904	Conduct linear measurements using survey instruments and tools	OS unit on Carrying Heavy Load on Slopes
		CON/N0116	Apply grouts and sealants for flooring and cladding works	
Koti - Banal Mistry	4	CON/N0133	Allocate, monitor tools, equipment and resources for structural execution work and procure approvals for relevant work	OS on Koti-Banal Architecture Principles
		CON/N0113	Build structures using random rubble masonry	OS code on handling of Wood and Stone Slabs (Patal)
		CON/N 3603	Build structures using random rubble masonry for rural construction	OS Code on Cribbage Structure of Constructing
		CON/N0119	Carry out cladding works with natural stones	OS units on project planning
		CON/N0905	Carry out leveling and cross sectioning survey	
		CON/N0120	Carry out surface finish like Grit wash / Exposed aggregate plastering, Stone-Crete, Cement wash, dry and wet cladding of stones on masonry surfaces	
		CON/N0903	Carry out temporary adjustment of survey instruments by standard methods	
		CON/N0907	Carry out topographic survey	
		CON/N0904	Conduct linear measurements using survey instruments and tools	
		CON/N0118	Cut, lay and fix natural stones for flooring works as per design pattern	
		CON/N0137	Supervise and monitor execution of Scaffolding works	
		CON/N 9001	Work according to personal health, safety and environment protocol at construction site	
		CON/N8001	Work effectively in a team to deliver desired results at the workplace	
		CON/N8002	Plan and organize work to meet expected outcomes	

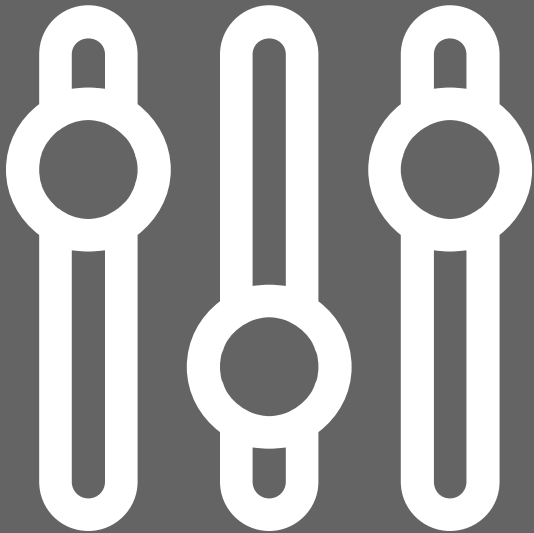
Architecture NOS Codes

Job Roles	Level	NOS Codes	NOS Name	NOS Proposed
Koti-Banal Raj Mistry	6	CON/N0133	Allocate, monitor tools, equipment and resources for structural execution work and procure approvals for relevant work	OS units on Customer handling
		CON/N0113	Build structures using random rubble masonry	OS units on Business practices
		CON/N 3603	Build structures using random rubble masonry for rural construction	OS units on project planning
		CON/N0119	Carry out cladding works with natural stones	
		CON/N0905	Carry out leveling and cross sectioning survey	
		CON/N0120	Carry out surface finish like Grit wash / Exposed aggregate plastering, Stone-Crete, Cement wash, dry and wet cladding of stones on masonry surfaces	
		CON/N0903	Carry out temporary adjustment of survey instruments by standard methods	
		CON/N0907	Carry out topographic survey	
		CON/N0904	Conduct linear measurements using survey instruments and tools	
		CON/N0118	Cut, lay and fix natural stones for flooring works as per design pattern	
		CON/N0137	Supervise and monitor execution of Scaffolding works	
		CON/N 9001	Work according to personal health, safety and environment protocol at construction site	
		CON/N8001	Work effectively in a team to deliver desired results at the workplace	
		CON/N8002	Plan and organize work to meet expected outcomes	

Recognition of Prior Learning (RPL) Opportunity

- The Koti-Banal Architecture has been generated a great amount of interest because of its artistic value and earthquake resistant qualities. International and National universities have been trying to understand the nuances of this style.
- There are very few Artisans who are capable of constructing houses on the Koti-Banal principles. We believe that the skill has a lot of relevance for the state given the frequency of natural disasters occurring in the state. The Skill of Koti-Banal Architecture will come under the stewardship of the Construction Skill Council. The Need of the hour is to learn and document the knowledge of the Artisans and introduce it as NOS for the Construction Skilling courses in the state. The RPL benefits will depend upon the NOSs that are included in the Job Roles.

Conclusion & Way forward



Outcome Based Approach to Quality Skilling

- Outcomes for each of the Job Roles have been compiled under the National Quality Assurance Framework
- For Relevant Skills of Uttarakhand the State Skill Mission will have to Map the Key Outcomes that will ensure Quality Deliverance for the Job Roles
- Mobility between vocational and general education by alignment of degrees with NSQF
- Recognition of Prior Learning (RPL), allowing transition from non-formal to organized job market
- Standardized, consistent, nationally acceptable outcomes of training across the country through a national quality assurance framework
- Global mobility of skilled workforce from India, through international equivalence of NSQF
- Mapping of progression pathways within sectors and cross-sectorally
- Approval of NOS/QPs as national standards for skill training

Long – Term Vision for UKSDM

- The National Skill Qualification Framework (NSQF) & National Quality Assurance Framework (NQAF) are inadequate to address the Skilling Needs of the State
- The State to build a State Skill Qualification Framework (SSQF) with a State Quality Assurance Framework (SQAF);
- The mandate of this framework should be:
 - Focused on Skills Specific to the State of Uttarakhand
 - Non-overlapping with the National Frameworks
 - Modular in progression pathways within sectors and cross-sectoral is possible
 - Approval of OS/QPs happen at the State Level
 - Mobility of Workforce is un-hindered in India and Across the world



NATIONAL APEX CHAMBER