

# Service Design for Wild Vegetables as a source of livelihood generation



Project 2

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# Table of Contents

Approval	ii	Mock ups	44
Declaration	iii	Service Failure and Recovery	56
Acknowledgment	iv	Testing	57
Abstract	vi	Conclusion	60
Literature Review	1	References	61
Background	4		
User Studies (Rural)	5		
Narrowing Focus	10		
Farmer Persona	11		
User Studies (Urban)	13		
User Types	15		
Secondary Research	18		
Using System Mapping Tools	19		
Early Ideation	22		
Final Concept	29		
Service prototypes	34		
Service Blueprint	36		
Storyboard	37		
Phase/Process Summary	41		
Delivery Box	42		

# Literature Review

## **1. Agriculture in India unable to provide a viable source of income**

Despite being the primary sources of occupation for the Indian population, more than one-third of the farming households in India suffer from the vulnerability of livelihoods [1]. This is especially high amongst marginal farmers who live in dry or mountainous regions and tribal regions [2]. A 'Marginal Farmer' can be defined, as per RBI, as a farmer cultivating (as owner or tenant or sharecropper) agricultural land up to 1 hectare (2.5 acres).

The majority of farm households in India are also in deficit, having expenditures exceeding their income. According to the Situation Assessment Survey of Farmers, the average monthly expenditure of farm households was Rs 2770 while the average income from all sources was Rs. 2115 [3].

### **1.1. Rural poverty and land ownership**

Small land holdings of farmers has been known to have an effect on rural poverty. According to NSS 2004-05 data the poverty ratio was highest amongst landless farmers at 22%. It was also relatively higher amongst other groups of marginal and small farmers (20% among submarginal farmers, 18.1 % among marginal farmers, 14.8 % among small farmers) [1].

According to Chand et al. 2011 [4] the per capita income from agriculture per hectare of land comes to be Rs. 6,655 as per 2004-05 prices using CSO. Based on this, as per the Planning Commission norms of poverty line for rural areas and the Tendulkar Committee,

“62% farmers in India who own less than 0.80 ha of cultivable land would be under poverty if they do not have an opportunity to earn income outside agriculture” .

### **1.2. Effect of land holdings on nutrition**

Small or lesser land holdings could also have an impact on the nutrition of the farmer families. According to the findings of a sample survey conducted by the Tribal Research Training Institute in Maharashtra Nandurbar district, out of the 148 families in which deaths due to malnutrition occurred, 72% of them owned less than 3 acres of land, 40% owned less than an acre or were landless [5]. In addition, the size and number of land given by the Forests Rights Act to these landless farmers has also been considerably less. Only 16.84 out of 40.72 lakh claims for land by landless farmers have been approved till date. This ultimately could have an impact on their health and nutrition. Mokhada in Palghar district is a tribal area where 19.4% of the approved land claims were for less than 0.12 acres. In August 2017, the number of malnutrition induced deaths in this region stood at 47 [6].

## **2. Enhancing rural livelihood**

### **2.1. Focus on Non farm activities**

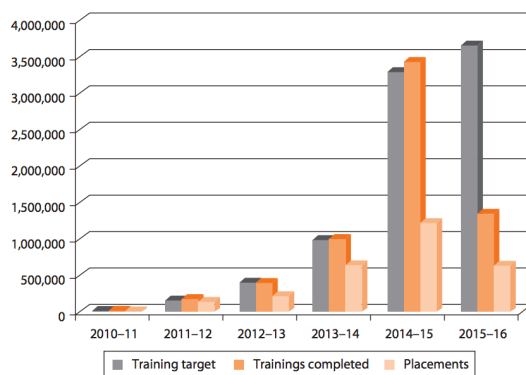
Supplementing income and employment opportunities for rural livelihood has always been a part of India's Five-Year Plans since the beginning [1]. Both farm and non-farm activities have been considered for the same. While initially the focus was on land reforms and agricultural growth, agriculture based efforts did not prove to be

sufficient to eradicate rural poverty. Hence, since the 1970's, there has been an emphasis to promote supplementary economic activities and employment opportunities in the rural areas [2].

According to Papola [2] non farm activities must be focused on to improve rural livelihoods. Singh [1] says, "The livelihood promotion strategies have to be linked to the local resource base of the communities, which comprise land resources, water resources, forest resources, livestock resources and local human resources...". Hence it can be seen that there is a potential in non farm activities, utilizing on local resources and local conditions, as a means to provide for rural livelihood.

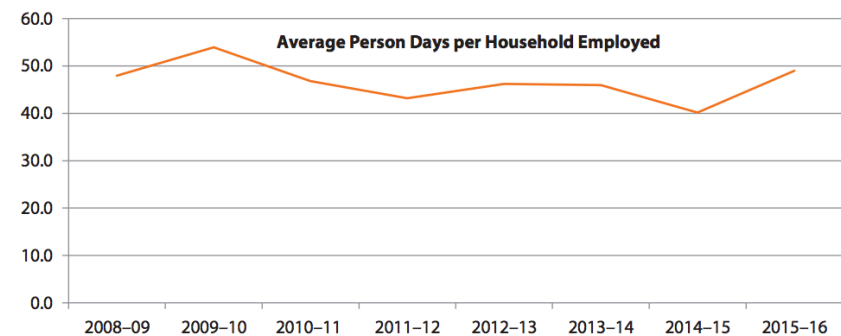
## 2.2. Present Efforts

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) guarantees 100 days of unskilled manual work for rural households on demand. While there are about 130 million job card holders, only about 50 million demand jobs every year. The percentage of jobs demanded and provided has been high over the years at 99%, but this has been declining gradually [7].



**Figure 1.** Job cards issued, employment demanded and provided  
**Source:** State of India's Livelihood Report 2016.

While the employment performance percentage has been 99% in 2011-12, looking at the state wise performance of jobs provides a different picture . As per the NSSO data July 2011-12, 57% of MGNREGA job card holders in Maharashtra sought work but were unable to get it, making it the highest amongst all the states. MGNREGA has also been unable to deliver on it's promise of 100 days of employment, with the average person days never being more than 54 days from 2008-16 [7].



**Figure 2.** Average employment days per participating household  
**Source:** State of India's Livelihood Report 2016.

### **3. A service design intervention**

Recent years have seen an increase in a service dominant design approach in areas of healthcare, public services, financial sectors etc,. Service design has had a huge impact in public services, in countries like UK operating nationally, regionally and locally [8]. A part of the social economy that is aimed towards creating solutions for social, economic and environmental issues is on the rise [9]. According to [8] they there have been discussions that promote the role of service design in tackling social and economic issues. This is because service design is often seen as “linked with innovation, whether incremental or radical”. There is an acknowledgment and demand for service design coming from those working in these industries [9].

Therefore, given the potential of the impact of service design in social economy, and it’s role in fostering innovation. A service design intervention is proposed here, as a potential means to generate rural livelihood.

# Background

For the purpose of this project, a few villages in Palghar district were visited, along with a non-governmental organisation, that works towards rural development; BAIF (formerly, Bharatiya Agro Industries Foundation) Development Research Foundation, in Jawhar taluka, Palghar district.

## 1. About Jawhar

Jawhar is tropical area situated between in Palghar district with deciduous green plants. The entire region is situated in Sahyadri ranges and thus has hilly land with steep sloped in many areas. It has a high rainfall of over 3000 mm. The climate of this region is variable. This region has red soil with poor water holding capacity, hence despite a lot of rainfall, perennial water availability is a problem. The region is inhabited by different tribes like Thakur, Mahadev, Koli, Varli, Katkaris and Kokana.

## 2. The villages

Jawhar consists of many small pockets of villages that are spread far apart from each other. In some cases the farmers have their farms close to their homes, whereas some may have it far away in the jungle areas. The region has a fairly large tribal population. It is very known for its tribal culture, with it's Warli paintings being very popular.

The agriculture is majorly rainfed (only 5-7% of Konkan is irrigated). The major cereals in this region are paddy, finger millet and Sorghum. Paddy is a staple crop of the region. The farmers in this region have also cultivated several native landraces of rice. There is also a good

variety of wild vegetables, fruits and flowers found here during the monsoon season.

## 3. About BIAF

BAIF Development Research Foundation, is a non-governmental voluntary organisation established in 1967 by Dr. Manibhai Desai, for purposes of rural development. It is present in several locations across India such as Punjab, Bihar, Odisha, Chattisgarh, to name a few [10].

BAIF is dedicated to “providing sustainable livelihood to the rural poor through climate-resilient agriculture, management of natural resources, livestock development, watershed development and agri-horti-forestry as major income generation activities. BAIF has evolved innovative models of micro-enterprises to ensure inclusive development through dairy husbandry, goat production, agri-horti-forestry and sustainable agricultural production for food security and poverty alleviation [10].”

# User Studies (Rural)

Multiple visits were made to BIAF, Jawhar taluka, Palghar district for user studies, and the surrounding villages of Chowk, Vanganpada, Vanvasi and Karegaon in Mokhada. These visits included in depth interviews with 10 tribal farmers in the aforementioned villages, 4 expert staff members at BIAF. I also happened to attend a session on rural policy making at BIAF and a wild food festival at Karegaon.

Contextual enquiry is a method where users are interviewed and observed in context, while they are performing their work in their natural environment [11]. Contextual enquiry was conducted to gather primary data for this project to understand the user environment and their needs.

## 1. Synthesis and Analysis

Post data collection, affinity diagrams were created using realtimeboard to generate themes and draw insights. I was able to establish cause and effect relationships and build user personas through the same.



Figure 3 & 4. Households in Mokhada and Vanganpada





## 2. Insights and Findings

### 2.1. Migration in Jawhar

People in the villages often migrate to nearby areas like Palghar, Vasai, Virar in search of employment, where they would take up road making and other construction work. They generally migrate in the summer season when they do not have any farming activities to do. Marginal farmers who have less than two acres of land, are meagerly able to produce enough for their own families to eat. Since they are not able to generate enough income by selling their produce, they migrate to cities for some duration, in search of livelihood. Nonetheless, farmers in Jawhar relatively migrate lesser to cities according to the villagers, also for lesser number of days (10/15 days). This is because people are able to make some sum of money by working for organisations within Jawhar.

### 2.2. Governance and Gram Sabha

People in the village have availed benefits from government schemes and subsidies. Some people received housing (gharkul) from the Pradhan Mantri Awas Yojana, some landless villagers also received 1 or less than 1 acre of forest land for cultivation. Besides this, BIAF has also been instrumental in gathering government funds for projects. There are frequent Gram Sabha meetings that occur in the village that discuss issues village issues such as employment or other domestic issues in the village.

### 2.3. Role of BIAF

The activities at BIAF are aimed at making the farmer communities self reliant, with each project spanning for about 5 years. A few years back the soil conditions at Jawhar were not conducive for growth, BIAF identified mango and cashew as those that can be grown in the then climatic and soil conditions of Jawhar. These were given as free saplings to the farmers to grow. Now these have come to be an important supplementary source of income for the farmers. Similarly, farmers were also encouraged to grow and sell Mogra. These are now grown in abundance and are sold in Dadar market daily. Some of the

other projects undertaken at BIAF include conservation of indigenous seeds, conducting wild food festivals etc. These activities are done in collaboration with the people in the villages, with some activities even being done in schools.



Figure 6. Poster at BIAF showing projects and activities

### 2.4. SHGs (Self help Groups) play an active role

SHGs are organized groups of people in rural areas, that come together to support activities that can help improve their livelihood options. They may be formed by local government in that area or by the people themselves. SHGs in this area are very active and play a pivotal role in their overall development. Every village had multiple SHG groups that frequently conducted activities together. These SHGs consist of at least 10 or less women, who are preferably above 18 years of age. These SHGs only comprised of women. Some of the activities carried out by SHGs include helping daily wage earners deposit money in their bank accounts, participate in wild food festivals as a group, collecting produce from members and selling it in urban markets etc.

## 2.5. Farmers grow both organic and hybrid seeds in their land

This is due to multiple reasons. The major reason is that the output generated from organic seeds is not sufficient for the farmers for their consumption, hence they use hybrid seeds too. The farmers prefer to keep the organic produce for themselves to eat as they consider it to be healthier. Whereas they mostly sell the hybrid produce. Apart from that, the native seeds require less investment as they can be re-used for the next season and some varieties are also climate resilient. The farmers also do not completely use hybrid seeds as it requires chemical fertilizers, which makes their land infertile.



Figure 7. Different varieties of rice cultivated in the same field

## 2.6. Managing their own food

Most people keep rice for themselves to eat throughout the year, if they have big farms they sell it in the market. Rice can be stored for 3 years, sometimes they accumulate the rice for 2 years and then sell it. Farmers avail rice, wheat, dal, sugar, kerosene through BPL (Below Poverty Line) cards from ration shops. This is very beneficial for those farmers cannot produce enough rice for their families to eat. Farmers also pluck wild vegetables from the forest and eat it. Some of them like

Kartoli or Khurasni are also sold by them. They heavily consume these while they are available in abundance during the monsoon season.

Those farmers who have water available in their field, grow vegetables all year long. However those that do not have water depend on these wild vegetables during the monsoon season. During the summer season however when these vegetables are not available, they pluck Karvand, mangoes from trees around them and sell it. They then purchase vegetables like potatoes, tomatoes and onions from the market from this money. Food security wrt vegetables is an issue during the summer season for most farmers.

## 2.7. The case for wild vegetables

Wild vegetables are those that are naturally grown in the forest area. Whilst they are considered dangerous to eat, the tribal people have discovered ones that are safe to eat. Some of these are rare to find and can only be grown in the forest, whereas some of them are available abundantly and can also be domesticated. Kartoli for instance is available abundantly and Khurasni is cultivated by the farmers in their land. The wild vegetables that are abundantly available are getting wasted due to underutilization. Tribal people see it as poor man's food and do not value it as much. Urban people are also not very aware about it. There are several health benefits to these vegetables and the villagers believe some of them to have medicinal properties. For example, Kurdu seeds can be good for kidney stone. These wild vegetables can also be consumed in other forms apart from being used as vegetables, for instance in the form of pickles, chutneys, etc.

There is a need for people to be aware about and value wild vegetables. As it has potential to serve as a means of livelihood and food security for rural population, and a means of nutrition for both urban and rural population.



Figure 8. Raw and cooked wild vegetables at the wild food festival

## 2.8. Logistical Issues with wild vegetables

Women spend a lot of time and efforts in gathering wild vegetables. It can take an entire day to pluck these and they need to travel deep into the jungle (5-8 kms) to avail these. These also need to be consumed quickly after they are plucked while they are fresh. Some women farmers from SHGs go and sell these in the city market of Dadar, Kalyan sometimes. This is however, not feasible for them to do often as it requires all day, and they already spend a lot of time gathering the vegetables. The women also have specific recipes of boiling and sautéing the vegetables that they believe are best ways to consume these vegetables.



Figure 9. Leftover vegetables after a wild food festival at Mokhada

## 2.9. Current efforts

Current efforts are centered around conducting wild food festivals at village and city levels. As well as identifying more species and standardizing their use.

# Narrowing Focus

From the rural user studies, wild vegetables seemed to have a potential to serve as a means of livelihood generation for rural farmers. This is due to

- Them being freely available
- Some of them being abundant in quantity, some already being domesticated by farmers
- Them being natural and organic
- Having unique tastes and high nutritional contents
- The tribal farmers already possessing the knowledge to identify them, as well as having indigenous recipes of processing and cooking them.

Currently these wild vegetables are sometimes sold in markets in the nearby villages and towns. However these do not fetch the villagers a good sum as they are not a rare commodity to the people living around. Given the rising market for organic produce in urban areas [12], and the high urban footfall that wild food festivals (those conducted by BIAF) have attracted, there seems to be a potential in getting higher returns on selling them in urban markets.

There are also other advantages in promulgating these wild foods to urban people. These foods can serve as a healthier eating option for urban palettes. According to Setiya et al. [13] "Increased use of traditional vegetables can contribute to enhancing people's health and standard living as well as the economic and social status of the food producers themselves". The knowledge and use of these wild species has also been on steady decline in rural areas, amongst the younger generations. Researchers insist on the need of the revival of

this knowledge [13], [14], [15]. Revival of these locally available wild foods is also important as it satisfies the nutritional needs of the tribal people and can help subside cases of malnutrition and other health issues among them [14], [16]. Making people aware about wild foods can preserve it's dying knowledge and help conserve the resource in the future.

Hence promulgation of wild vegetables, does not only have the potential to serve as a means of rural livelihood generation, but also revive it's precious declining knowledge and be a healthier eating option for both urban and rural people.

However along with the positives, there are known challenges surrounding wild foods like that of perception (as wild foods being dangerous to eat), introducing new food option to people's palette and logistical issues (plucking time, transportation) that need to be addressed.

**Vanita Pawar** is a 30 year old farmer, who lives in Vaganpada village, which is surrounded by forest area. She has a small farm in the forest, less than an acre, given to her by the forest department.

<b>Family members</b>	-Family of 7 members, with most of them working as farm labourers, or in nearby towns.
<b>Occupation</b>	-Agriculture -Daily wage by forest dept -Also does some SHG work -In the summer season, she migrates to the city with her family to do some road making or construction work.
<b>Area of land</b>	~1 acre
<b>Crops grown</b>	Rice, Nagli (millets), Udit
<b>Animals</b>	some hens
<b>Expenses</b>	Rs 10,000 for 1 acre of land



**Figure 10.** Farmer Persona

**What do the family members do?**

- Brother in law or sister in law takes the bulls for grazing in the morning and gets them back by evening
- Husband and other family members help in farming
- Father in law makes fishnets and sells them.
- Children are in 7th and 9th class respectively. One of them goes to school in Jawhar, other one goes to the Taluka school. Children also help in the field sometimes when they are free.
- Brother in law's children work as bus conductors in Jawhar town.

**A day in the life**

- Wakes up at 5 am,
- Does household chores (filling water, making bhakri, collecting cowdung)
- Spends all day working in the field (does all the work)
- Rests in the evening from 5-7.
- Prepares dinner
- Goes to sleep

# User Studies (Urban)

Another round of semi structured interviews were conducted with 6 individuals from urban areas of Mumbai and Vasai, which included 3 people(2 male and 1 female) aged 20- 25, and 3 people (2 females and 1 male) above 50 years of age. The purpose of the study was to know

- What does their daily diet consist of, who cooks their meals and how do they buy their groceries? In order to understand their consumption patterns, to know what role can wild foods play in their dietary habits.
- What is their perception about wild foods? (General impression and awareness about wild foods). In order to understand their perception about wild foods to base efforts towards creating or changing it.

## 1. Insights and Findings

### 1.1. Already knew about wild foods

All of the interviewed individuals above 50 years of age were already familiar with wild foods. This was because they had grown up in agrarian backgrounds and had consumed wild foods previously when they were younger. It was found that those who had migrated from other parts of the country knew the wild foods by different local and regional names. They even preferred different recipes to prepare them that they were familiar with. (2/3) of the users, above 50 years of age, did not go to any food event by themselves as they had health issues that limited their physical movement. They were generally keen on trying wild foods that they would have had before and new ones that would be okay to have

### 1.2. Some Cooking Trends; Hobby cooks and social media chefs

There were some common trends observed across families. (3/6) of the families had multiple individuals who would usually cook on holidays or weekends. They were open to trying time and effort intensive recipes. Their primary goal was to enjoy the cooking experience. For these (3/6) hobby cooks, having the required ingredients was one of the major factors while choosing what to cook.

Another common trend observed was the influence of social media chefs. All the interviewed individuals admitted to following or referring to some chef online, either via blogs or Youtube videos.

### 1.3. Inclination and skepticism towards organic food

(4/6) people acknowledged having an inclination towards organic or natural food items. On their visit to the hypermarket, they pick up items that claim to be organic. Good smell, more moisture content and lesser cooking time being indicators of the same. All of them also said that while they preferred such organic items, they were also unsure of these claims being 100% true, with one of the users quoting “it is not in my control to completely switch to organic food, I cannot really tell what’s in my food”.

### 1.4. Various means of buying produce

While the practice of purchasing vegetables and fruits from local vendors and hypermarkets were common, some novel methods of doing the same, were also found out. In one of the families in Vasai, the house help procured vegetables directly from the farmers and sold them in houses that she worked for. Another fruit vendor sold fruits



door to door in apartment buildings, he even introduced them to new kinds of fruits and spoke about its benefits to them. Yet another fruit vendor received orders for fruits on his Whatsapp and delivered them at people's doorsteps.

## **2. Conclusion**

Based on the findings gathered from urban user study, three user profiles were created, each emphasizing on a particular user needs or motivation, that is likely to draw them towards wild foods. The real world user is likely to be a combination of these attributes.

# User Types

## 1. The Nostalgic

Radha is a 50 year old woman, living in Mumbai city. She moved to Mumbai from West Bengal, after her marriage 26 years ago. She is familiar with wild foods as she has had them in the past, when she was young.

<b>Motivation</b>	Re-connect with foods she has had in her childhood
<b>Needs</b>	-Finding vegetables -Inconvenient to travel far away
<b>Opportunities</b>	-Help her find that food -Provide convenience -Can try other vegetables



Figure 11. The Nostalgic user type

## 2. The Hobby Cook

Rahul is a 32 year old working professional. He is a hobby cook loves to try cooking different meals on weekends.

<b>Motivation</b>	TFind and try different recipes
<b>Needs</b>	-Sourcing ingredient -Finding recipes
<b>Opportunities</b>	-Cooks during holidays -Connect with influencers



Figure 12. The Hobby Cook user type

### 3. Health Concious

Swati is a 32 year old working professional. She is always on the look for the most natural organic food for her diet.

<b>Motivation</b>	Staying healthy
<b>Needs</b>	-Find fresh, organic food -Finding the right food
<b>Opportunities</b>	-Wild vegetables are naturally grown and high in nutrition content



Figure 13. The Health Conscious user type

# Secondary Research

For my secondary research, I looked at various products and services, working in direct or related areas to my project. These have been grouped under different themes such as livelihood generation, communicating about food, introducing new food items and service design for rural areas. Looking at such varied examples helped me to expand my ways of approaching the problem which I have further exercised in the early ideation section.

<b>Category</b>	Focused on livelihood generation	Communicating about food	Introducing new food items
<b>What?</b>	Hubba, Rang De, Lal10	Veg Power campaign, Popeye, Plants Out Of Place exhibition	Kimchi bus tour
<b>Learning</b>	Heavy focus on conveying impact stories that make customers feel that they are making a significant contribution.	Creative ways to make food appealing to people by using narratives, storytelling, exhibition design.	Instrumental in making Kimchi appealing to global audiences by reaching out to where people are situated and creatively mixing Kimchi with some of their staple foods.

# Using Systems Mapping tools

To start off ideation, some systems mapping tools were used to analyze connectedness and interactions between entities such as people, places and objects.

## 1. Value Flow Model

The value flow model helps 'to visualize specific interactions in the network to provide a perspective for understanding value-creating roles and relationships, and offers a dynamic view of how both financial and non-financial assets are converted into value [17]'. Value flow model can map entities such as places, people, things and the connections between them. The connection between the entities is in the form of interaction or transmission. The value flow model is used here to map the many stakeholders and their interaction with the primary persona.

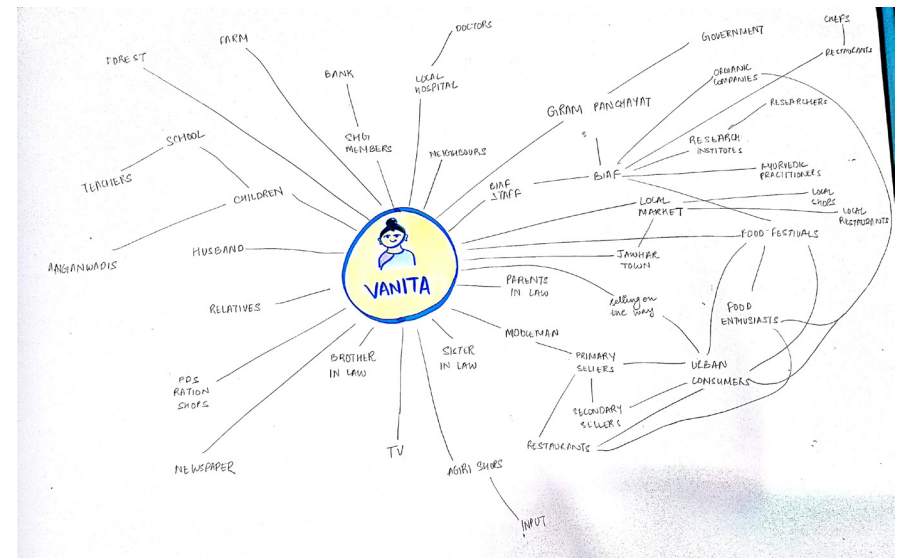


Figure 14. Value Flow Model for farmer persona

## 2. Cluster Map

Cluster maps help to get a complex view of the system and are one of the frequently used systems mapping tools. In order to make a cluster map, one needs to pick a central theme and put together all the elements, agents, actors, and components surrounding it. The connections between them, are then drawn later on. This is how they are different from mind maps, in that the connections between the entities are drawn later on [18].

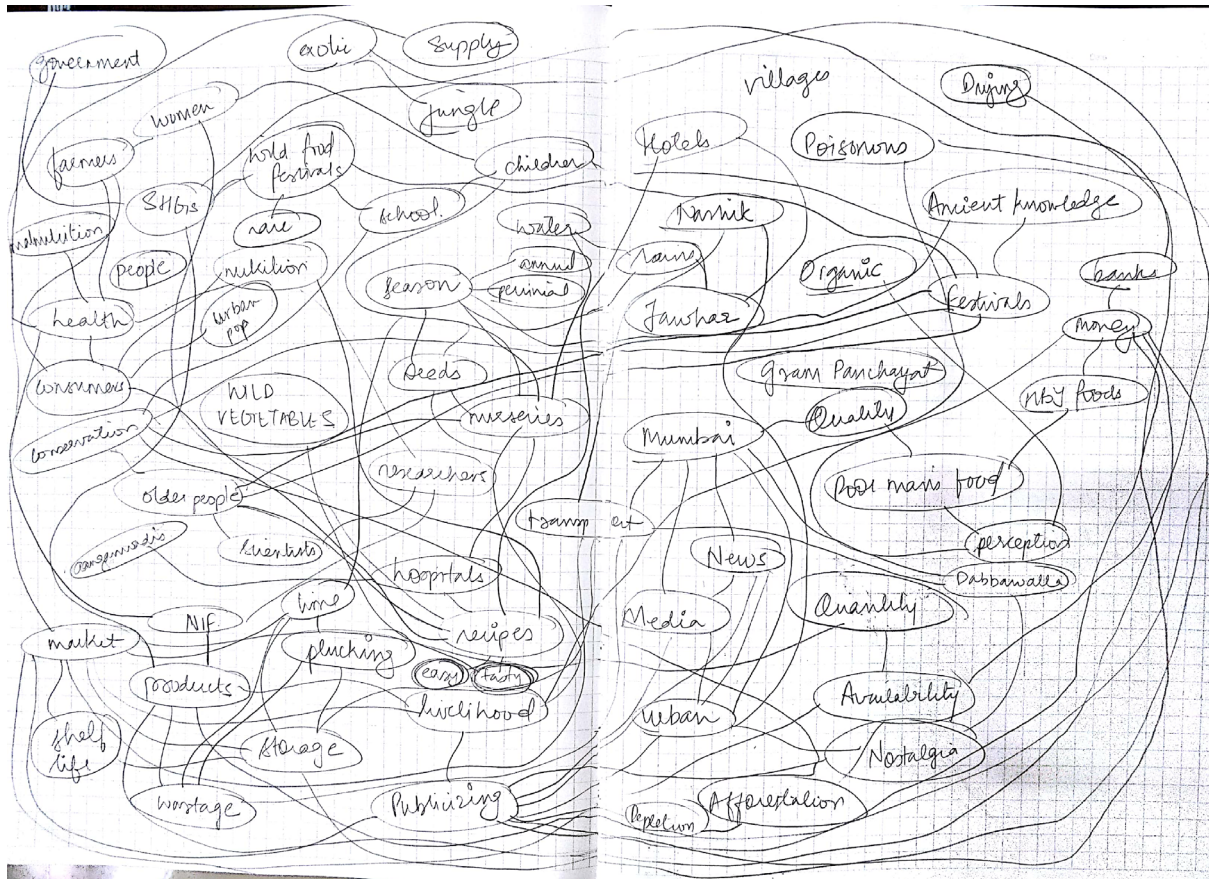


Figure 15. Cluster map

### 3. Connected Circle

Connected circles is another systems thinking tool that allows for further explorations of themes and establish cause and effect relationships between them [18]. I have used connected circle here, to explore prominent areas generated from the cluster map.

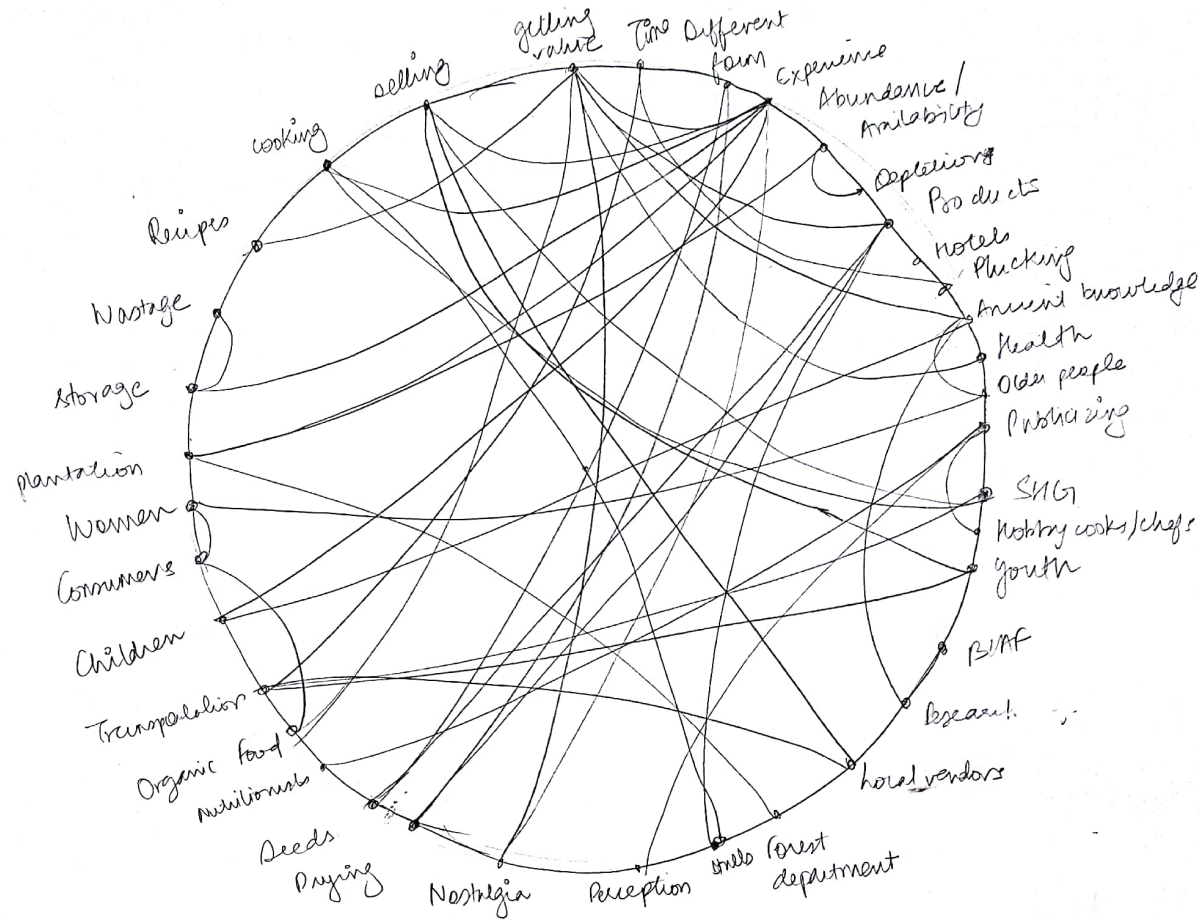


Figure 16. Connected Circle

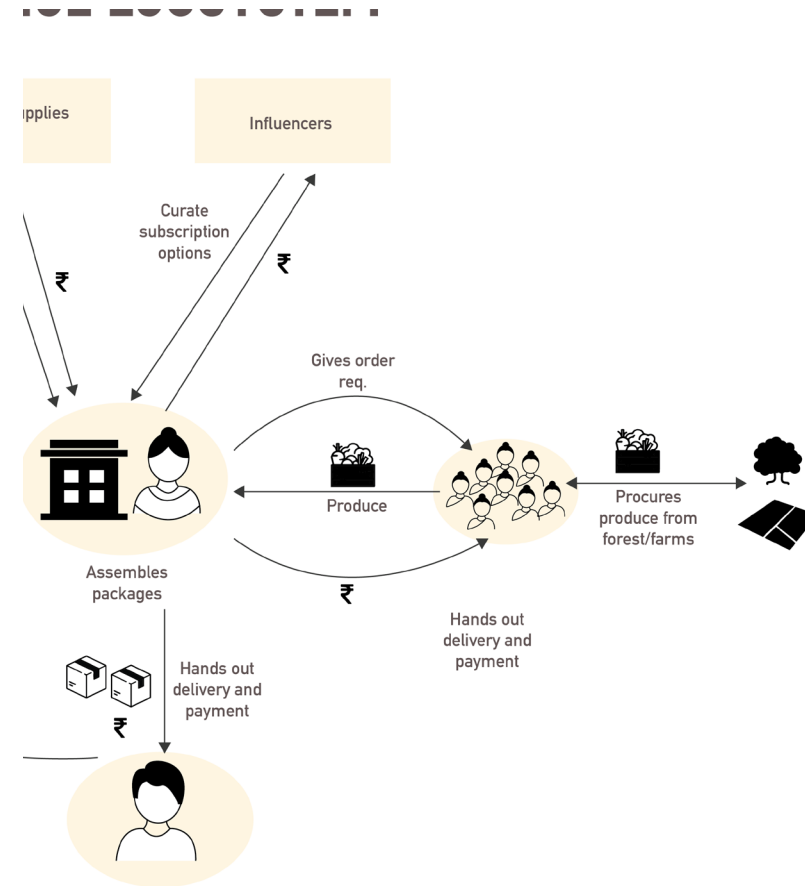


# Early Ideations

I further came up with some early ideations for different parts of the service such as who the stakeholders of the service could be, areas for value creation, possible touch points, physical space and time for the service etc.

SCAMPER is an activity based thinking process, that is used to generate novel solutions for new or existing products and services. SCAMPER is a mnemonic that stands for; Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse. It uses these 7 prompts to trigger creative solutions. SCAMPER method was applied to integrate the early ideations into a single cohesive service concept [19].

Some of the early ideations are presented here under their respective themes.



## 1. Stakeholders

Ideations on possible stakeholders for the service

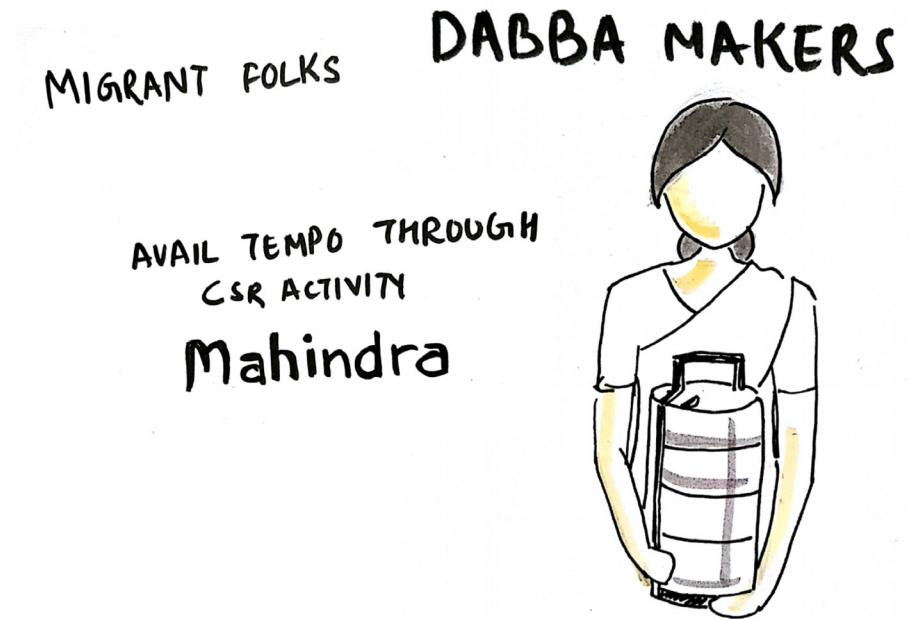


Figure 17. Ideation for Stakeholders

## 2. Value Creation

Ideations on how the stakeholders can be connected and how they could contribute value for the service

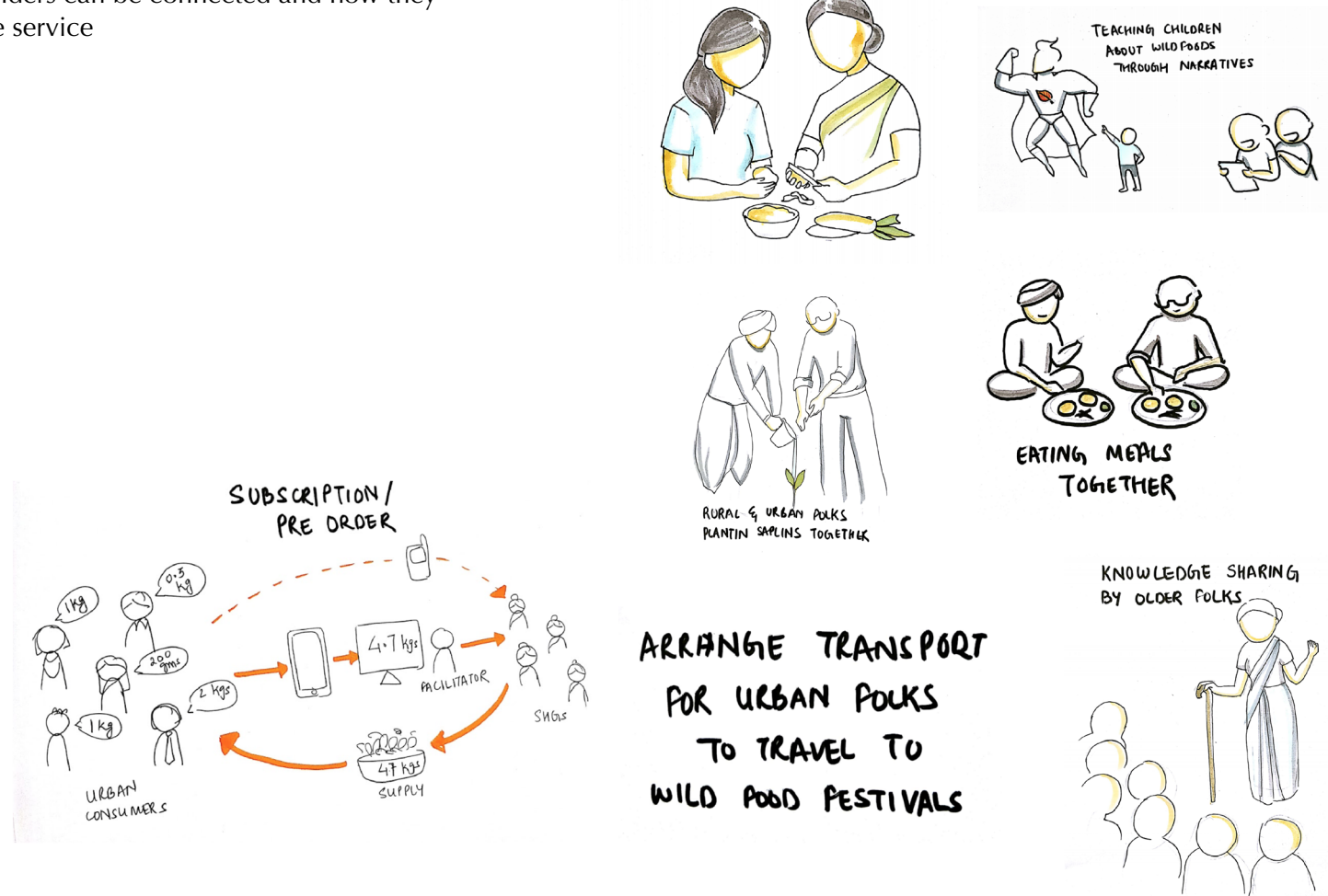


Figure 18. Ideation for value creation

### 3. Touchpoints

What touchpoints can exist to facilitate the service/ touchpoint details.



Figure 19. Ideation for touchpoint/ touchpoint details

## 4. Physical Space and Time

Physical space and time in which the service may take place

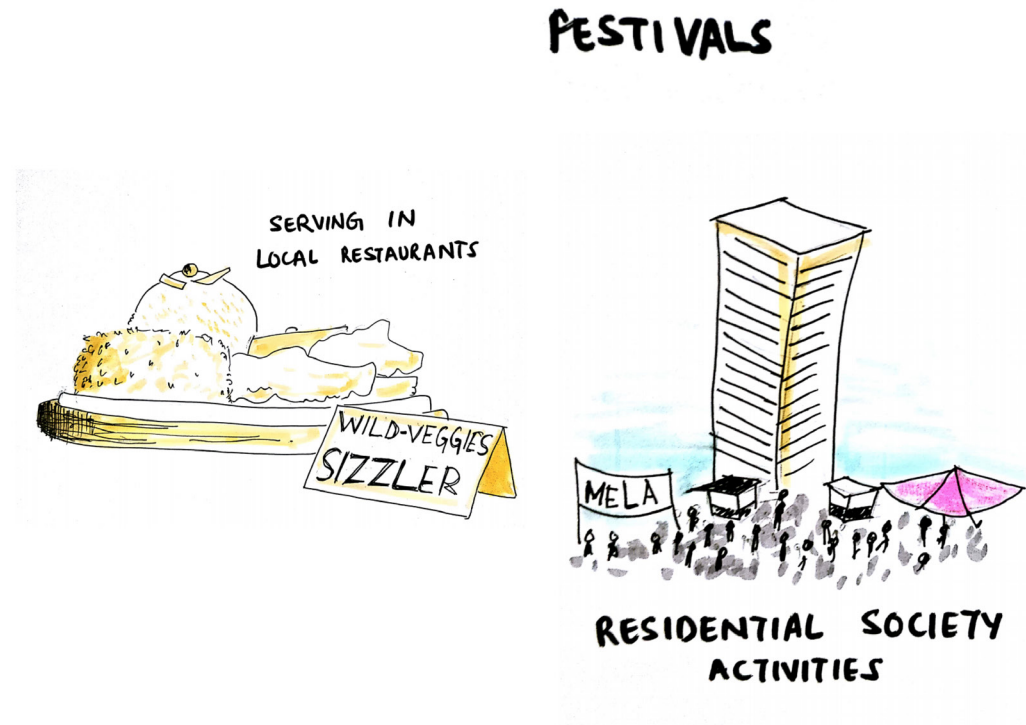


Figure 20. Ideation for physical space and time

## 5. Forms of wild foods

This ideation focused on the different forms of the wild foods that can be used in the service, not only focusing on its raw form

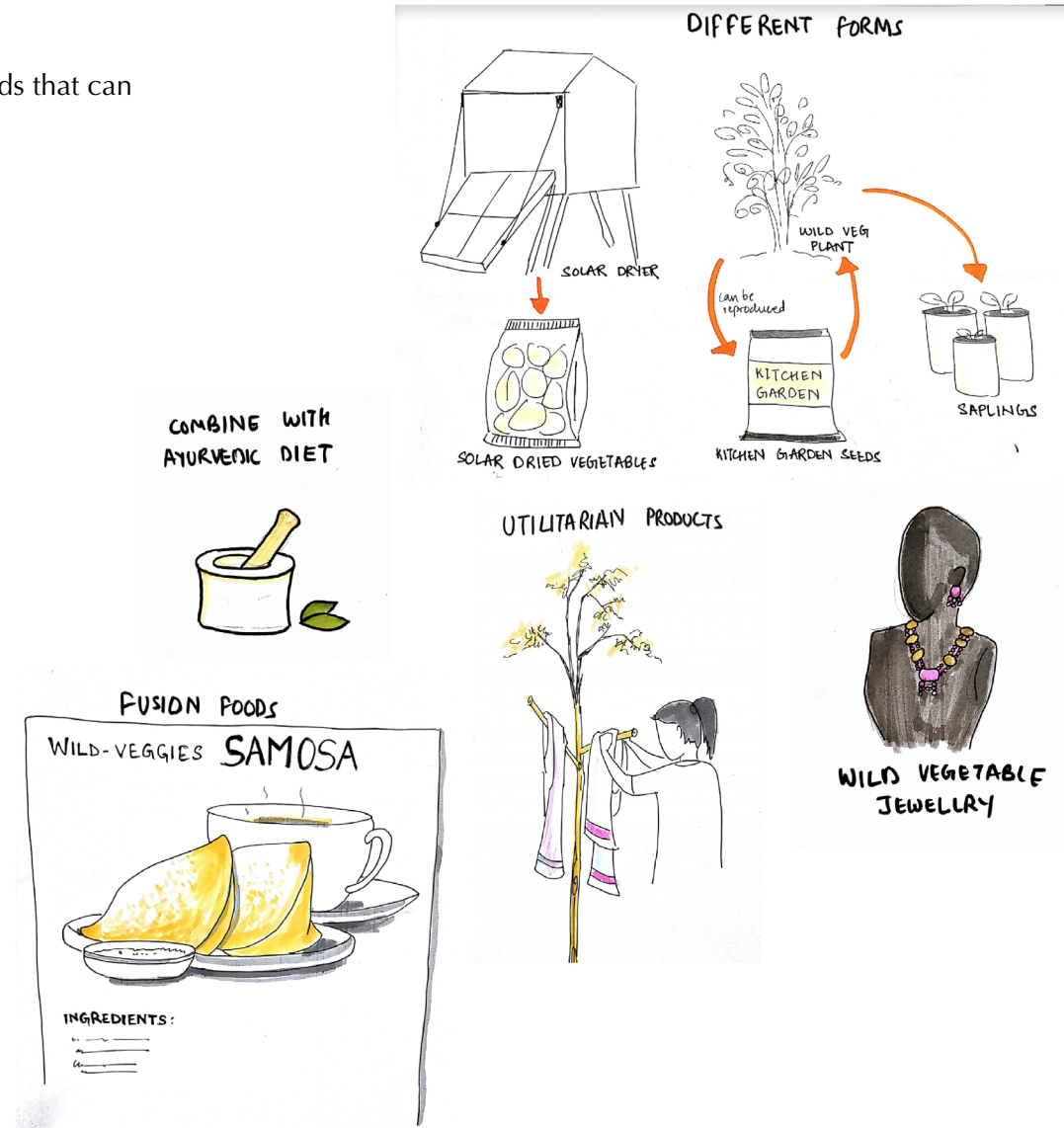


Figure 21. Ideation for forms of wild foods

## 6. Communicating value

Ideations on communicating the value of wild foods through interesting ways



Figure 22. Ideation for communicating value

# Final Service Concept

The proposed service let's urban consumers experience wild vegetables through a pre order delivery service which provides them with various means to enjoy these wild foods like ordering cooked meals or assorted collection of wild foods that they can choose based on their preferences. The backstage activities would be run by a rural organization who would work closely with the farmer community to procure these foods, as well as other local stakeholders in the village who can facilitate transport and delivery activities. The primary objective of this service is to be able to generate substantial livelihood for it's rural stakeholders by letting urban consumers not only buy wild produce but also be informed about its origins and producers. A website, delivery box containing wild produce items and social media channels would be the major touchpoints in the service



# 1. Service Ecosystem

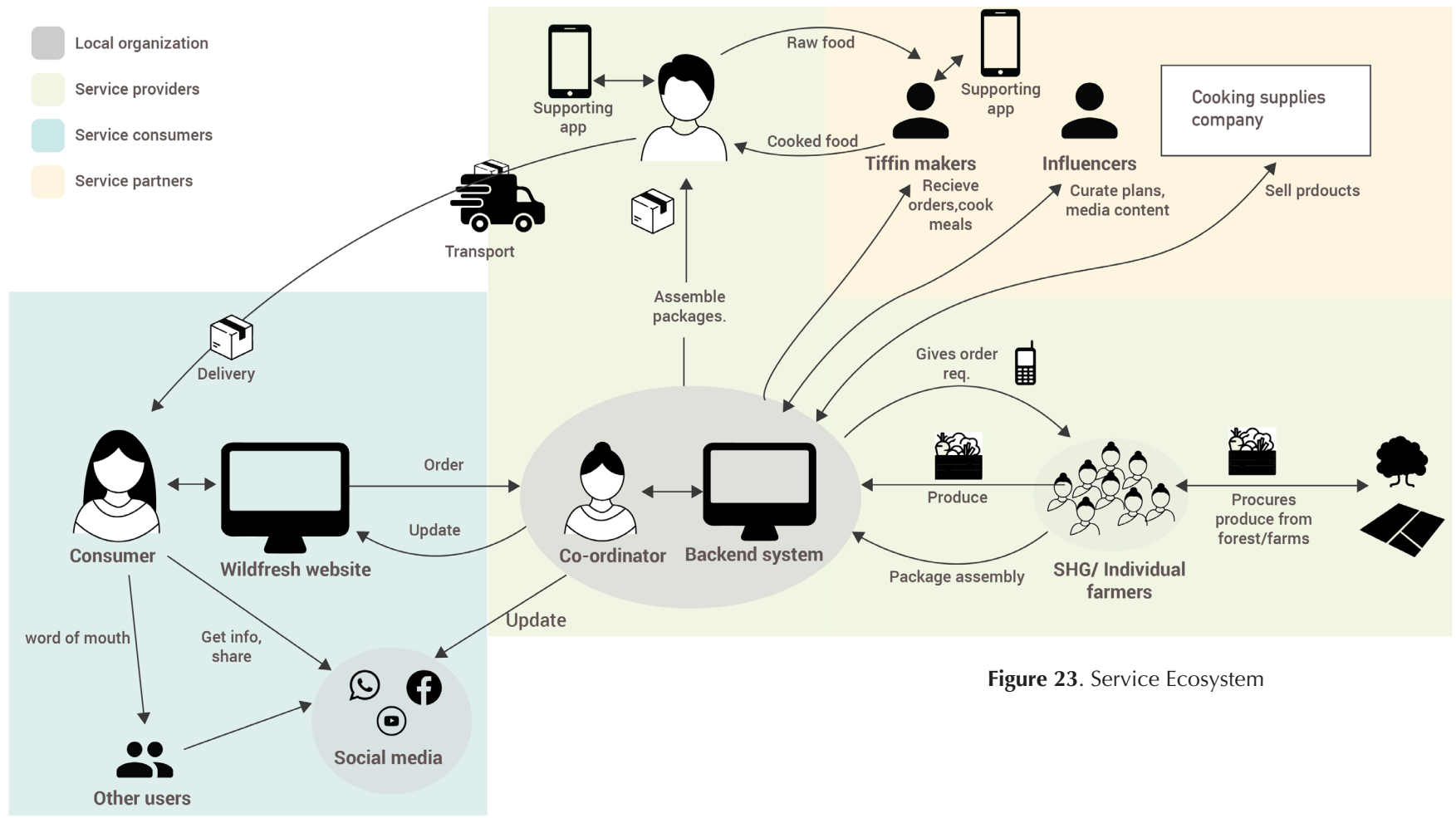


Figure 23. Service Ecosystem

## **2. Stakeholders and their roles**

The major stakeholders involved in the service would be

### **2.1. Local organization Coordinators**

Many local organizations work at the grassroots level for the purpose of rural development. Jawhar region itself had similar such organizations like BIAF and another vyavam sanstha. The individuals employed here could work as coordinators for the service. Their role would be to broadly supervise over all administrative and logistical activities, with some of the major activities being coordinating with the farmers and delivery personnels for assembling and delivering the orders and also managing the website updates.

### **2.2. Customers**

The customers here would be the ones who will be ordering the boxes.

### **2.3. Producers**

Individual farmers or SHGs could enroll for the service and help procure the wild produce. Along with that the SHG groups could also help in recipe and content creation, processing some of the wild produce into chutneys, pickles etc. and assemble the orders into delivery boxes.

### **2.4. Cooking supplies company**

The cooking supplies company would be those selling cooking ingredients, utensils and other related apparatuses. After the initial progress of the service, such supplies companies could be partnered with to sell their products on the website. This could help generate a supplementary source of income for the service.

### **2.5. Influencers**

These group of influencers would include nutritionists, dieticians, chefs, food bloggers, youtubers. As was gathered in the primary study, influencers play an important role in the decision making by

customers on what to cook or eat. At present, local organization like BIAF has good connections with some research institutes, ayurvedic practitioners, dietitians, hoteliers etc. These individual or groups can help curate meal items or recipes based on specific health benefits or taste. They can also help in communicating and spreading the word about these wild foods to their audiences.

### **2.6. Tiffin makers**

There are several groups of dabba makers in urban areas of Mumbai, Vasai, Thane that prepare paid home cooked tiffin meals on an order basis. It has been observed through previous wild food festivals, that people heartily enjoy cooked wild food meals. As wild food items can require distinct ways of preparation and cooking, offering them in already cooked form makes them more accessible and convenient for people to try them. These urban tiffin makers could be partnered with to prepare wild food meals, and deliver them to the customers.

### 3. Service Constellation

There would be different sub service offerings within the main service. The options are designed to suit user needs and preferences. Their classification can be viewed from the chart below. They are described below

#### 3.1. Menu Boxes

Different wild produces can exist in different forms such as raw, dried, chutney, powdered and pickled. The menu boxes would contain a combination of these items along with recipe and vegetable info cards.

##### Standard Boxes

The standard boxes would contain assorted combinations of wild produce items. This box option can be suitable for individuals who not be aware of all the available options and those that would go well together

##### Make your own

The make your own option would allow customers to choose items for their box by themselves. Customers already familiar with wild foods can use this option to pick their desired items.

##### Recipe meal

The recipe meal box would contain all the base ingredients to prepare a particular meal item. The ingredients would be portioned in the exact required amount needed to prepare the meal. According to the IKEA effect, consumers place a disproportionately higher value on things they have had a role in creating [20]. By providing customers materials to conveniently create meals on their own, the recipe meal box attempts to provide more value.

#### 3.2. Curated Menu Boxes

Some of the menu boxes could be especially curated by influencers. These individual or groups can help curate meal items or recipes based on specific health benefits or taste. For instance, chefs, food bloggers can create recipe meal boxes with their own recipes. Ayurvedic

practitioners could create an ayurvedic meal box with items meant for specific health benefits. This could help highlight health benefits of wild foods and encourage people to try them.

#### 3.3. Tiffin Service

Tiffin service allows customers to purchase pre home cooked meals. Customers would have choose a wild vegetable of their choice which would be served with millet bhakris, dal and other suitable accompaniments that would go well together. It has been observed through previous wild food festivals, that people heartily enjoy cooked wild food meals. As wild food items can require distinct ways of preparation and cooking, offering them in already cooked form makes them more accessible and convenient for people to try them. There are several organic groups of dabba makers in urban areas of Mumbai, Vasai, Thane that prepare paid home cooked tiffin meals who could be partnered with to offer these tiffin meals.

For the purpose of my project, I will be focusing on detailing menu box and tiffin services, as being the core service offerings. The other services such as curated menu boxes could be looked into, for future versions of the service.

#### **4. How is the service addressing problems and opportunities**

There is a need for a sustained and desirable source of livelihood. Wild foods being relatively less in quantity compared to conventional vegetables, the proposed solution aims to add value by including processed items, curated options by influencers, assortment of items that go well together, etc. These can in turn contribute to enhance the revenue from the service. The pre-order service also ensures that the produce will get plucked only when there is a demand, not otherwise. Hence wastage or over supply can be prevented.

Providing an assortment of items also enables people to try more vegetables and related items. Providing doorstep delivery and tiffin service makes wild foods more accessible for people to try and also provides convenience, which can enable more people to try it. Further the web platform can provide an effective medium to communicate the value of wild foods (nutritional info, recipes, health benefits). It can help communicate via various means like, putting up lab reports to assure customers that the items are safe to eat, videos of tribal women preparing the meal that users can watch and try, thereby giving a more authentic experience to the customers.

# Service Prototypes

## 1. Defining Service Prototypes

According to Holmlid & Evenson [21], there are several attributes of service design that have made prototyping for services unique. However the knowledge about how this is done, or should be done has been lacking. There have been some attempts to define services prototypes and their roles. Blomkvist defines service prototypes “as representations or manifestations of ideas and the assumptions behind them.” Houde and Hill [22] says that “prototypes are basically anything that can communicate, prove or reveal a service concept.” For my project, I have adopted these definitions of a service prototypes.

Given the aforementioned definition of a service prototype, the following artifacts will be considered as a service prototypes for this project

1. Service Blueprint
2. Storyboard
3. Website (customer facing)
4. Backend system (backstage activities)
5. Delivery box and other items within it
6. Social media post

## 2. Classification of Prototypes

There have been some attempts to classify design prototyping techniques in different ways, that have been applied to service prototypes. Previous classifications have been based on on the stage of development of the prototype or the service, the purpose of the prototype [22], and on the fidelity and resolution of the prototype [23].

### **Purpose of the prototypes**

Houde and Hill [22] Proposes on building prototypes that help to answer fundamental questions about the prototype itself. Such classification of the prototypes based on their purpose, helps to understand how they should be made and tested. The author has mentioned three types of prototypes namely

**Role Prototypes:** Built to understand what role the artifact can play in the user’s life

**Look and Feel Prototypes:** Built to “explore and demonstrate options for the concrete experience of an artifact”

**Implementation Prototypes:** Built to answer how an artifact can be made to work

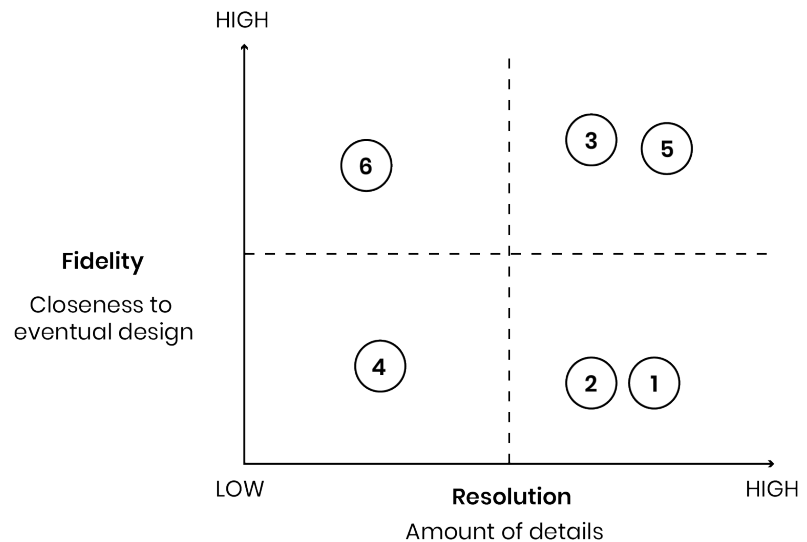
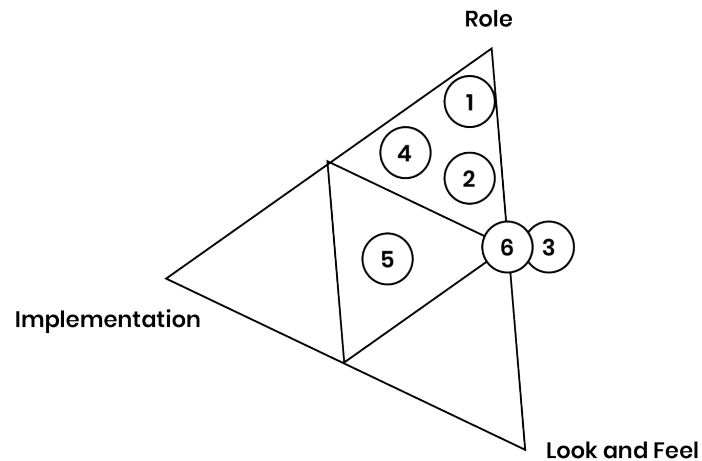
Some prototypes can be a combination of two or all of the mentioned categories

### **Fidelity and Resolution**

The concept of fidelity and resolution have been coined to define how the prototypes should be designed. Resolution indicates the amount

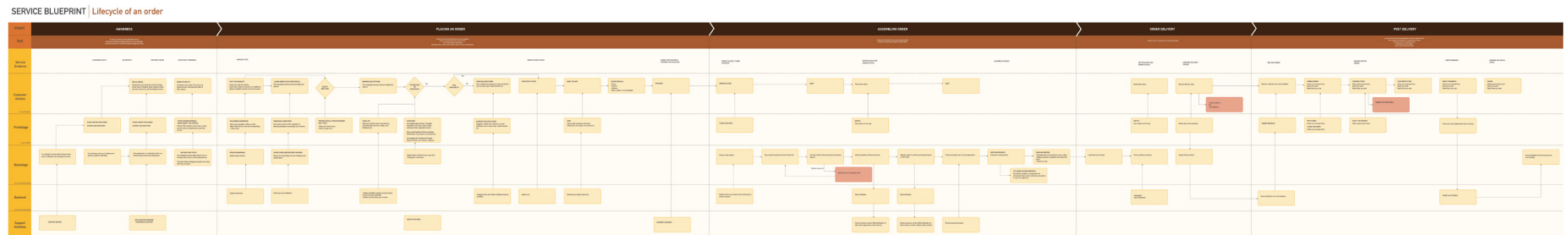
of details that the prototypes should have. Fidelity describes how plausible, close to realness the artifact is [23].

For my prototypes, I have first determined and classified them on their purpose. Based on the purpose of the prototypes, the concept of fidelity and resolution has been used to determine how they should be designed.



1. Service Blueprint
2. Storyboard
3. Website (customer facing)
4. Backend system (backstage activities)
5. Delivery box and other items within it
6. Social media post

# Service Blueprint



# Scenarios

Storyboard of key phases in the blueprint is as follows

## PLACING AN ORDER





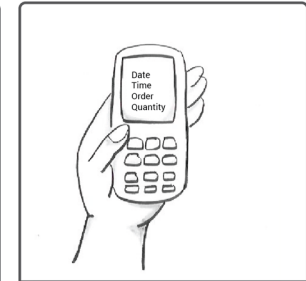
## ORDER ASSEMBLY



Co-ordinator at a rural organization receives the order



She calls and allocates the order to the farmers



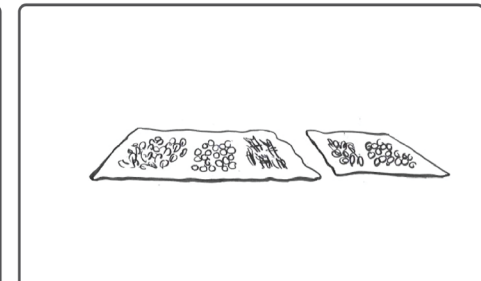
Receive SMS notification for order



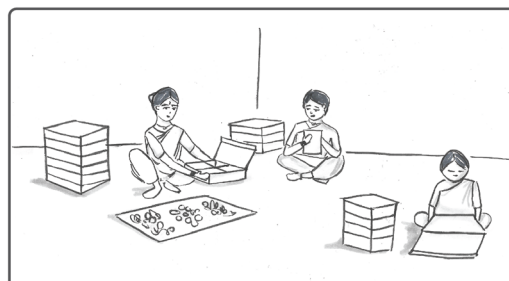
The farmers procure the produce from the forest, or their land



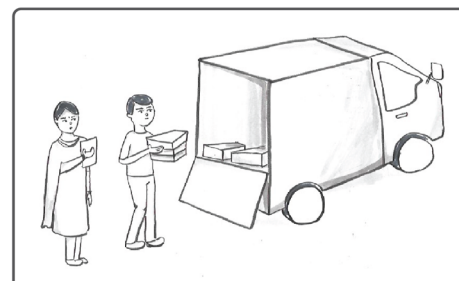
It is collected and brought to the local organization



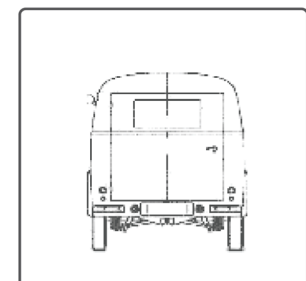
Here it is sorted, freshest produce is used for delivery, rest used for preparing products



The produce is then sorted and assembled into boxes

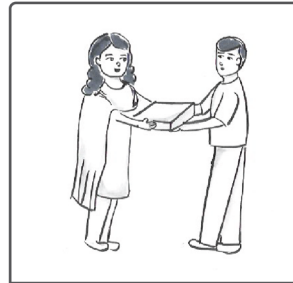


The boxes are then handled to the delivery personnels



They travel to urban areas to delivery the boxes

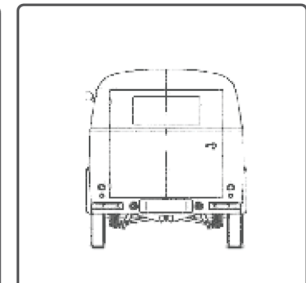
## DELIVERY



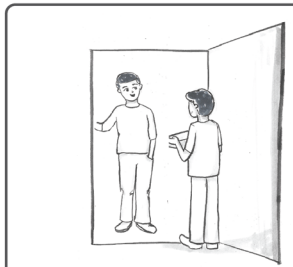
The delivery personnel delivers the box to the tiffin makers



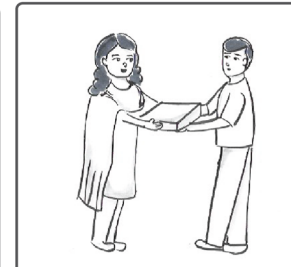
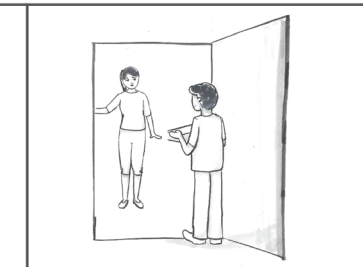
The tiffin makers then start preparing the meal



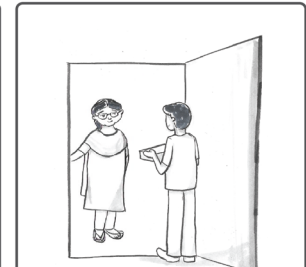
In the mean time..



The delivery personnels deliver boxes to other buyers

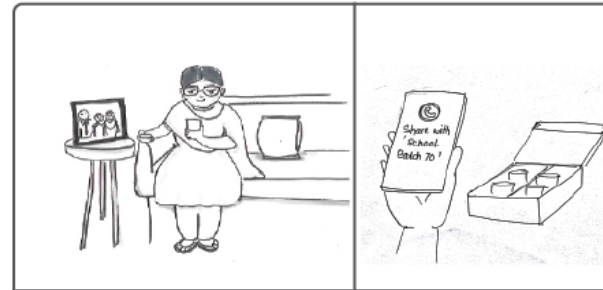


Once the tiffin meal is prepared, it is collected by the delivery personnel



..and then delivered

## POST DELIVERY



Post delivery, customers will receive notification to give ratings and write feedback.



Buyers may also share the meal with their neighbours and friends



Users can watch recipe videos by tribal folks to prepare the meal

# Phase/Process Summary

This part details out the vertical phases from the blueprint as well other important processes required for the service to run.

## 1. Managing Supply and Demand

There have been wild food festivals being conducted since 2008 in Jawhar region. SHG's and individual farmers have been collecting, selling, as well as cooking wild foods for the festival. Hence there is data of the produce and it's quantity being collected from each village over the years, which is exclusive of the quantities that the families consume. This data of the produce and it's available quantity can be considered for starting out the service. Based on the available produce and it's quantities, various boxes can be curated. During the initial period of the service, a cap can be kept on the maximum amount that can be supplied. A demand based pricing model can be used, this can help to garner more revenue even if the supply is relatively limited.

The service will aim to eventually increase the domestication and plantation of these. These efforts can run in parallel. This can be achieved by encouraging partner farmers for farm plantation, kitchen gardens(for those who may not own land areas),and creating conducive conditions for these to be grown in the forest. Currently BIAF is trying making saplings out of some of these wild plants. Over the years as the supply will increase, more customers can be served.

## 2. Awareness

Different channels can be used to create an awareness about the service. There are existing channels of wild food festivals being organized which attracts some urban football. There can also be

important touch points where people can be offered to enroll for the service. Social media channels like facebook can be used to reach audiences. Influencers can also be partnered with to share knowledge about wild foods and the service itself. They can help create content on their blogs, youtube channels that can reach audiences. Apart from this, word of mouth can also help to spread awareness about the service. The partner tiffin makers can share information about it, to their acquaintances. For this, Whatsapp forwards that can be shared with family and friends can be created, with further links to the website.

The awareness artifacts will be designed to effectively convey the purpose of the service, different service offerings and give users the sense of contribution that their purchase will make.

## 3. Placing an order

Customers can place orders through the website. Here they can also browse through the vegetables directory that will help them get a sense of what the vegetables are like by using analogies based on expert feedback. The users can choose the kind of service they would like to go for, menu box or tiffin service. Based on that they will be assisted in choosing the items suitable for them. Filters based on taste, health benefits, as well as expert and customer feedback, and images of what the raw and cooked vegetables will look like can help them to do. To place the order, the user has to choose the item they want to go for, fill in their details and make the payment. It will also be ensured that the users browse through the terms and conditions before placing the order. The terms and conditions will mention the cancellation policy and other relevant details.

# Delivery Box



Figure 24. Delivery Box

#### **4. Order assembly**

The coordinators at local organization will primarily look after assembling the orders. Once orders are received, the backend system will show a collated list of the produce and its requirement. The co-ordinator can view the farmer partners who can help to procure these items, either through their farms or by plucking them from the forest in their village. The co-ordinator will call them and confirm if they can procure the produce. Upon agreement, some quantity will be allotted to them. On the day of the delivery, the produce will be brought to the local organization where they will be first sorted. After sorting, they will be assembled into packages that have been ordered.

#### **5. Delivery**

The delivery personnel will be accompanied by an application that will list their order details and help them to navigate to their locations. The delivery addresses will be organized in a way that the delivery personnel drops the raw items to the tiffin makers first, so that they can start preparing them. Later on, he can drop the other orders to the customers. After the tiffin maker is done preparing the meal, a notification will be sent to the delivery personnel where he can pick up the ready meal. These ready meals will then be dropped to the respective customers.

#### **6. Post delivery**

Every box would contain a thank you note, vegetable info cards and recipe cards (depending on whether the customer has ordered raw items) The thank you note will be addressed to the customers by the farmer partners. It will talk to them about how they have contributed to supporting the farmer community for their efforts and, preserving and promoting wild foods. It can also serve as an important actionable touchpoint by allowing users to scan it to place an order again if they liked what they purchased.

Post delivery the customers will receive notification to receive their feedback. Here the customers can give their rating and review. It will also allow them to re-order items.

#### **7. Meeting**

There can be fortnightly meetings between coordinators and the farmer partners during the active period of the service. In these meetings, customer feedbacks will be shared with them. They will also be encouraged to domesticate wild species.

# Mock Ups

# Wildfresh website homepage

Wildfresh Veg directory Menu Tiffin Service Market Our Partners

Now get fresh wild produce from the heart of the jungle, right to your doorstep!

[GET STARTED](#)

## But what are wild vegetables?

- 100% pure, naturally occurring species
- Pesticide free
- Hand picked by local farmers from deep forests
- High nutritional content
- +Medicinal Properties
- To be cooked with unique indigenous recipes



[DISCOVER MORE](#)

### What we offer

Choose from our range of freshly made boxes that are delivered every Sunday\*

#### Standard Assortments

Specially assorted combinations of wild produce by us

[TRY IT NOW](#)

WHAT'S INSIDE?

#### Recipe Box

Enjoy a box full on ingredients that you can cook by yourself

[TRY IT NOW](#)

WHAT'S INSIDE?

#### Make your own

Make your own box with items of your choice

[TRY IT NOW](#)

WHAT'S INSIDE?



### Unsure of Cooking? or don't want to sweat it in the kitchen on a weekend?

We also offer home cooked wild vegetable meals without the hassle of cooking it yourself

[TRY TIFFIN SERVICE](#)

#### HOW IT WORKS?

- 1 Choose your vegetables
- 2 We contact trusted local tiffin makers to cook them for you
- 3 Upon order conformation, we deliver the vegetables to them
- 4 After cooking, our delivery guy will pick your cooked meal
- 5 Enjoy your fresh, piping hot, delicious meal

## Who is benefitting from your orders?

80% of your order price, goes into improving livelihood for our rural partners. They also earn pride and joy in sharing their sacred tribal palettes with you.

**Self Help Groups**  
Procuring produce, making processed products, packaging

"Being a Wildfresh partner, I earned more than 7000 this year from 3000 last year"

**Independent Farmers**  
Procuring produce, making processed products, packaging



"I feel proud to see urban people, enjoying our tribal food"

**Local Villagers**  
Transportation and delivery activities

"I now have a source of income on the side"








# Wildfresh website vegetable directory

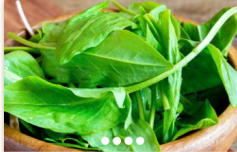
Wildfresh [Veg directory](#) Menu Tiffin Service Market Our Partners   

< Back

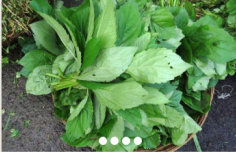
## Vegetable Directory

Wild vegetables are naturally occurring species plucked right from the heart of the jungle. Since many years, it has been a source of nutrients and minerals for tribals. Now you can revive these lost foods as part of your own palette.

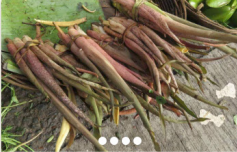
-  100% pure, naturally occurring species
-  Pesticide free
-  High nutritional content
-  +Medicinal Properties
-  Hand picked by local farmers from deep forests



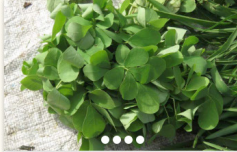
**Aambadi**  
*"Tastes like sour Spinach. Helps to keep heart diseases at a bay"*  
[LEARN MORE](#)  
[QUICK INFO](#)




**Bharangi**  
*"Brief description here about the taste and qualities of the vegetable"*  
[LEARN MORE](#)  
[QUICK INFO](#)




**Shevala**  
*"Brief description here about the taste and qualities of the vegetable"*  
[LEARN MORE](#)  
[QUICK INFO](#)




**Takla**  
*"Brief description here about the taste and qualities of the vegetable"*  
[LEARN MORE](#)  
[QUICK INFO](#)



**Bamboo**  
*"Brief description here about the taste and qualities of the vegetable"*  
[LEARN MORE](#)  
[QUICK INFO](#)



**Kurdu**  
*"Brief description here about the taste and qualities of the vegetable"*  
[LEARN MORE](#)  
[QUICK INFO](#)

[VIEW MORE](#) 

# Wildfresh Vegetable info

Wildfresh

[Veg directory](#)
[Menu](#)
[Tiffin Service](#)
[Market](#)
[Our Partners](#)
🛒 👤

[< Back](#)

## Aambadi

*Scientific Name* Hibiscus cannabinus  
*Other local names* Amelli, Gongura, Pitwa, Sougri, Sankokda, Pundi, Anthur.

Aambadi is a summer crop, which is popularly also called *Gongura*. It is a green leafy plant that can be eaten in many ways, it's most popular version being the pickled version. It is eaten in many states across India including Andhra Pradesh, West Bengal, Tamil Nadu, to name a few.

"Nutrition and healthfulness are common to all green leafy vegetables. But it is the distinct and flavorful taste that set these apart."

-Tanya Choudhary  
ISSA Certified Specialist in Fitness & Nutrition  
for Stylecraze.com

Taste	Sour
Source	5-10 kms from deep jungle
Nutrition	Very rich source of vitamins B6, A and C, Calcium, Iron, Zinc
Health benefits	Good for cardiovascular health, helps to keep levels of homocysteine (risk factor for heart disease), low.

Seal of Safety

Our items are 200% safe and organic to eat, so says our trusted lab report. [View here](#)

Click below to view some Aambadi preparations

Pickle
Curry
Raw
Chutney

### Aambadi Pickle

Aambadi pickle zings the tastes buds and makes you crave it's unique taste. There are many varieties of pickles made with Aambadi, such as one with red chillies and another with tamarind. Try some of our popular Aambadi pickles.

Showing boxes containing Aambadi pickle

**Special Pickle Box**  
Aliv, Pendhra, Aambadi, Kakad pickles

₹ 380

ADD TO CART

**Box name**  
Content will be mentioned here

₹ 380

ADD TO CART

**Box name**  
Contents will be mentioned here

₹ 380

ADD TO CART

VIEW MORE

▼

# Wildfresh box page

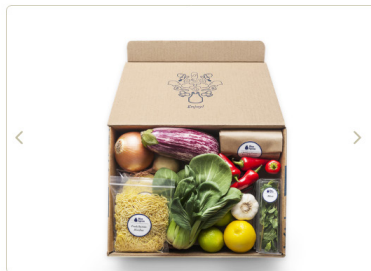
Wildfresh Veg directory **Menu** Tiffin Service Market Our Partners

< Back

## Aambadi Amti Meal

Rating ★★★★★ 4.5

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco



Preparation Time	30-40 mins
Calories	450
Protiens	50 gms
Vitamins and Minerals	Vitamins B6(10%), A(20%),C(8%), Calcium(60%), Iron, Zinc



### Jowar

One of the major crops grown in Jawhar, these millets are organically grown. Jowar is an excellent gluten free crop, they are known to provide strength to farmers for their long hours on the field. Use Jowar to make soft rotis that will not turn hard or chewy even on cooling.

Taste	Neutral
Source	Organically grown
Nutrition	Rich source of Antioxidants, Calcium, Potassium, Phosphorous, Iron
Health benefits	Good for heart, diabetic friendly, good source of energy.

LEARN MORE



### What are experts saying

Wildfresh Veg directory **Menu** Tiffin Service Market Our Partners

< Back

## Aambadi Amti Meal

Rating ★★★★★ 4.5

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco



### This box contains

Click on the ingredients to know more about them

Ingredient/Item Qty	Ingredient/Item Qty	Ingredient/Item Qty
Ingredient/Item Qty	Ingredient/Item Qty	Ingredient/Item Qty

Price: ₹ 240

**ADD TO CART**

Wished someone else cooked it for you?  
**Try our tiffin service**

Preparation Time	30-40 mins
Calories	450
Protiens	50 gms
Vitamins and Minerals	Vitamins B6(10%), A(20%),C(8%), Calcium(60%), Iron, Zinc

### This box generates ₹200 of livelihood for

Self Help Groups	Independent Farmers	Local Villagers

### What are experts saying

<p>"Nutrition and healthfulness are common to all green leafy vegetables. But Aambadi has the distinct and flavorful taste that sets it apart."</p> <p>-Tanya Choudhary ISSA Certified Specialist in Fitness &amp; Nutrition for Stylecraze.com</p>	<p>"Nutrition and healthfulness are common to all green leafy vegetables. But it is the distinct and flavorful taste that set these apart."</p> <p>-Tanya Choudhary ISSA Certified Specialist in Fitness &amp; Nutrition for Stylecraze.com</p>
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### What are our buyers saying

Swati Pal  
Mumbai

Rating ★★★★★ 4.5

Wild vegetables are naturally occurring species plucked right from the heart of the jungle. Since many years, it has been a source of nutrients and minerals for tribals. Now you can revive these lost foods as part of your own palette.

## Recipe Card

# Aambadi Amti Meal

### TRIBAL RECIPE GUIDE

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exercitation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

Preparation Time	30-40 mins
Calories	430
Proteins	50 gms
Vitamins and Minerals	Vitamins B5(10%), A(20%), C(8%), Calcium(40%), Iron, Zinc

### INGREDIENTS



Name  
QTY



Name  
QTY



Name  
QTY



Name  
QTY



Name  
QTY



Name  
QTY



Name  
QTY



Name  
QTY



### Scan the QR code below to Cook with Rukmini

A small description about Rukmini and her recipe will be added here. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exercitation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo



## Interface for coordinator: Order Procurement

Viewing required orders and farmers list
LOGOUT

Procurement List
Order List

**REQUIREMENT LIST**

Delivery date: 15 June

Produce	Required	Allotted
Ambadi	10 kg	0 kg
Khurasni	8 kg	0 kg
Kartoli	5.4 kg	0 kg
Loti	3 kg	0 kg
Kurdu	2 kg	0 kg

**FARMER'S LIST**

Search

Apply Filter

<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	Allot
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	0

Allotting orders
LOGOUT
Procurement List
Order List

**REQUIREMENT LIST**

Delivery date: 15 June

Produce	Required	Allotted
Ambadi	10 kg	0 kg
Khurasni	8 kg	0 kg
Kartoli	5.4 kg	0 kg
Loti	3 kg	0 kg
Kurdu	2 kg	0 kg

**FARMER'S LIST**

Search: Ambadi

Apply Filter

<input type="checkbox"/>	Produce	Village	Name	Quantity	Contact	Allot
<input type="checkbox"/>	Ambadi	Karegaon	Pragati SHG	2	9819736281	6
<input type="checkbox"/>	Ambadi	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Ambadi	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Ambadi	Village	Name	Quantity	Contact	0
<input type="checkbox"/>	Ambadi	Village	Name	Quantity	Contact	0

## Interface for coordinator: Order delivery

### Allotting delivery personnels-1

Procurement List
Order List

**ORDER TYPE**

Unassigned (20 NEW)

Assigned (15)

Completed (40)

**ORDER LIST**

Delivery date ▼

Apply Filter ▼

<input type="checkbox"/>	Order id	Personal details	Order details	Delivery	Cooking	Status
<input type="checkbox"/>	J3BFJ3BJ34	Radha Ghosh 400 101, Kandivali, 9819765455	Make Your Own Ambadi, Chutney.. Rs. 380	<span>Not Assigned</span> <span>▼</span>		In Process

### Allotting delivery personnels-2

Procurement List
Order List

**ORDER TYPE**

Unassigned (20 NEW)

Assigned (15)

Completed (40)

**ORDER LIST**

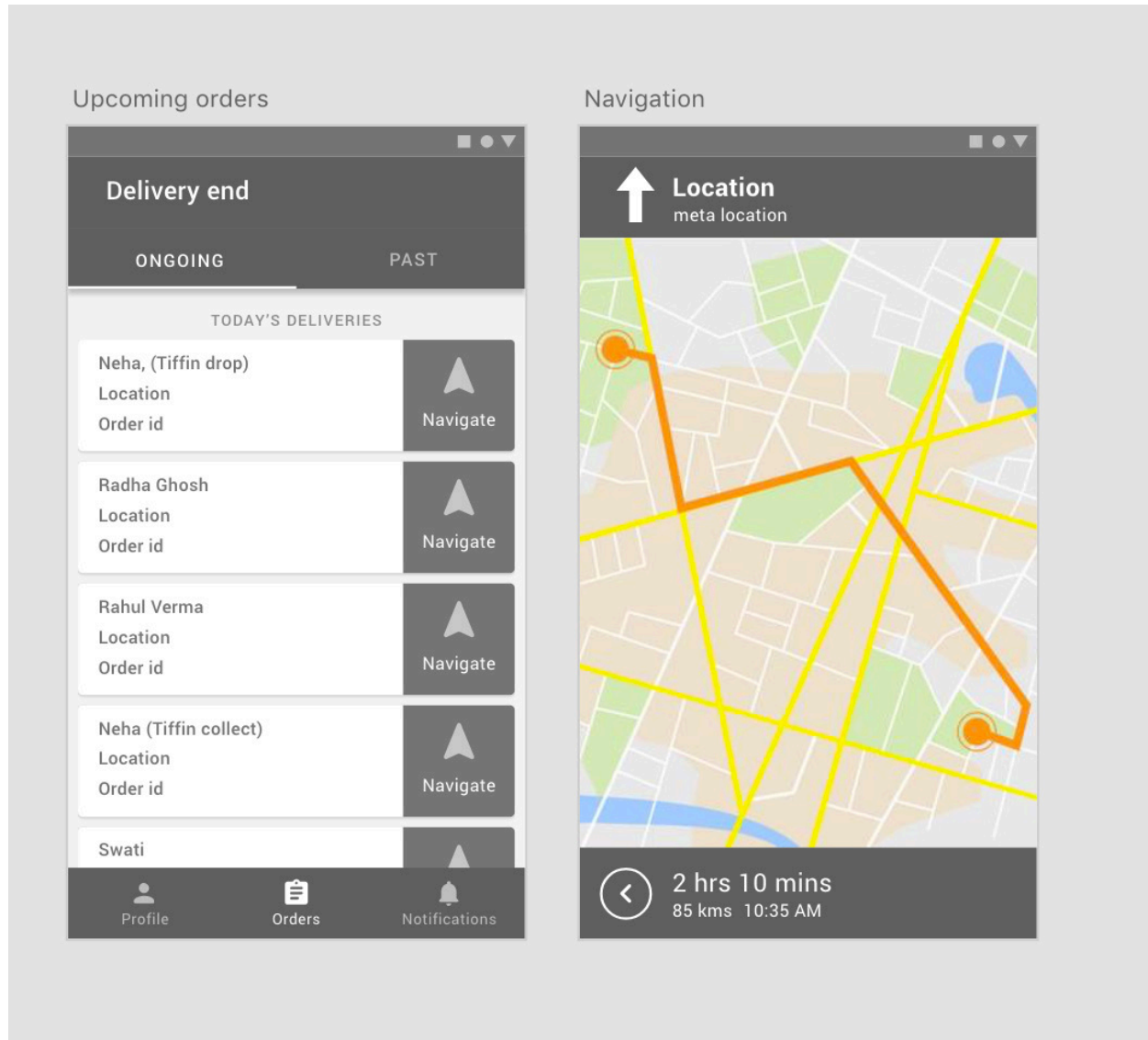
Delivery date ▼

Apply Filter ▼

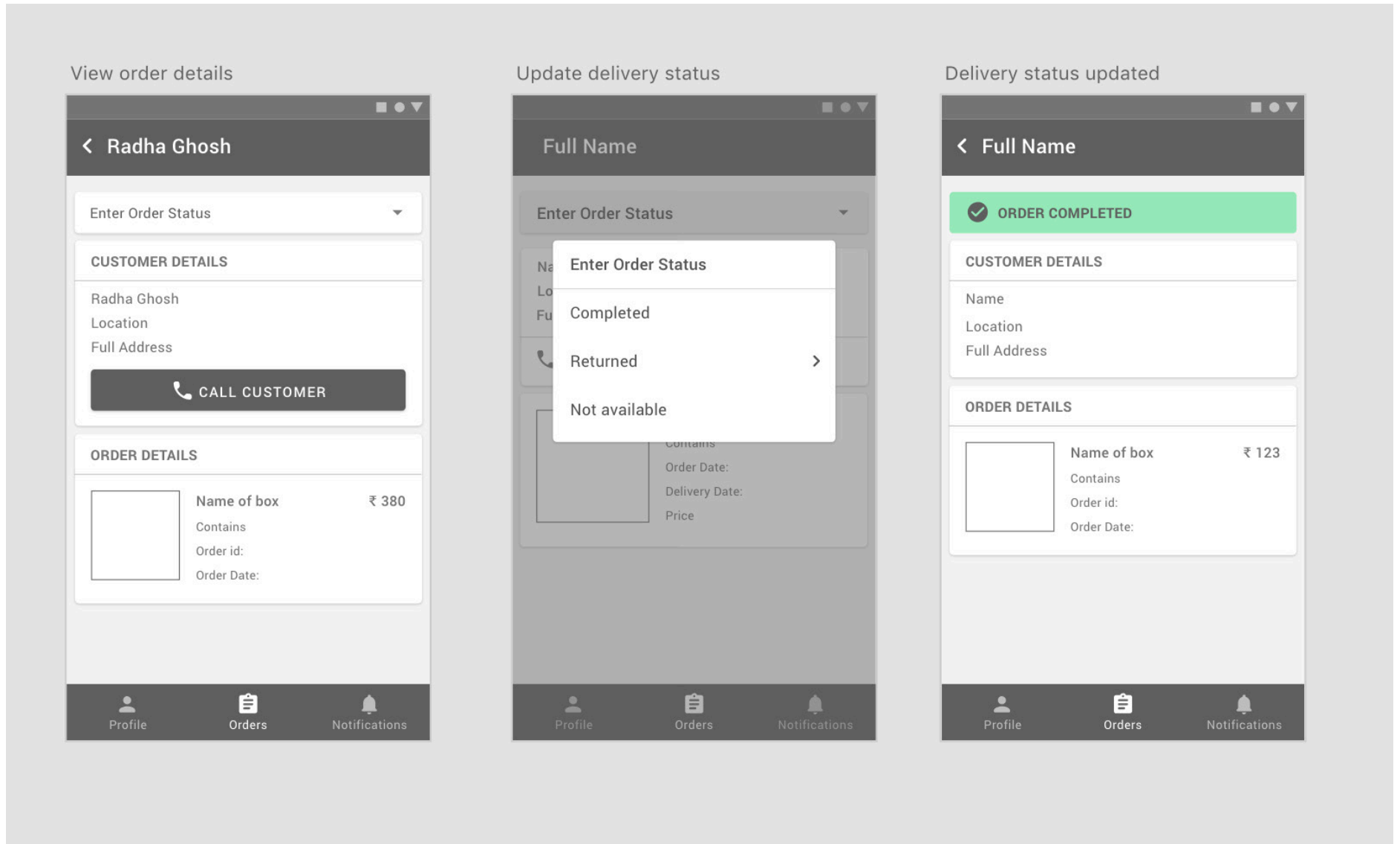
<input type="checkbox"/>	Order id	Personal details	Order details	Delivery	Cooking	Status
<input type="checkbox"/>	J3BFJ3BJ34	Radha Ghosh 400 101, Kandivali, 9819765455	Make Your Own Ambadi, Chutney.. Rs. 380	<span>Not Assigned</span> <span>▼</span> <ul style="list-style-type: none"> <li>Suresh (4)</li> <li>Mahesh (10)</li> <li>Pawan (20)</li> </ul>	-	In Process

51

## Interface for delivery personnel

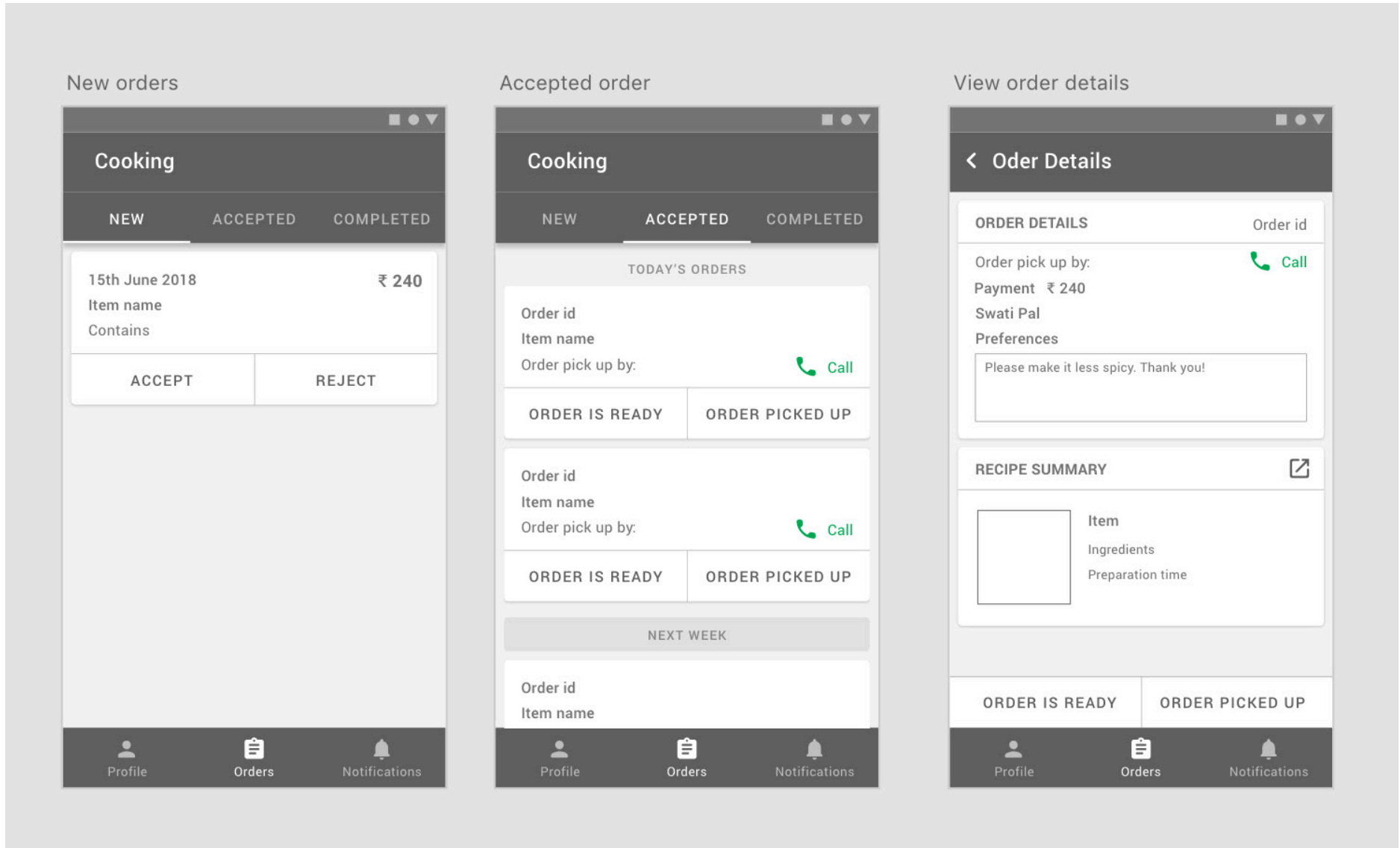


## Interface for delivery personnel

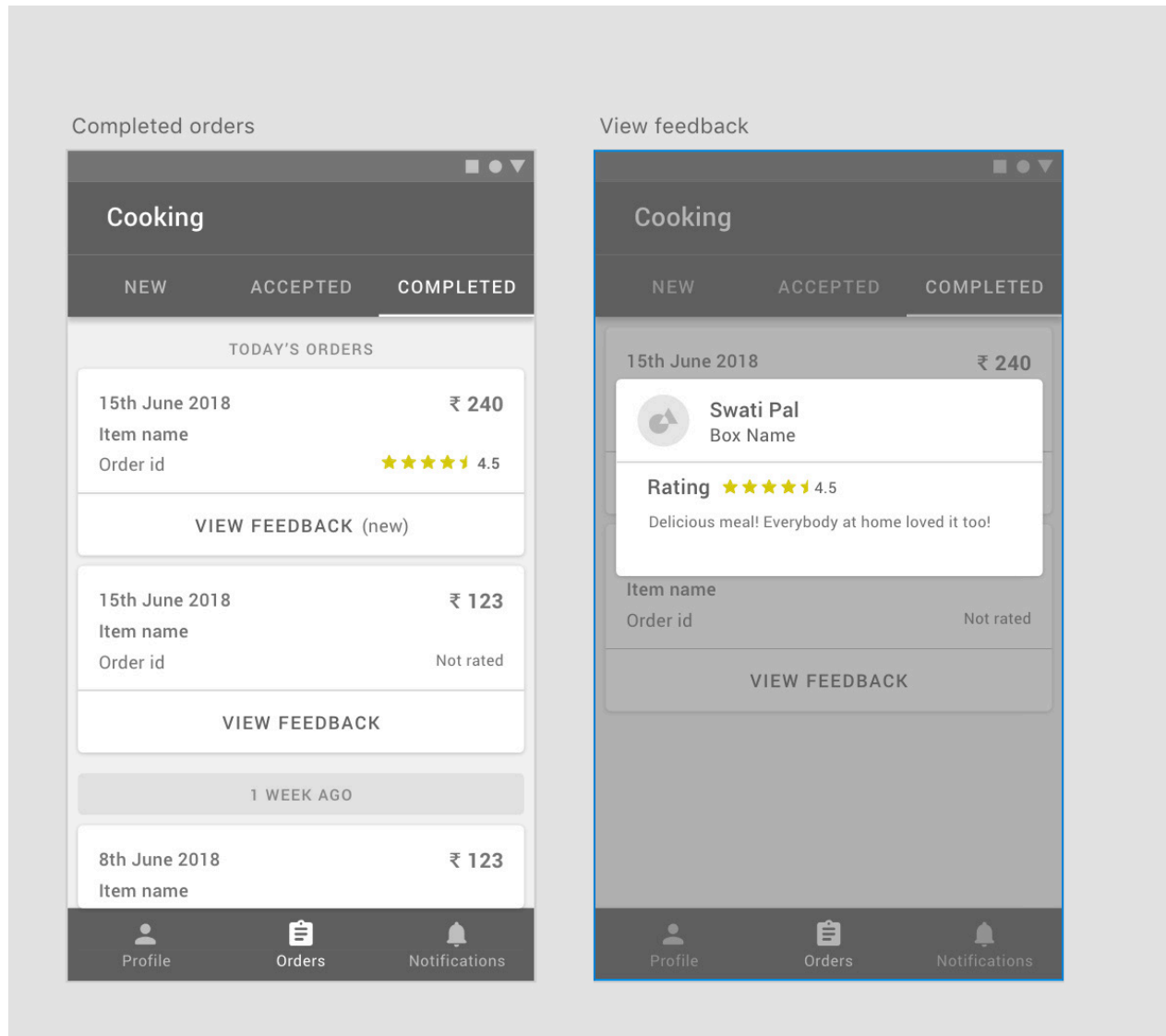




## Interface for tiffin makers



## Interface for tiffin makers



# Some Service Recovery Ideas

## **1. Not being able to cook the wild vegetables well**

It is imperative for the user to like the taste of the wild vegetable for it to appeal to them. There is a possible risk for the recipe meal buyers to be unable to cook the wild vegetable well. Post delivery, during the feedback, the customer will be asked whether they were able to satisfactorily cook the wild vegetable. In case they are unable to, they will be recommended to try the tiffin service where they can receive pre-cooked meals, cooked close to the vegetable's authentic taste.

## **2. Produce not being fresh**

During the sorting of wild vegetables, right before they are sent for delivery, in case there is some quantity of wild produce that are not fresh enough to be sold, they can be kept aside for use during preparation of processed items such as chutneys, pickles etc. Some of this wild produce can also be used as a fodder for rural cattle.

## **3. Item unavailable**

In case the items are unavailable, the user can be suggested items with similar attributes such as similar type, health qualities, tastes etc. This should satisfy the customer.

# Testing

## 1. Themes for Testing

The primary objective of the project as mentioned previously, is to be able to generate substantial livelihood for it's rural stakeholders by letting urban consumers not only buy wild produce but also be informed about its origins and producers. Hence the testing aimed to answer whether the service would interest the customers, and be able to generate a demand for it, as this demand and purchase would in turn convert into livelihood for the farmers.

Based on this, some key themes for testing were listed which are as follows;

1. Is the service able to interest the customers
2. Is it able to communicate the value of wild foods to its buyers
3. Does it address their concerns and issues
4. Is it giving users a sense of making a contribution
5. Is the service fulfilling any user needs/is the service useful for them
6. Does it make them want to share & recommend it to others
7. Do users feel that they will be receiving quality delivery and packaging
8. Does it make them want to place an order

## 2. Method

For the evaluation, users were shown service prototypes such as the storyboard, and customer-facing website mock ups. The users were then asked questions based on the testing themes, that they

answered on a 5 point Likert scale. The testing was conducted with 10 participants, their demographic are mentioned here.

Participant	Meta info/ Background	Gender	Age	Location	Occupation	Native Place
P1	No idea about wild foods	F	53	Mumbai	Working, accounts	Kalyan, Maharashtra
P2	Agrarian background, knows some wild foods	F	55-60	Mumbai	Runs a shop	Andhra Pradesh
P3	No idea about wild foods	F	29	Mumbai	Working	Andhra Pradesh
P4	Knows about wild varieties of conventional vegetables	F	34	Mumbai	Housewife	Gujarat
P5	Loves cooking, knows some wild foods	F	50	Mumbai	Working, accounts	Vikramgad, Maharashtra
P6	Likes Cooking in the Kitchen, mostly on weekends	M	33	Vasai	Project Manager	Jaunpur, Uttar Pradesh
P7	Cooking as Hobby	M	27	Vasai	Entrepreneur	UP
P8	Cooks occasionally	F	27	Mumbai	Working	Mumbai
P9	Avid cook	F	56	Mumbai	Housewife	Bihar
P10	Cooks occasionally	M	57	Mumbai	Working	Bihar

### **3. Results and Discussion**

The users (8/10) were open to trying new vegetables since recipes and ways of preparation were provided. Some (2/10) even expressed wanted to try out the tribal recipes on regular vegetables.

The users expressed a keen interest in knowing about the service, while most of them (7/10) had no idea about wild foods, they expressed a curiosity in knowing more about the same. All users found the website sufficiently informative, elaborate and useful, giving them a fair idea of what the vegetable would be like.

The users responded positively to being able to contribute towards farmers livelihood, as they felt it 'bridged the gap between them' and enabled them to do something.

The responses to the usefulness of the order options were highly subjective. However, most people (8/10) responded to trying the Tiffin service first, to know what the wild vegetables would taste like. Some (3/10) wanted to try the Tiffin Service for its convenience, being a homemade healthier alternative to ordering from hotels. Some users (3/10) who were cooking enthusiasts were also fairly interested in the recipe meal option.

Some (3/10) of the user concerns were about the freshness and quality of the produce, they were wary about the condition of leafy vegetables during the monsoon season, with one of the users asking to see proof of quality for the packaging. Other (2/10) user concerns were around the hygiene and quality of Tiffin service meals. They were fairly satisfied with the packaging.

Most users (7/10) said that they would like to place the order, citing 'nutritious eating option' and 'contributing for farmers' as the primary reason. The expressed wanting to place the first order and see how the service is, then place subsequent orders.

Sr No.	Themes	Question	AVERAGE SCORE
1	Awarness	The service interests me	4.85
2	Awarness	Makes me want to know more about the service	4.71
3	Communicating/addressing concerns	It is givng me enough information about wild foods	5
4	Communicating/addressing concerns	This will make me try a vegetables, I haven't before	4.14
5	Communicating/addressing concerns	What are some of your issues and concerns	Qualitative
6	Communicating/addressing concerns	Does it address your concerns	3
7	Making a contribution	Do you think you are making a contribution through this	4.57
8	Fulfilling their needs	The order options are useful to me	3.57
9	Fulfilling their needs	Would you go for any option and why	Qualitative
10	Quality dleivery	Safe and quality packaging is provided	4.14
11	Quality dleivery	The cards provided with the packaging would be helpful for me	4.42
12	Sharing/scaling	Enables me to share and recommend it to others	4.57
13	Purchase order	Makes me want to place an order	4

# Conclusion

In this project, we aimed to design a means of livelihood generation using wild vegetables using Service Design. We conducted user studies and deduced insights from them which helped us to focus our scope and eventually inform the final design. We created a service ecosystem and blueprint which details out the overall service stakeholders, touchpoints and interactions. We also proposed service failure conditions and possible solutions for the same. We finally created detailed service prototypes, scenarios which demonstrated the working of the service to users. We then evaluated these prototypes with urban users. Our results indicate that the service was successfully able to generate interest wrt wild vegetables and effectively communicate it's benefits to them. Users were most interested in the Tiffin service, as well as the recipe options. There are however limitations in testing the health of these vegetable when transported during monsoon season.

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