



Smart cities and Academia
towards Action and Research



Scan QR code to download the full
compendiums (Three Volumes)

75+ Case Studies of Innovative Projects of Smart Cities Mission



SPA
Vijayawada



JMI
Delhi



IIEST
Shibpur



CEPT University
Ahmedabad



RVCA
Bangalore



MNIT
Jaipur



COEP
Pune



SPA
Bhopal



IIT
Kharagpur



IIT
Roorkee



CET
Trivandrum



MANIT
Bhopal



ANNA University



KRVI A
Mumbai



MANIPAL University

हरदीप एस पुरी
HARDEEP S PURI



आवासन और शहरी कार्य मंत्री
पेट्रोलियम एवं प्राकृतिक गैस मंत्री
भारत सरकार
Minister of
Housing and Urban Affairs; and
Petroleum and Natural Gas
Government of India



Foreword

I am happy to note that the Ministry of Housing and Urban Affairs and the National Institute of Urban Affairs (NIUA) is releasing a set of best practices in the book 'SAAR: A compendium of 75 Smart Cities Projects'. It is pleasing to know that this compendium has been compiled by our partners in academia, with students and professors from 15 premier institutes contributing innovative studies on urban policies and reforms in 47 Indian cities.

Under the leadership of the Hon'ble Prime Minister Shri Narendra Modi ji, urban development has assumed central importance in India's growth story. It is seen as a means to accelerate economic growth even as it aims to provide urban dwellers with a better quality of life. Initiatives such as the Smart Cities Mission were launched with the purpose of unlocking the potential of urban areas through technology and citizen-friendly reforms.

R&D institutions, led by the enterprising zeal of their young researchers, are playing a crucial role in supporting urban development programmes. As India looks to become a developed nation by 2047, it is important to encourage research, and promote a scientific and technological bent-of-mind among the younger generations towards the field of urban development.

This compendium is a stellar example of the potential of the 'demographic dividend' that lies within India. More than 65% of the country's population is younger than 35 years of age today. It is imperative that we provide opportunities to our youth to engage with development processes and conceptualise solutions to India's emergent problems.

I congratulate the Smart Cities Mission, NIUA, and above all, the students and professors who prepared this compendium. It will surely be a useful addition to the growing discourse on urban development in India.

New Delhi
07 March 2023


(Hardeep S Puri)

C34

Micro-Skill Development Centre

Name of the project: Micro Skill Development Centres

Location: Agra, Uttar Pradesh

Year of Project Implementation: 2019

Sector: Economy

SDG: No Poverty (SDG 1), Gender Equality (SDG 5), Decent work and Economic growth (SDG 8)

Project Cost: Rs 2 crore

Institute: Indian Institute of Technology, Roorkee

Advisors: Faculty Coordinator: Dr. Arindam Biswas, Mentor: Ms. Nikita Ranjan

Students: Ms. Kritika Sharma

Keywords: Socio-economic, Handicrafts, Skill, Training

Abstract:

Indian handicrafts are famous worldwide for their design, quality and craftsmanship. The sector employs a large proportion of the informal population in many heritage cities of the country, Agra being one of them. The city has a copious number of artisans working in this unorganised sector. Most of these artisans belong to the marginalised sections of the society. In this context, under the Smart City Mission four Micro Skill Development Centres were developed in the city as one of the flagship programs for the Area Based Development (ABD) in Tajganj area. Tajganj is an important economic base for the city as many small scale and household industries are based here. However, these communities face many challenges from lack of adequate skills to job insecurity. Women in the artisan industry are more vulnerable to exploitation and low wages. Therefore, the centres were developed with the primary purpose of enhancing the socio-economic conditions of the beneficiaries, especially women, by providing them skill training for seven skill-sets. The project also aims at promoting local art, culture and tradition through production of handicrafts.

The purpose of this paper is to provide the outcomes of the study that was undertaken to understand the effects of the skill training on the socio-economic profile of the beneficiaries, evaluate the efficiency of the training programme and determine its impact on handicraft promotion. Analysis of secondary literature, interaction with stakeholders, questionnaire surveys done with beneficiaries as well as physical inspection of the centres was undertaken to measure the performance of the Micro Skill Development Centres. An attempt was made to assess the project's performance and to investigate the problems encountered during the process. The paper concludes with recommendations which could pave the way for further implementation of such programs for the upliftment of the handicraft artisans.

1. Introduction

Agra Smart City

Agra lies in the North Indian state of Uttar Pradesh on the banks of river Yamuna. The Agra Municipal Corporation forms part of the Agra Metropolitan Region.

In the third round of the Smart Cities Challenge, in September 2016, Agra was selected as a Smart City. Agra Smart City Limited (ASCL), a Special Purpose Vehicle (SPV) was established under the Companies Act. The chairman of the SPV is the Divisional Commissioner of Agra district and the Municipal Commissioner of Agra is the CEO. City and district administration personnel from several departments are among the stakeholders in the ASCL Special Purpose Vehicle (SPV). To manage and ensure the smart city design, development and implementation efforts, this team collaborates closely with the CEO of the SPV and the Program Management Consultant (PMC) team. Agra's Smart City project comprises of core redevelopment initiatives for Rs 2,133 crore. The total area is 2,250 acres. The project will include areas around the Taj Mahal, Agra Fort and other portions of the city.

The Smart Cities Mission is an urban renovation, retrofitting and extension program started by the Indian Government in 2015 to enhance city infrastructure

and quality of life. The vision for Agra Smart City was formed on the goals of its citizens and analysis of the city's strengths, weaknesses, opportunities and threats. Tourist-friendly, memorable, liveable, culturally vibrant, economically dynamic, preservation of history, urban mobility and sustainability were among the topics suggested by citizens. The Vision Statement for Agra Smart City is: **"City of Taj – where history is preserved, environment is pristine, infrastructure is world-class and opportunities are plenty – a safe place to live, a great place to tour."**

Figure 2 shows the Area-Based Development (ABD) plan for Agra. It focuses on improving social equity and infrastructure for citizens, heritage and cultural tourism and tourism infrastructure for visitors. Revitalising green spaces and enabling development of sustainable livelihood will impact the residents' quality of life and visitors' experience.

Flagship Projects under the Smart City Project in Agra include:

- Integrated Command & Control Centre
- Micro-Skill Development Centres
- Automated Self-Cleaning Toilets
- Smart Health Centres
- Smart Classes

The main focus of this research paper is on Micro Skill Development Centres.

India has a rich cultural heritage. The handicraft industry is world famous for its quality, designs and craftsmanship as it represents the unique cultural identity of the people who create them. India is home to over 7 million artisans involved in more than 3,000 craft forms spread across the country. After agriculture it is one of the most important sources of employment, providing a vital source of income for the country's rural and urban populations (IBEF, 2021). According to National Statistical Commission Report (2012), the informal sector plays a crucial role in the Indian economy. This sector consists of the underprivileged and marginalised sections of the society, particularly women. It is labour-intensive and cost-effective because of the low investments. The handicraft sector has faced many challenges in the globalised economy. However, the tangible and intangible aspects of the Indian handicrafts present the country with a vast potential for growth in this sector.

1.1 Topic and Context

The state of Uttar Pradesh is world famous for its rich cultural history and the architecture of its heritage cities. Herein lays Agra, the city of the Taj Mahal, one of the Seven Wonders of the World. It is known throughout

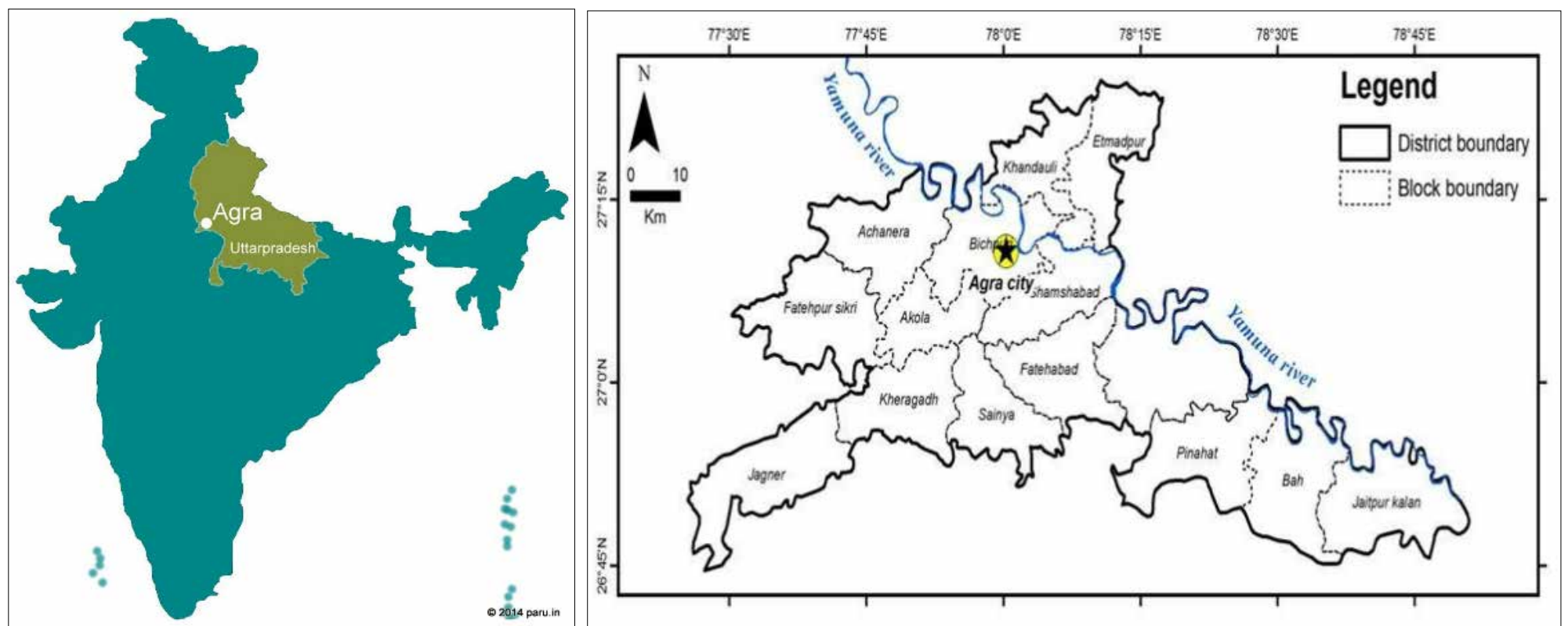


Figure 1: Location of Agra in India, Location of Map of Agra district showing various blocks.
Source: Singh et al., 2020

the world for its unique style of art, architecture, culture and traditions that have developed over the years. The city attracts millions of visitors from all over the world to witness this plethora of culture and craft. Some unique expressions of handicrafts are marble inlay articles, zardozi work, flower art, carpets and other goods. These have not only received international acclaim for their exquisite craftsmanship and functional utility but are also world famous and unparalleled for quality and design. These skills have been passed on through generations and have evolved with cultural exchanges, changes in trends and experiences (Chauhan, 2019).

The economy of Agra thrives on tourism, but because of the seasonal nature of the industry and the global economic scenarios, it provides limited job security. But this flourishing tourism and rich cultural heritage have had little impact on the economically weaker sections of the society, particularly women. Many of the artisans employed in the handicraft industry are migrating to other unskilled jobs. Problems of unemployment and livelihood insecurity mostly prevail amongst the weaker section. The unstructured nature of the handicraft industry has been harmed by lack of competent education, cheap capital and limited exposure to new technologies, as well as lack of market intelligence, poor infrastructure and institutional framework (Effat Yasmin, 2013). In Agra, the working-to-non-working population ratio is 32% workers to 68% non-workers. Among the working and non-working population, 13.2% women come under the working category and the rest of the 86.8% are non-working women (DMEO, February 2021).

Study Area Profile

Tajganj is one of the oldest settlements of Agra city. Workers, artisans and craftsmen involved in the construction of the Taj Mahal settled around the nearby site along with their families and the area came to be known as Tajganj. Because of its vicinity to the Taj Mahal and river Yamuna, the Tajganj area emerged as a centre for trade, hosting communities of artisans, traders and dealers involved in various traditional handicraft skills. Only a few descendants of the artisans who worked in inlay during the Mughal Empire are still working in the same field. Descendants of the workers practicing the same profession still live in Tajganj, specialising in marble inlay work, zardozi work, carpet making, etc. These communities consist of the socially and economically underprivileged sections of the society involved in informal economic activities.

Economic Base

Agra is a commercial city and a tourist hub. The industries here are primarily small-scale. A large proportion of the population in Tajganj is engaged in tertiary activities like small businesses, tourist guides, vendors, sweepers and rickshaw pullers. In addition to these, a certain amount of people are also involved in the handicraft sector. Multiple factors like availability of raw materials such as marble from Makrana, leather and cotton from within the city or nearby regions have contributed in making the city

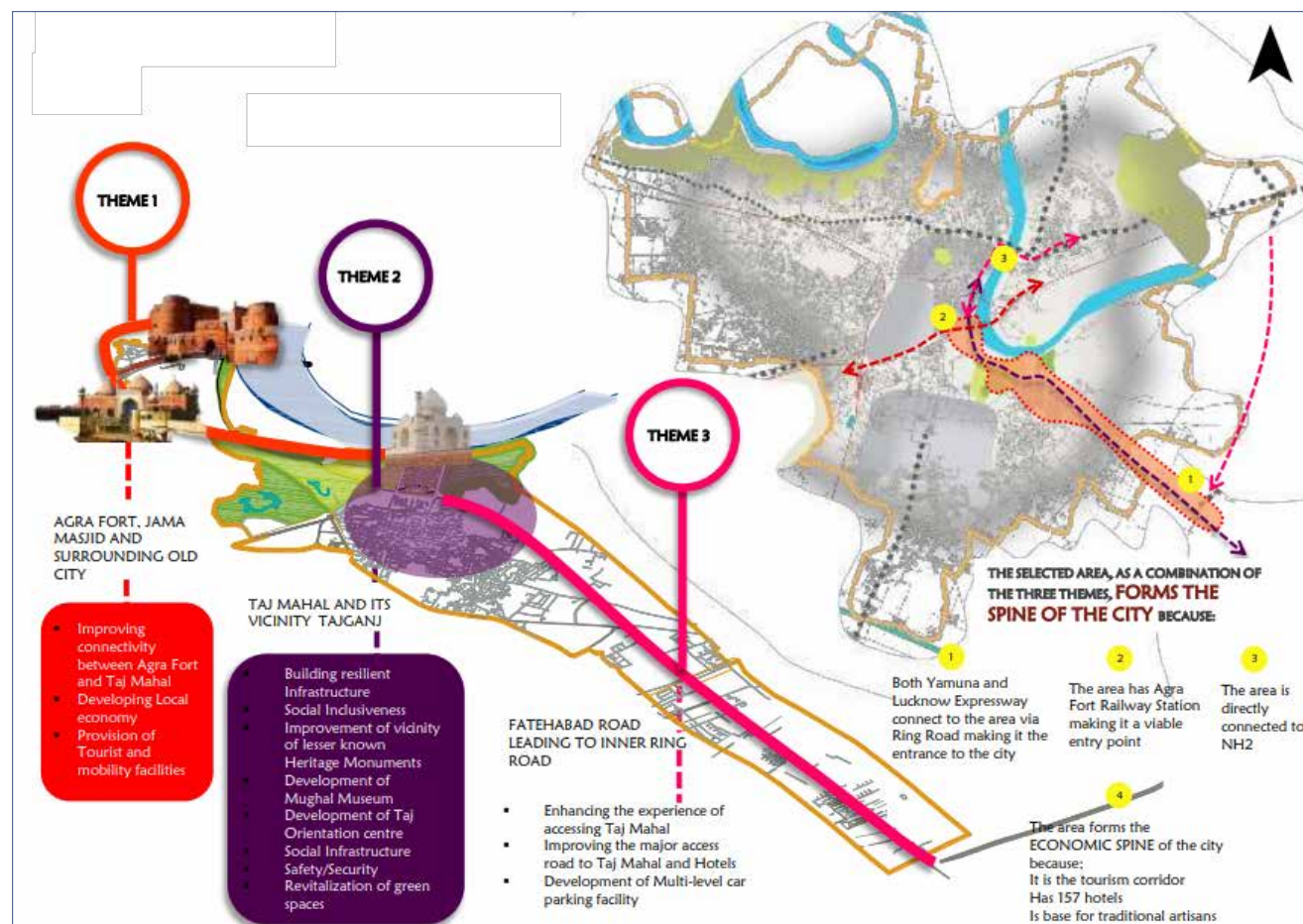


Figure 2: ABD Concept, Theme 2 highlights the developments proposed in the Tajganj Area, Agra, UP
Source: The Smart City Challenge Stage 2: Smart City Proposal Agra (Agra Annexures)

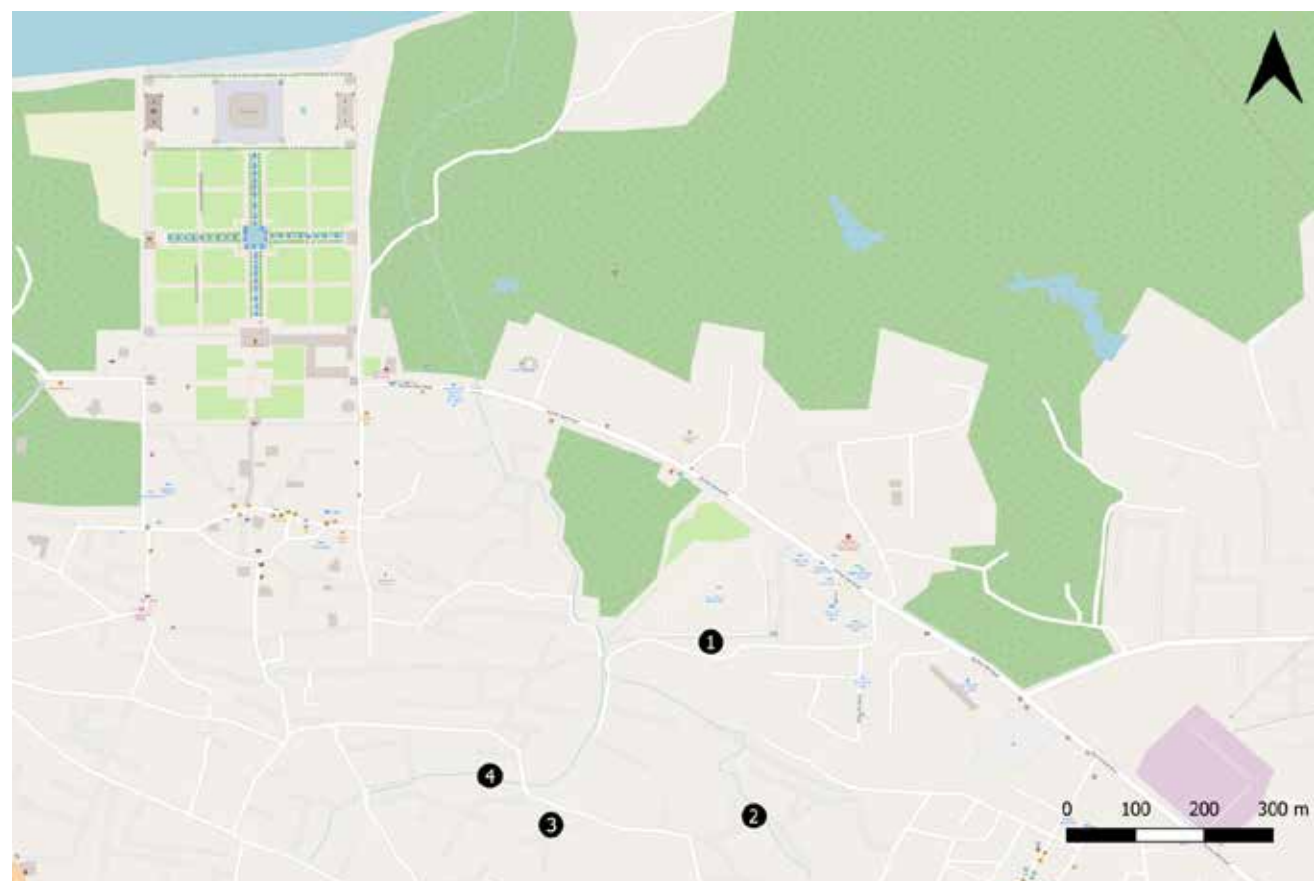


Figure 3: Location of the four Micro Skill Development Centres in Tajganj, Agra. Source: Authors

a hub of traditional handicraft industries. Handicrafts has long been a significant economic activity in Tajganj due to the lack of large-scale enterprises. However, the inability of the artisans to cope with the globalised economy is pushing them into the vicious circle of poverty. The enormous employment potential of this labour needs to be utilised. Niti Aayog recognised that the unorganised sector, which accounts for roughly 93% of the workforce, lacks a formal mechanism to facilitate skill acquisition and upgrading (Chauhan, 2019).

1.2 Scope of the project

Against the backdrop of a rich cultural heritage and the need to ensure a sustainable livelihood for the people, especially women, the idea of developing the centres was conceptualised. Four Micro Skill Development Centres (Figure 3) were developed under the Smart City Mission with the central objective of promoting traditional skills vis-a-vis generating employment opportunities for women through skill-enhancing training. The existing community centres were recognised and converted into Micro Skill Development Centres (MSDC) as part of the ABD. Table 1 displays the location of the centres in Tajganj, Agra.

Table 1: Location of Micro Skill Development Centres in Agra (Figure 3). Source: Authors

S.No.	Name of MSDCs
1	Kolhai Micro Skill Development Centre
2	Teela Shahid Nagar Micro Skill Development Centre
3	Chaunk Intara-Telipada Micro Skill Development Centre
4	Nala Shekh Bulaki Micro Skill Development Centre

These centres aim at developing the 'Economy' of Tajganj. The main focus is on the socio-economic development of the beneficiaries through the formation of various SHGs (Self Help Groups) for training, product development, value chain analysis, linkage and other concerned activities (Figure 2). In 2018, the task of establishing and developing the centres was assigned for five years to Adarsh Sewa Smiti, an NGO. The project began on October 10, 2018 and infrastructure construction was completed on February 10, 2019.

1.3 Significance of the project

Under the Smart City Mission, the skill development centres were proposed to create a resilient economic base for the city. Training provided to the women by enhancing their skills would lead to their socio-economic growth while promoting the local arts, crafts and culture. The central philosophy of the project was to solve the problem of livelihood, particularly for the local and marginalised communities of the Tajganj area and preserve the rich cultural heritage of the city. In spite of the position enjoyed by the traditional skills in Agra, the general awareness among the people about the crafts and the intricacies has been poor. The centres have been established with a broader vision of preserving the traditional assets of the city in terms of skills and crafts. They provide a two-way solution by integrating the socially inclusive livelihood with cultural opportunities. It is against this backdrop that the research attempts to document and study the landmark project was undertaken by Smart City Agra.

1.4 Aim and Objectives

The aim of this study is to analyse the impact of the Micro Skill Development Centres in the Tajganj area on the livelihood and socio-economic growth of the people, along with the promotion of local art, craft and traditions.

The objectives of the study are:

1. To evaluate the impact of the Micro Skill Development Centres on the livelihood and skill development of the beneficiaries.
2. To study the effectiveness of the training program and the challenges to be overcome in the process.
3. To assess the impact of the project on the promotion and development of local handicrafts.

2. Contextual Background

2.1 Conceptual Framework/Research Design

The evaluation framework adopted for the study aims to achieve the broader objectives through a unique set of data analyses. (Table 2).

The methodology devised for conducting the mentioned research is shown in Figure 4. It includes analysis of secondary and primary data to achieve the desired objectives of the study.

Table 2: Evaluation framework for the Objectives. Source: Authors

S. No.	Objectives	Evaluation Framework
1	To evaluate the impact of the skill development centres on the livelihood and skill development of the beneficiaries.	<ul style="list-style-type: none"> e. Income assessment of the beneficiaries f. Performance assessment during the pandemic: Participation of beneficiaries, sale of products g. Participation breakdown: Handicraft production, promotion, distribution and sales
2	To study the effectiveness of the training program and the challenges to be overcome in the process.	<ul style="list-style-type: none"> h. Process of connecting beneficiaries to employment i. Average time taken to impart each skill j. Evaluating the stock of trainers and responsibilities of stakeholders k. Quality and quantity assessment of the infrastructure facilities l. Assessment of the maintenance problems, annual rework/service data on infrastructure
3	To assess the impact of the project on promotion and development of local handicrafts.	<ul style="list-style-type: none"> m. Evaluation of sales data: Number of products sold, revenue generated n. Study the evaluation technique for quality check of the products, number of final products rejected o. Scalability of the project: Identification of any new skills

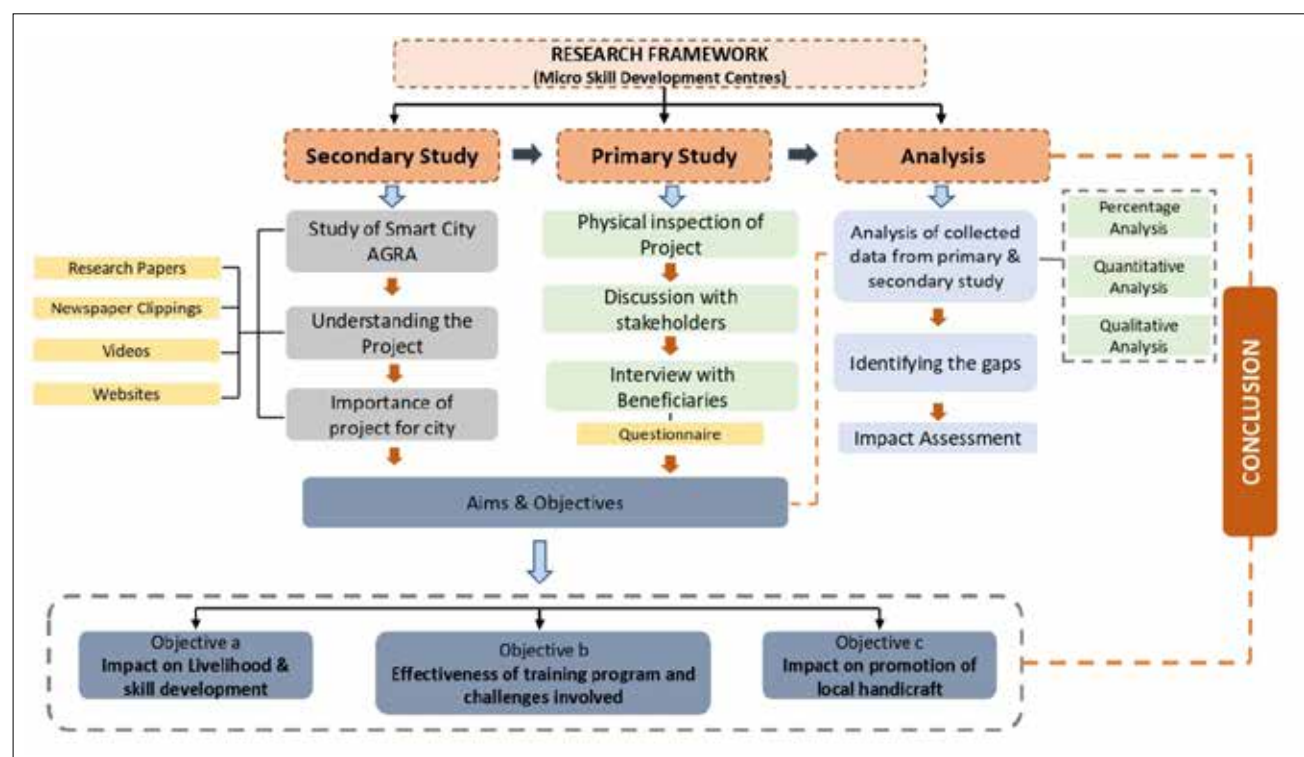


Figure 4: Research Framework. Source: Authors

Data Collection:

Extensive analysis of the available secondary sources has been a significant part of the research to arrive at the primary aims and objectives of the study. The Institute complemented this data by conducting primary survey through field visits and interactions with beneficiaries and stakeholders. Open and close-ended questionnaires and physical inspection of the training centres have been used as a tool for primary survey. The data/information thus obtained was used to analyse the performance of the Micro Skill Development Centres.

Sampling method:

Stratified sampling method was used by dividing the population based on the available beneficiaries and giving due representation to each skill-set. Then, simple random sampling was applied to select samples from within each set of skills.

Data Analysis:

The data obtained from the questionnaires was analysed through percentage analysis. The methodology adopted was a mixed method approach, involving both qualitative as well as quantitative methods. The indicators for evaluating the impact of the centres on stakeholders, beneficiaries and the city are given below:

- Stakeholders: Output, Productivity, Knowledge Transfer, Challenges Faced
- Beneficiaries: Reaction, Learning, Livelihood, Employability
- City: Heritage promotion through handicrafts

2.2 Key features of the project

2.2.1 Challenges in the project

- Mobilisation of women:** Mobilisation of women for such training programs is often hindered by various factors such as time constraints, family restraints, lack of awareness and community pressure.
- Anti-social elements:** The existing community centres were in the hands of anti-social elements who posed a significant challenge in the takeover of the centres and mobilisation of women beneficiaries. Winning the trust of the diverse religious communities in the Tajganj area was also a hurdle and caused unnecessary time delays. Administrative measures (police force) were combined with negotiations and consultations with the NGO to resolve the situation in the Tajganj region.
- Skill gap:** In today's globalised economy, the digital skills gap, illiteracy and skill capacity gaps caused by a lack of access to education or training, or the low quality or relevance of that training, keep the marginalised sectors of the society trapped in a vicious cycle of low skills and low productivity. The inefficiency of the beneficiaries in soft skills also poses a challenge.
- Adaptation to new designs:** New designs were incorporated into the traditional skills to cater to

market trends. However, adapting to these latest trends and design styles poses a challenge. Skills like sketching are also a weak point for the artisans.

- COVID-19:** Since the project involves community mobilisation, gathering, consultation, and discussions among the stakeholders and beneficiaries, the social distancing restrictions delayed the growth of the program.

2.2.2 Risks involved in the project

- Budget Constraints:** The total allocated budget for the project is Rs 2 crore, which could limit the progress and expansion of the training programs in the future.
- Availability of orders:** Availability of necessary work orders is required to provide a sustainable source of livelihood to the beneficiaries.
- Coordination between stakeholders:** The coordination between the stakeholders and policy coherence is crucial to the project to avoid mismatch and reduced productivity.
- Capacity Constraints:** Capacity constraints involve the existing four centres, training equipment, a pool of trainers and assessors for quality training,

buildings with adequate space for storing the raw and finished goods.

2.2.3 Features and Benefits (social, technical, city administration level, impact on environment and economy) to the city (expected and observed)

- Four skill centres provide skill development training programs spread over seven different traditional skill-sets:
 - Zardozi work
 - Marble inlay work
 - Carpet-making
 - Brush-making
 - Flower art
 - Stitching
 - Decorative handicrafts
- Artisans developing higher-value handicraft products are supported, and the community trains them in skills related to handicraft production, market linkages, promotion, distribution, and sales. (Figure 4: Process of Micro Skill Development initiative; Source: Compendium of Best Practices, Smart Cities Mission)



Figure 4: Process of Micro Skill Development initiative
Source: Compendium of Best Practices, Smart Cities Mission



Figure 5: Entrance to Micro Skill Development Centre at Nala Shekh Bulaki. Source: Authors



Figure 6: Micro Skill Development Centre at Kolhai in Tajganj. The ground floor is used for community activities, while the upper floor is being used for the training program.

3. The centres are equipped with e-learning equipment (projector and screen), CCTV cameras, furniture, internet, product and development tools.
4. Increase their interpersonal communication skills through community-based SHGs. They also act as places of knowledge exchange and social bonding of women groups.
5. The project is associated with SDGs such as No Poverty (SDG 1), Gender Equality (SDG 5), Decent Work and Economic Growth (SDG 8). The main objective focuses on women's empowerment and socio-economic development along with promotion of local art. Inclusivity, the main strength of this initiative, is a predictor of the program's sustainability

as it comprises 107 SHGs, of which 100 are women SHGs. Livelihood creation leads to poverty reduction and the economic growth of the people involved.

Benefits to the city

- i. Social Benefits:
 - a. Help to preserve the heritage of the city.
 - b. Help empower the weaker section of the society.
 - c. Training improves creativity and skills of the beneficiaries.
 - d. Development of confidence and self-esteem, especially for women, through skill enhancement and sustainable livelihood opportunities.
 - e. A platform for community engagement.
 - f. A platform for socio-economic growth of women

Economic Benefits

- a. Skill development in the informal sector allows for increased productivity and higher wages for workers. There is a 10% increase in the household income of the beneficiaries.
- b. Selling one-of-a-kind products at trade shows and exhibitions enhance exports and boost economic growth. The sale of around Rs 15 lakh worth of products has been made till December 2021.
- c. By addressing poverty reduction through improved employability and income growth, the project is linked to SDG 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth).

Environment Benefits:

- a. Renovation and repairing of non-operational community centres in Tajganj area to convert into Micro Skill Development Centres instead of opting for new construction.
- b. Since the products are mostly made by hand, they require less material and less energy, thus making them environment-friendly.
- c. Locally available products have less carbon footprints.

ii. Technical Benefits:

- a. Technical skill training (hard skills) aims to train the artisans in all stages of product development. The non-technical skill training (soft skills) trains
- b. the artisans in skills that will enable them to run their businesses efficiently.
- c. Technical training leads to creation of a skilled workforce in the city.



Figure 7: Zardozi artisans working around the 'adda' i.e. the wooden frame, which can accommodate four to six artisans working together. Source: Authors



Figure 8: The stitching unit at MSDC Nala Shekh Bulaki. Source: Authors

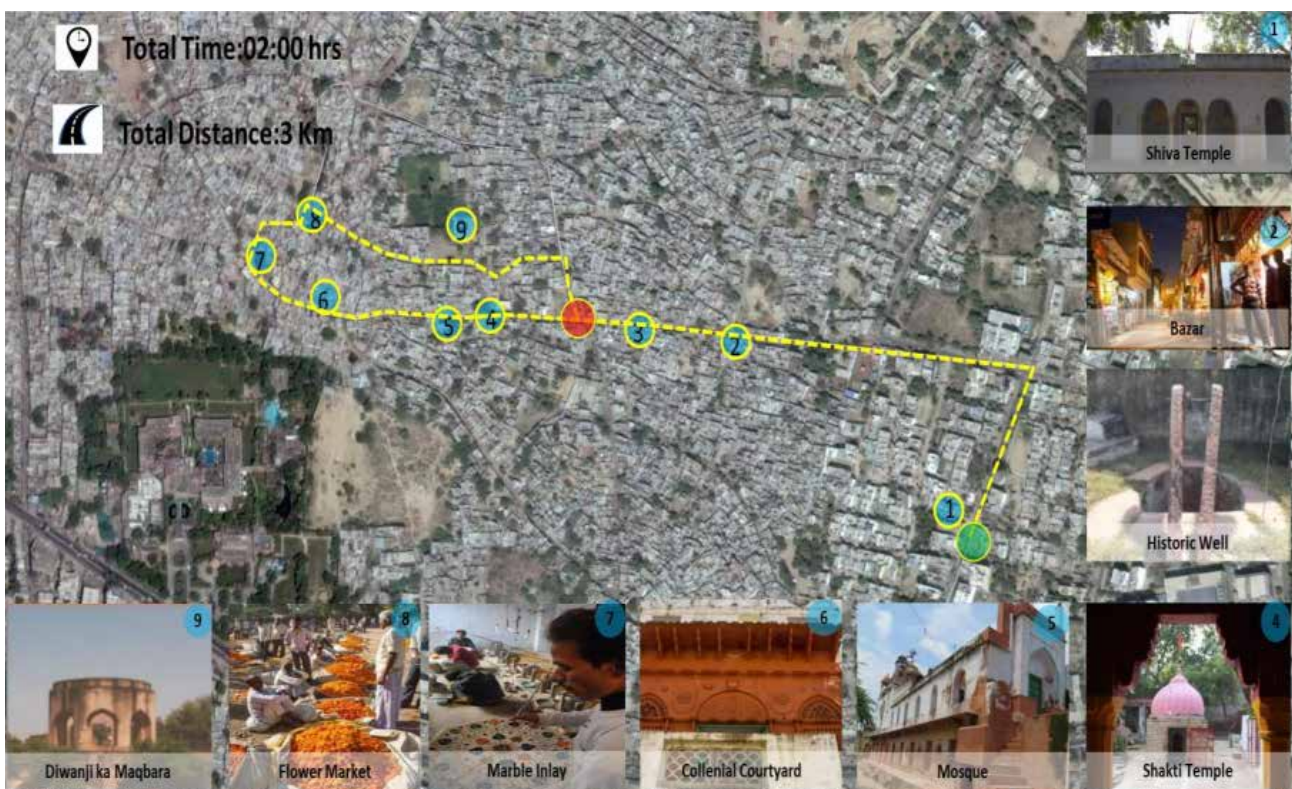


Figure 9: Many varieties of the local art forms are practiced by the skill worker's in this historical walk and neighborhood, and they require some awareness to improve their business so that they may sell distinctive products to tourists
Source: Detailed Project Report, Micro Skill Development Centre, City Officials

2.3 Key findings from interviews, surveys and primary/secondary data collection

With the establishment of the four Micro Skill Development Centres in the available community centres in Tajganj, along with identification of skilled workers of the local art forms, the Smart City Mission created a multivariate effect for the beneficiaries and the handicraft sector of the city.

iii. Key findings from Stakeholders (Officials and Training Providers)

Based on discussions with stakeholders along with onsite visual observation, the following parameters were used to analyse the information:

Output:

Identification of the four existing community centres in Tajganj (Nala Shekh Buaki, Teela Shahid Nagar, Kolhai and Chowk Intara Telipada), necessary interventions to improve the physical infrastructure of the buildings and provision for required utilities at the centres. The creation of the heritage walk exploring the Tajganj area (Figure 9) will also cover the households of the local artisans, which generate awareness required by the crafts and the artisans alike.

Self Help Groups (SHGs): SHGs in Tajganj are groups of men and women voluntarily organised together under

a group corpus. Each SHG consists of 10 members involved in the production of a handicraft good. Some of the SHGs were already identified by DUDA (District Urban Development Agency), and activities for women were being carried out. Apart from development of the handicraft goods, the SHG is also responsible for managing their funds and maintaining their records. E-shram cards and Shilpi cards (artisan cards) have been developed for the beneficiaries. However, there is no provision for a certificate for the skill training.

Productivity

As per the smart city proposal, the total project cost is Rs 2 crore (including GST). The total expenditure for the first year was estimated to be around Rs 86,73,750 and the total budget for the next four years is Rs 60,99,200. Rs 15 lakh (Table 3) worth of products has been sold during the last six months of 2021 (offline and online). It is observed from the table that the revenue generation has increased significantly during the months following the festival seasons. Maximum sales occurred during the months of September, October and November. A portion of the revenue is kept in a fixed deposit to act as base capital in future. Rest of the profit generated is delivered to the SHGs.

Table 3: Revenue generated during the last 6 months of 2021. Source: Authors

S.No.	Month	Total Orders	Amount (Rs.)
1	Jun-21	55	30,744
2	Jul-21	298	75,822
3	Aug-21	43	51,505
4	Sep-21	962	7,44,675
5	Oct-21	435	5,51,875
6	Nov-21	102	1,00,450
7	Dec-21	44	34,050
Total		1939	15,89,121

Knowledge Transfer:

The seven skills are divided into two categories - Traditional (Zardozi, marble inlay, carpet making i.e. Agra duree) and Modern (Decorative handicrafts, brass brush for jewellery cleaning, flower art, stitching). The length of the training program varies for each skill (Table 4): Empanelled trainers under the government's handicraft department have been hired to guide and train the beneficiaries. Two types of training are being given in the centres. First is the entrepreneurship training that includes business model creation, grouping as ALF (Area Level Federation) and further CLF (City Level Federation) named as 'Pragati Shahar Stree Smiti'. These federations are headed by women from the SHGs and act as a marketing channel to create work orders. To date, around Rs 5 lakh worth of orders have been generated through these federations. Second is the livelihood promotion training wherein after conducting a market analysis, fusion and contemporary designs were added to cater to the demand and changing tastes of the buyers. For example, Madhubani art, Braj art and

Modern art were introduced in zardozi and marble inlay depicting yoga poses and birds and carpets depicting Sikkim's flower valley. It was also noted that 8-9 people took around 15 days to complete a traditional zardozi piece. As a result of the training, the time consumption has been reduced to four days, wherein the artisans have been trained in all the channels pertaining to product development and finally the delivery of the product to the market. The training period for all the skills is shown in Table 9.

Table 4: Details of the Skill Training Program. Source: Authors

S.No.	Skill Name	Training Time (Days)	Name of Trainers
1	Zardozi Work	5	Mohammad Bilal
2	Marble Inlay	4 (2+2)	Swati Gupta
3	Carpet Making	7	Mohammad Bilal
4	Brush Making	3	Sachin
5	Flower Art	2	Suraj
6	Stitching	6	Ruchi Bhadouria
7	Decorative Handicraft	5	Mohammad Bilal

Skill Centre	Beneficiary	Gender	Age	Educational Qualification	Skill Program
Kolhai	1	Female	35	9 th Pass	Zardozi, Carpet making
	2	Female	32	12 th Pass	Zardozi, Carpet making
Teela Shahid Nagar	3	Female	21	12 th Pass	Carpet making
	4	Female	34	Illiterate	Carpet making
	5	Male	19	Illiterate	Zardozi
	6	Male	29	5 th Pass	Zardozi
Chauk Intara- Telipada	7	Female	45	Illiterate	Decorative Handicraft
	8	Female	28	8 th Pass	Decorative Handicraft
Nala Shekh Bulaki	9	Female	40	8 th Pass	Stitching
	10	Female	32	8 th Pass	Stitching

Table 5: Details of the Beneficiaries interviewed. Source: Authors

Skill Centre	Beneficiary	Satisfied with the training	Efficient Trainers	Appropriate Sanitation/ Hygiene Measures	Child care facility at centre
Kolhai	1	Yes	Yes	No	No
	2	Yes	Yes	Yes	No
Teela Shahid Nagar	3	Yes	Yes	Yes	No
	4	Yes	Yes	Yes	No
	5	Yes	Yes	Yes	No
	6	Yes	Yes	Yes	No
Chauk Intara- Telipada	7	Yes	Yes	No	No
	8	Yes	Yes	Yes	No
Nala Shekh Bulaki	9	Yes	Yes	Yes	No
	10	Yes	Yes	Yes	No

Table 6: Reaction of the Beneficiaries towards the training program. Source: Authors

Challenges:

The challenges faced in the effective implementation of the training program have been discussed in Section 2.2.1.

iv. Key findings from Beneficiaries

The primary data collected from the four Micro Skill Development Centres is based on questionnaire interviews of 10 beneficiaries (8 females and 2 males) and physical observation of the centres. The minimum and maximum age of the sampled beneficiaries was 19 and 45 (Table 5). The average age of the sample was 32. Almost 70% of the respondents were literate however, only 20% possessed higher secondary knowledge. The observations based on the following parameters are:

Reaction (Table 6: Reaction of the Beneficiaries towards the training program):

Overall the beneficiaries were satisfied with the training programs which included the training centres (infrastructure), course content, stakeholders and the trainers. The program has fully met the expectations of the beneficiaries. The centres are equipped with ramps for the physically disabled and appropriate sanitation facilities for the beneficiaries have been provided. However, as of now, there is no childcare facility/

facility/provision at the centres. The children often join their mothers in the centres after school because of which a need for such a provision is felt among all the respondents. It would also improve the working efficiency of the women.

The primary purpose of the skill program was to equip the beneficiaries with the knowledge of new designs and skills to cater to the global market. All the interviewed beneficiaries were affinitive to the new learning being imparted at the skill centres. Knowledge reinforcements help to brush up and enhance their existing skills. A healthy 90% of the people have confirmed a positive change in their confidence and competence after the training. It is observed that 70% of the respondents did not have any prior training in the skill they were involved with and are still working with the ancestral know-how of the handicraft sector. The marketing and entrepreneurship training is improving confidence and leadership qualities of the women and making them capable of handling the work orders independently.

Employability (Table 8: Views on employability after the training program)

Majority of the respondents were literate (70%), but only 20% had graduated high school. The low education level of the artisans makes them highly vulnerable to exploitation at the hands of middlemen. Before this project, the artisans were paid meagre amounts for their intense labour. The skill enhancement programs and other training programs like entrepreneurship training, marketing linkages and financial training have enhanced the competence and knowledge of the artisans. However, only 50% of the respondents expressed a distinct positive change in the likelihood of finding a job or procuring work orders. After discussions, it was observed that the primary factor for the shortage of work orders for the SHGs is the decline in commercial activities because of COVID-19. Although 90% of the respondents had the required space and equipment at home to comply with any work orders, the shortage of demand resulted in the procurement of limited offers beyond the skill centres.

Skill Centre	Beneficiary	Improvement in likelihood of finding a job	Required equipment at home
Kolhai	1	No	Yes
	2	No	Yes
Teela Shahid Nagar	3	Yes	Yes
	4	Yes	Yes
	5	No	Yes
Chauk Intara-Telipada	6	No	No
	7	No	Yes
Nala Shekh Bulaki	8	Yes	Yes
	9	Yes	Yes

Livelihood (Table 9: Views on livelihood improvement after the training program. Source: Authors):

There is a distinct improvement in the income of 70% of the beneficiaries after the skill training. Overall, a 10% increase in the wages was reported as a positive outcome of the training. As a result, there is improvement in the household income which has brought about a positive change in the living standards of the families. Women are satisfied by their contribution to the household income. It is noted that the time frame within which the training is imparted is not sufficient. Nearly 80% of the respondents expressed their dissatisfaction with the present length of the training program. The duration of the training period for most skills is required to be increased so that the beneficiaries can learn and adapt to the new designs and techniques in a better way.

Skill Centre	Beneficiary	New Learning	Feel Confident and competent	Prior training in the skill	Regular Knowledge Reinforcements
Kolhai	1	Yes	Yes	No	Yes
	2	Yes	Yes	Yes	Yes
Teela Shahid Nagar	3	Yes	Yes	No	Yes
	4	Yes	Yes	Yes	Yes
	5	Yes	Yes	Yes	Yes
Chauk Intara-Telipada	6	Yes	Yes	No	Yes
	7	Yes	No	No	Yes
Nala Shekh Bulaki	8	Yes	Yes	No	Yes
	9	Yes	Yes	No	Yes
Nala Shekh Bulaki	10	Yes	Yes	No	Yes

Table 7: Learning of the Beneficiaries from the training program. Source: Authors



Figure 11: Zardozi artisans creating Buddha embroidery on black velvet. Artisans have now started creating new designs instead of the traditional motifs, to cater to the market demand.



Figure 10: Zardozi trainer Mohammad Bilal guiding the artisans on this 'chhapayi' step.

Table 10: Reaction of the Beneficiaries towards the training program. Source: Authors

Skill Centre	Beneficiary	Improvement in income	Change in standard of living of family	Duration of Training Period
Kolhai	1	No	No	No
	2	Yes	Yes	No
Teela Shahid Nagar	3	Yes	Yes	No
	4	Yes	Yes	No
	5	Yes	No	Yes
Chauk Intara-Telipada	6	Yes	Yes	No
	7	No	No	No
Nala Shekh Bulaki	8	Yes	Yes	No
	9	No	Yes	Yes
Nala Shekh Bulaki	10	Yes	Yes	No

v. Key Impacts on Handicraft Production

Handicraft promotion is done through both online and offline modes. The online platforms include an android application (MSDC) along with an e-commerce website (www.msdcascl.in). These are developed for brand creation and marketing of the products created by the beneficiaries. Memorandums of Understanding (MoUs) have been signed with Amazon, Flipkart and PayTM to ensure the initiative's long-term viability. In addition, a comprehensive IT framework for product delivery has been built through tie-ups with DHL and e-kart in the backend logistics infrastructure. The offline platform includes tie-ups with travel agencies, exposure at Taj Mahotsav and melas. The beneficiaries are also given a platform to showcase and sell their products at the Government offices in Agra. The products are also being used by the Government of Agra as gifts to dignitaries. As per the officials, zardozi work and marble inlay generate maximum revenue. On 20 August 2020, marble inlay works were recognised in the One District One Product (ODOP) scheme of the Uttar Pradesh Government in addition to the existing leather works. Around 1900 products were sold under various handicrafts during the last six months of 2021 (Table 3: Revenue generated during the last 6 months of 2021).

Replicability and Scalability:

With help from the Micro, Small and Medium Enterprises (MSME) Department, Skill India, and the Pradhan Mantri Kaushal Vikas Yojana, the project could be expanded. Talks for a new Artisan Centre with the Tourism department in the Kachpura region of Agra are underway. New skills like artificial jewellery, recycling of plastic waste, waste paper and leftover cloth material to create products are being explored. Skills like sketching to enhance the drawing skills of the artisans have also been identified. The learning from the implementation of the project in Agra is being replicated by the NGO to develop similar artisan centres in Mathura.

3. Discussion and Conclusion

The handicraft sector plays a significant role in the local economy of Tajganj, Agra. This sector is a good fit for the region. It is environment-friendly and labour-intensive rather than capital-intensive. A large number of artisans in Tajganj were employed by middlemen, because of which they remained largely underpaid. Agra Smart City Limited developed four Micro Skill Development Centres in Tajganj with the aim to address the issues plaguing the handicraft sector and to bring about a positive change in the lives of the artisans.

The first objective was to evaluate the impact of the skill development centres on the livelihood and skill development of the beneficiaries. When the survey was executed to ascertain the impacts, a positive response was reported. Satisfaction with the program was observed to be good on most parameters. On account of employability, the response however was moderate. The dissatisfaction could be attributed to factors

like COVID-19, which has slowed down commercial activities and immensely impacted the tourism sector.

Skill Development is a continuous process and regular knowledge reinforcements were given to the SHGs. However, it was found that a similar training pattern was used for all the beneficiaries irrespective of their existing skill potential. Reviewing the skill w.r.t. current standards and addressing the same on different levels is crucial to bring efficiency in a training program. The officials were planning to undertake the advanced level of training for the artisans in the coming months. No provision for a test/examination has been devised to evaluate the skills learned by the artisans.

The formation of SHGs is essential for the effective implementation of the project and for realising the objectives of the program. DUDA recognised SHGs were identified by the skill centres. As a result, the management and functioning of the beneficiaries become efficient. The beneficiaries were paid Rs 200 per day for the training duration. The amount seems small but is fair when compared to the wages earned by the beneficiaries before the program, which were between Rs 150-200 per person per day. The program also engages women's participation through community development programs about Family Welfare, Public Health and sanitation. Such programs are essential for buying in the consent of the community whilst creating awareness amongst the women from the marginalised sections of the society. As a result, the centres have become a hub for community activities for the local area. During the pandemic, vaccination drives were also carried out in the centres.

Initial hiccups were faced in the mobilisation of women, but awareness regarding the intentions of the government w.r.t. the centres and the success of the program paved the way for sustainable growth of the project. It was noted that enthusiasm of the beneficiaries in the program could only be sustained if a suitable market for their products was established. However, the duration of the training remains debatable. As per the officials, it was limited to less number of days, keeping in mind the time availability of the beneficiaries. However, the beneficiaries desire the time frame to be increased. Given the success of the program in the region, the budget of Rs 2 crore allocated to the project needs to be looked into so that it does not hinder the development process in future. Equitable division of the work orders to various SHGs also needs to be analysed.

The skill centres have had a positive impact on the promotion of handicraft within the city. Marble inlay work of Agra has also been recognised in the ODOP (One District One Product) scheme of the Uttar Pradesh Government. The proposed heritage walk around the artisan households is also expected to generate awareness needed by the handicrafts. However, the impact could not be assessed correctly because of the pandemic. The creation of e-commerce mediums increases the reach of the products. There is, however, a need for better promotion of these platforms to generate awareness amongst the public. There is a need for better showcasing of the products created by the artisans to get the necessary attention, which would generate revenue for the beneficiaries and promote local handicrafts. Sensitising the public on the benefits of using locally made products should be done within the city and the country.

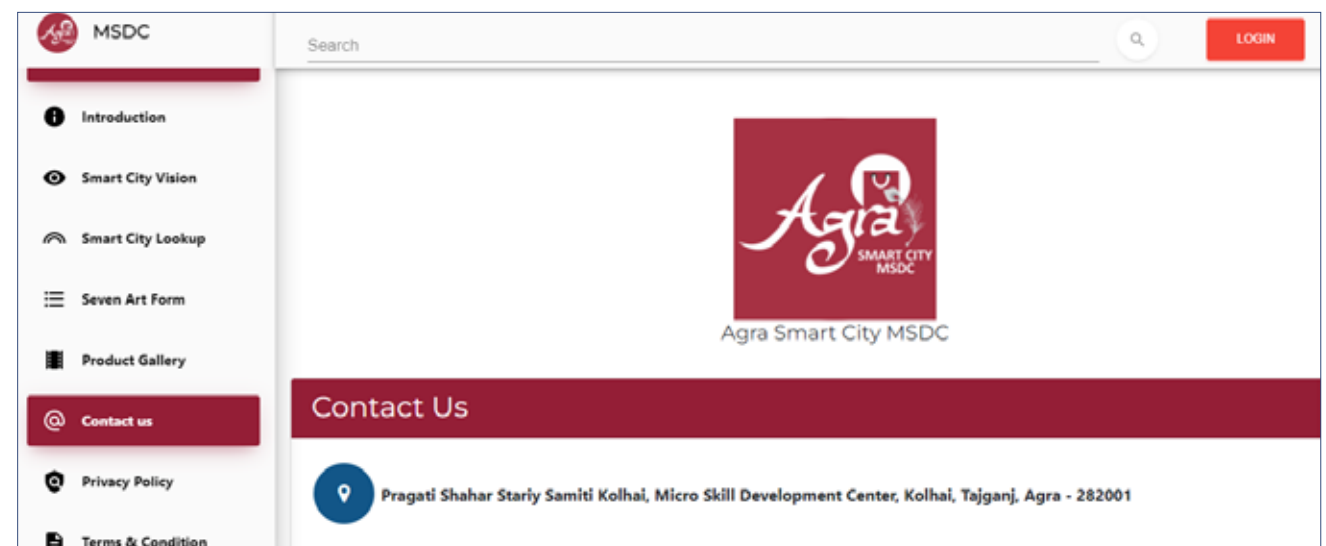


Figure 12: MSDC website

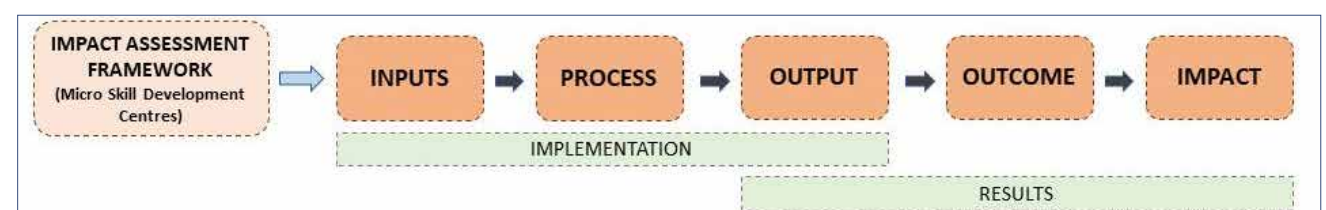


Figure 13: Impact Assessment Framework. Source: Authors

The research paper analysed the performance of the Micro Skill Development Centres. Such initiatives are essential to develop and sustain the local handicrafts because of the immense potential to generate employment and a means of sustainable livelihood for the artisans. The NGO has made a commendable effort in putting a theoretical concept into practice.

3.1 Implications (the impact assessment framework to be included here)

Inputs:

It includes the allocated financial resources for the development of the centres. The total project cost is Rs 2 crore for a period of five years.

Process:

The process includes surveying of community centres and existing communities, local skills and existing SHGs. The desired investments on infrastructure, equipment, capacity building, expenses on team building and administration were made as per the budget. All the processes were carried out by Adarsh Sewa Smiti (NGO).

Output:

The resultant output is the creation of four Micro Skill Development Centres equipped with all the necessary facilities to assist in the training process.

Outcomes:

A total of 107 SHGs (100 women and 7 men) are linked with the centres. A pool of recognised trainers is maintained to assist in the training of these beneficiaries under seven skill-sets. The project secured a position at national level under the Smart Cities Award Contest (ISAC) 2021, under the economy category.

Impact:

An increase in the income of the beneficiaries along with enhanced skill development resulted in increased financial independence for women. This has had a positive ripple effect on other societal sectors of the community as well. There has also been a promotion of

handicraft products with diversification in designs and increased attention by the government.

3.2 Limitations of the research

Due to paucity of time, the primary survey was limited to a certain number of beneficiaries and SHGs present at the centres. Only the skill programs available with the present beneficiaries could be observed. Since only one training provider was present at the time of visit, the trainer's perception of the training is limited to his response.

The paper uses both quantitative and qualitative data reported by the stakeholders without much cross-verification with other sources of data. This introduces subjectivity in the responses.

Because of the pandemic, tourism and trade are yet to recover completely therefore, the impact of the project has not been realised to its full potential.

3.3 Key lessons learnt

Research work primarily involves the study of secondary and primary literature. Secondary data is essential for any research work, particularly in times of COVID-19, when there is uncertainty concerning the field visits and interviews. Also, careful analysis of secondary literature is necessary to get a first-hand observation of the subject and arrive at a preliminary framework for the research. Well-documented literature enhances the overall experience.

The primary survey included discussions with stakeholders and beneficiaries using close and open-ended questionnaires. It was a unique opportunity since we were writing a research paper for the first time as urban planning students. But it had its set of challenges. Cooperation of the authorities is a crucial factor. The officials in Agra provided the best on-field support that boosted our enthusiasm and efficiency. Knowledge of the local language also becomes essential to interact with the beneficiaries, although it was not much of a concern for us in Agra.

3.4 Recommendations

The centres have been fairly successful in the effective implementation of the skill development program in the region. Following are the major points and suggestions that emerged from the study:

Initial screening of the beneficiaries should be necessary. Appropriate processes or formats should be developed for the same to categorise the artisans based on their skill competency. Based on that, the appropriate level of training should be provided.

The key reason for participation in the training program is that it would generate employment and lead to increased income for the beneficiaries. It is thereby suggested that employability assistance should be provided under the program. A follow-up study could also be undertaken to analyse the impact of the program on the livelihood of the people. Innovative approaches to strengthen the local businesses should be developed.

Along with e-shram cards and shilpi cards (artisan identity cards), certificates for the training program should be issued to the artisans, which could be further used to avail employment opportunities.

The time duration of the skill training should be increased so that beneficiaries get more time to acclimatise themselves to the new design trends and enhance their skills. Provisions like examination based skill evaluation could be explored to improve the quality of training. This would help in creating a hierarchy of artisans based on their skills. It would also enhance the efficiency of the training program.

Since during the initial years the development of the project was hindered by the pandemic, more awareness generation programs need to be undertaken. These could help to sensitise the people of the city as well as beyond the city, regarding the handicrafts of Agra. This would also be a boost to generate revenue for the artisans as well as promote the local handicrafts. Brand promotion of the local handicrafts is also crucial.

References

1. (2011). Census.
2. Agra Smart City Retrieved Jan 2022 from: HYPERLINK "http://agrasmartcity.in/" http://agrasmartcity.in/
3. Chauhan, D. ((2019). Empowering the Handicraft Artisans through ODL Mode. Retrieved February 2022, Retrieved from oasis.col.org: http://oasis.col.org/bitstream/handle/11599/3318/PCF9_Papers_paper_184.pdf?sequence=1&isAllowed=y
4. City Officials: A Compendium of Best Practices, Smart City Mission, Agra Micro Skill Development Centre (Rank 2)
5. City Officials, Detailed Project Report, Micro Skill Development Centre
6. DMEQ. (February 2021). Best Practices Compendium, Urban Sector, Evaluation of Umbrella Centrally Sponsored. Niti Aayog Retrieved from: http://planning.up.nic.in/Go/UD%20Compendium.pdf
7. Effat Yasmin, FB. (2013). An Evaluation of Handicraft Sector of J&K -. EUROPEAN ACADEMIC RESEARCH, VOL. I, ISSUE 4/ JULY 2013, 368.
8. IBEF, KC. (2021, March 31). INDIA'S HANDICRAFT CRAFTS: A SECTOR GAINING MOMENTUM. Retrieved February 2022, from www.ibef.org: https://www.ibef.org/blogs/india-s-handicraft-crafts-a-sector-gaining-momentum
9. IICA (2018-19) Impact Assessment Report, RPL III Training Programme for RAC Technicians of HPMP Retrieved from: HYPERLINK "https://skillsip.nsdindia.org/" https://skillsip.nsdindia.org/
10. ILO/ Cinterfor, 2011 SKILLS DEVELOPMENT IMPACT EVALUATION A practical guide Retrieved from: https://www.oitcinterfor.org/sites/default/files/file_publicacion/skillsdevelopmentimpacoevaluation_secured.pdf
11. National Statistical Commission Report (2012-13) Retrieved from: https://mospi.gov.in/documents/213904/0/nsc_AR_2012-13.pdf/d0aecd4a-3f5d-ddc5-6d71-dc996e45fce0?t=1595170626971
12. Singh, R.B., Chauhan, S.K., & Kaledhonkar, M.J. (2020). Survey, Characterization and Mapping of Groundwater of Agra Region and Bharatpur District for Irrigation Purpose. https://www.researchgate.net/publication/344252085_Survey_Characterization_and_Mapping_of_Groundwater_of_Agra_Region_and_Bharatpur_District_for_Irrigation_Purpose
13. The Smart City Challenge Stage 2: Smart City Proposal Agra (Agra Annexures) Retrieved from: https://smarnet.niua.org/sites/default/files/resources/agra_annexures.pdf