

A Day in the Life

of a food data scientist
and an aspiring chef





अन्नाद्भवन्ति भूतानि पर्जन्यादन्नसम्भवः।
यज्ञाद्भवति पर्जन्यो यज्ञः कर्मसमुद्भवः।।

**All beings are the product of food,
food is the product of rain,
rain comes by sacrifice, and sacrifice
is the highest form of action.**

Bhagwat Gita, 3.14



INDIA, 2050

The world has changed in the last 3 decades.

The catastrophic events of the 20s - series of pandemics, drastic climatic shifts, the water crisis, an exponential rise in lifestyle diseases and incidences of rapid onset cancer (due to heavy use of chemicals in agriculture and packaging) and other environmental disasters, made us rethink our survival as a human race. On the positive side, advances in technology and overall digital transformation of various industries, business and government, combined with strong citizen participation, allowed rapid and comprehensive changes to be initiated.

All this has led to a complete change in the global order, how we work and how we live. Our relationship with nature and with each other has changed fundamentally.

More Indians today live or spend time on farms than ever before. As a result, produce has become those fruits and vegetables we today pull out of the ground or off a tree than buy at the store. Not only are people becoming more connected to where their food is coming from, they are fundamentally more in rhythm with the natural and seasonal cycles. Indians are naturally blessed with traditional systems like Ayurveda and Naturopathy, which have made a huge comeback. An average person knows his or her constitutional profile and manages their diet accordingly. Traditional therapists and consultants are coaching people on mindful eating and sustainable lifestyles.

The once nuclear, fragmented families of the cities are now part of active, connected and vibrant communities back home with many cases of reverse migration. Distances between cities have collapsed. Professionals are now part-time proud “farmers” networking with an ecosystem of responsible producers serving ever increasing and conscious consumers. Bio-dynamic and organic farming are ubiquitous. Weekend getaways are about visiting one’s farm. Farmers enjoy high visibility personal branding and there is a long list of people waiting to buy their seasonal produce. This growing set of farmers is busy reviving extinct seed banks and expanding diversity of indigenous fruits and vegetables.

Forest produce is increasing the nutrition and therapeutic value of food. Indiscriminate urbanization has halted. Ingredients are freshly sourced. Cooking is slower now unlike the fast food era. The emphasis is on nutrition, so cooking techniques have changed. Outdoor stone ovens, surrounded by shady herb gardens, are perfect for picnics with friends.

There are cafes and juice bars in every park. People are encouraged to share their meals and work up a good sweat at these parks and arboretums. Government halted excess urbanization a decade back. Now nature has a rightful claim to large parts of any city, town or village. Many native species of trees have been revived. And along with several species of birds, insects and animals have made a come back. There is robust activism in preserving natural forests and ecosystems.

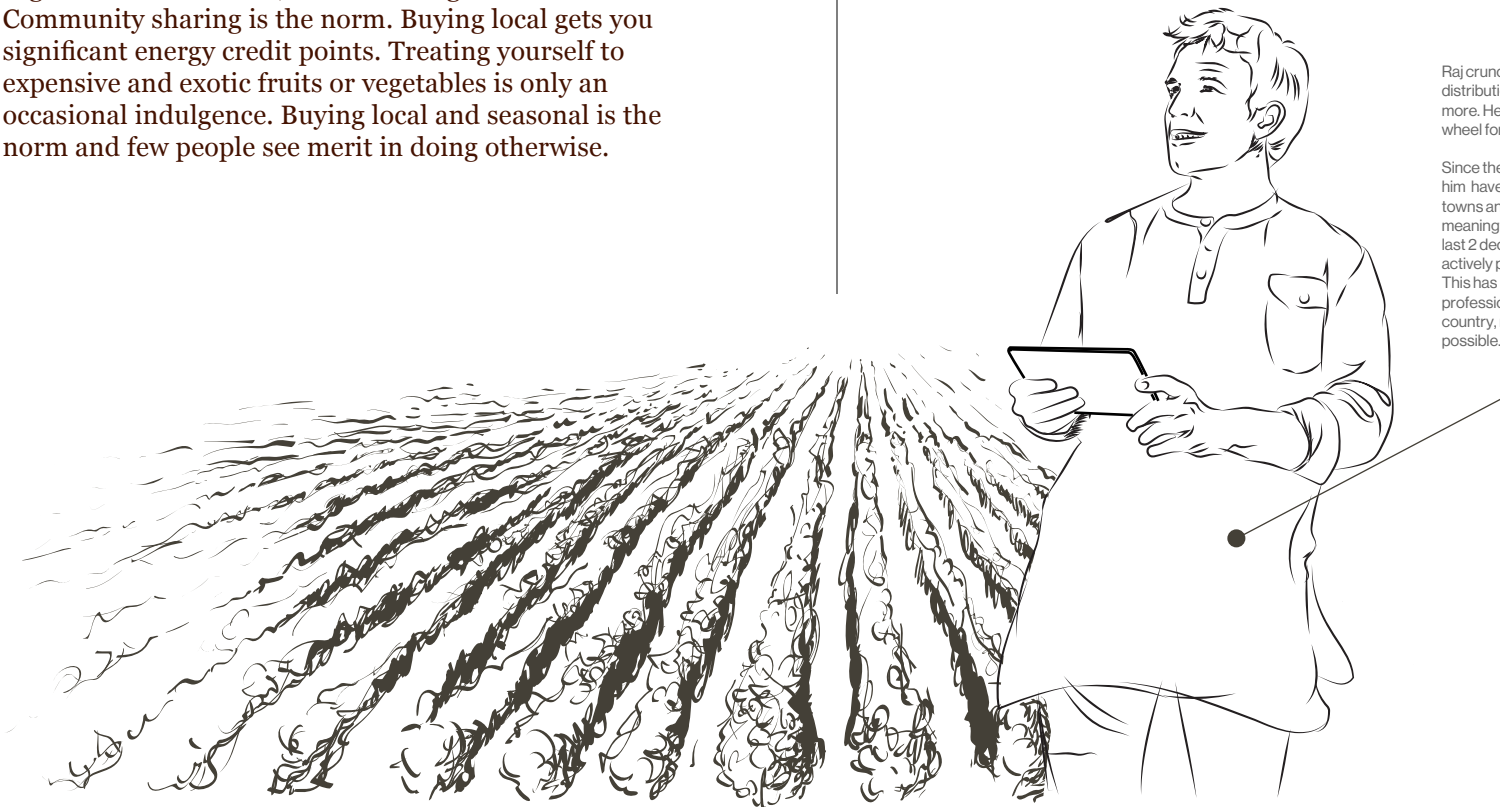
In cities people are growing personal supplies of vegetables in balconies, terraces and gardens. Community sharing is the norm. Buying local gets you significant energy credit points. Treating yourself to expensive and exotic fruits or vegetables is only an occasional indulgence. Buying local and seasonal is the norm and few people see merit in doing otherwise.

I'm Raj. I'm 40. I'm a data scientist. I work for the Government's Food Security and Safety department. I live near my native town of Dehradun in the foothills of Uttarakhand – a northern Himalayan state of India, with my wife (Asha) and 2 daughters.

My wife teaches 'Ancient History' to high school students. We moved back to the valley 9 years back when our younger one was born. Both of our children study from home but from the age 13 onwards, they also attend national or regional meet ups with other high schoolers every 3 months for 2 weeks. Elder one (Shruti, 13) is attending her first such meetup in Kodaikanal in the South of India. Younger one (Srishti, 9) is planning to quit on us and explore the world.

Raj crunches data on crops, their distribution, yields, health, diversity and more. He is a critical cog in the food security wheel for the Government.

Since the early 20s, top professionals like him have been moving back to their native towns and villages, searching for more meaningful, peaceful and healthy lives. In the last 2 decades or so, the government has actively promoted this 'reverse-migration'. This has brought top talent and professionals to remotest parts of the country, making this 'food revolution' possible.



Saturday, May 19, 2050

5:00 am

Wake up to a friendly ring of the door bell. A neighborhood volunteer would have rung it to indicate the arrival of a fresh basket of local fruits with some local Desi cow milk.

I do my *Surya Namaskar* exercises. It is a sequence of 12 powerful yoga poses that massages, detoxifies, and stimulates almost every organ of the human body. Besides being a great cardiovascular workout, Surya Namaskar or Sun Salutation is also known to have an immensely positive impact on the body and mind.

6:00 am

Asha wants to lay in a bit longer on a weekend. But we (my younger one, Srishti and I) want to jog to the nearby orchards. We like our fruits straight off the trees. Natural parks, orchards and small community farms are now accessible to everyone, more so in a Himalayan valley like ours.

7:00 am

A good jog in the chilly morning air has warmed us up. Caretaker says that the plums are ready. Srishti picks her tree and we get 5 juicy looking pieces. That's a few credits debited, but so worth it. All sticky with juices – we hit one of the little waterfalls in the area to freshen up.

7:30 am

It's time for a hot breakfast meal at the 'Roots - the community restaurant in the park'. I'm not on the kitchen duty today so I'm just going to order in and enjoy my meal. As usual, the weekend crowd is bigger. Good time to catchup with friends.

Such *al fresco* restaurants dot every park in the city. People are encouraged to rise early, get to the nearby parks, get your workouts before settling in for a hearty breakfast.

The kitchens here have some regular chefs and several citizen trainees and volunteers. The key idea is to pick the produce of fruits and veggies fresh off the farms and trees and that too, on order. Wastages are bad for your credit history.

I choose my millet breads, sunny-side-up eggs with a serve of local fruits and freshly brewed coffee (with a side of steamed Desi Cow Milk). Srishti orders her pancakes with raw Himalayan forest honey. Yes, even the coffee beans are locally grown and over the years I have developed a taste for it! Plus it is so much more economical to eat local. Coorg Robusta is a luxury nowadays, to be indulged on special occasions.

I am training to be a Citizen Chef. Citizen chefs can volunteer at top-end eateries and on the chef line. I enquire if I could get into the next week's roster for citizen trainees at the Bakery. Oh! I love baking and '*sanjha chullahs*' or community ovens are awesome! Plus I need these hours to qualify for the specialty restaurants.

Morning

Saturday, May 19, 2050

8:00 am

It's almost 8. I am on a volunteer drop - get breakfast packed for my elderly neighbor. I check my phone - the food pack is ready. And before that I need to drop Srishti at the farm.

8:15 am

I drop Srishti off at the nearby orchard. She's carrying her precious new iPad, her sun hat and her clay water bottle.

All the children up to the age of 12 must spend time at the local farms, orchards and forests. That's where the 'class room' learning happens nowadays. A set of teachers and facilitators create groups of 7-8 children, set a topic for a month and explore these topics through every aspect of physical, social and moral sciences. Moreover children explore e.g. where their food comes from, what it takes to grow a grain of rice, and what happens till it reaches our tables. It is the same with other aspects of life sciences as well. They are not expected to work in the farms till they are in the high school.

Further, they are encouraged to document their experiences and stories in any format of their choice. Srishti, of course, loves to draw and paint. Asha is goading her to write and sing a bit as well!

Srishti and her friends would spend the day here. Their meals are cooked and served at the farm. Of course, children are served fixed menu meals that are designed by Government accredited nutritionists.

9:30 am

I have delivered the breakfast meal to elderly neighbors, the Sharmas. It's not standard delivery - we are encouraged to lay the table and serve whenever possible. It's no fun to eat alone, is it? Plus I checked up on their medications. I'm also on their voluntary carer and I can access their health and activity dashboard. I update my observations and encourage them to follow up on their daily activities.

Volunteering of this nature earns us future credits that are typically transferred to our 'fixed' credit account. I'll need these credits in later phases of my life and I'd have 'earned' them instead of getting them as a dole. Now, that's a comforting thought.



Our relationship with nature and especially food, is emphasized as part of early learning. The only point of coming to 'school' is to meet with your friends and teachers, to build social bonds and to explore the world around, by being in it.

Morning - Noon

Saturday, May 19, 2050

10:00 am

I have just got back home. Asha looks well rested and all ready to step out. She's meeting up with her friends at the salon. It's the weekly overhaul, I hear. She'll join me for lunch at a specialty restaurant in the city centre.

Actually that's where I'm headed right after a quick shower. I'm training to be a baker and chefs need help with the prep for the weekend rush. Plus it gives us, Citizen Chef trainees, some real rush-hour experience.

I pick some herbs from my garden – Santosh, our local baker, needs some.

11:00 am

Just got in to my chef whites. I'll be helping with the prep in a real kitchen.

Almost everyone today has 2 jobs - one that they are primarily trained for and the other, that aligns with their interests and serves the community too. For a good part of my day I am a data scientist. In this second role, I'm seeking to become a chef.

Government encourages and supports community roles through various schemes and incentives. I get my training for free plus it adds to my social creds as well.

Two hours fly by so quickly. Today I learnt about how every part of the vegetable gets used - from salads, to soups to making sauces. Even peels and roots are carefully picked either for composting or for replanting in nurseries. There are no waste bins anymore.

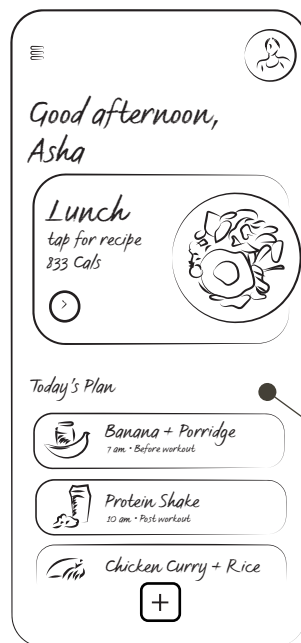
1:00 pm

Asha joins me at the restaurant. I clock my hours and cross over to the dining area. Almost all restaurants are open kitchen. Roles are blurred - it's not inconceivable for you to be waiting on your family, if they come visiting when you are on your server duty!

Asha's being careful with her diet – her Ayurvedic therapist has cautioned her to avoid *vata* (dryness) aggravating vegetables. The bitters (gourd) are mine, as it cools my natural *pitta* (heat) constitution.

She indulges herself with the farm grown sweet pumpkin with generous dose of the aromatic golden yellow Desi cow ghee from local hills.

Food cravings in particular get close attention, in our online coaching sessions, as there seems to be an intimate connection between our moods and cravings.



Our eating rituals are traditional – we all eat sitting on the floor. Utensils are *kansa* (alloy of brass and copper) which have anti-microbial properties. The water jug is copper with therapeutic qualities, or clay especially in hot summer months.

The psychological environment in our homes and personal lives have more penetrating insights today than we did 10 years back. It is now possible to manage our overall sense of well-being more proactively, and prevent our internal ecosystems to become unduly stressed.

We are mapped to our respective 'Eat Right' apps, which nudge us to set our wellness goals, our genera; constitutions and map our diets to it.

We can also share the required profile information with the restaurant, who then can structure our meals accordingly.

Afternoon

Saturday, May 19, 2050

2:30 pm

We are done with our sumptuous lunch and herbal tea to wash it down. We hail the local cab (electric of course - no gas for 25 years) and pick Srishti on the way home. She seems exhausted and happy.

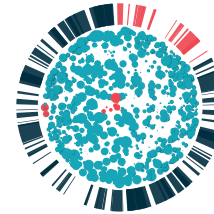
3:00 pm

We get home just as I get a notification that the delivery is arriving soon. It is for the Lunch Party tomorrow at our place.

We are now in a habit of ordering in limited quantities, only as much as we need for a day or two. Since produce is largely local, it's always seasonal and fresh. The logistics are great and always on time. I spy my fresh eggs, local vegetables, millet flours, rice, and, fresh trouts from River Ganga (50 kms from here).

What is most interesting is how food is grown, picked, transported and priced. Packaging is natural, compostable and/or washable. The labels are 'smart' they not only change colors to indicate freshness but also to indicate distance of travel from the source. Scanning the label, shows all this data accurately - plus the price and real-time nutrition values.

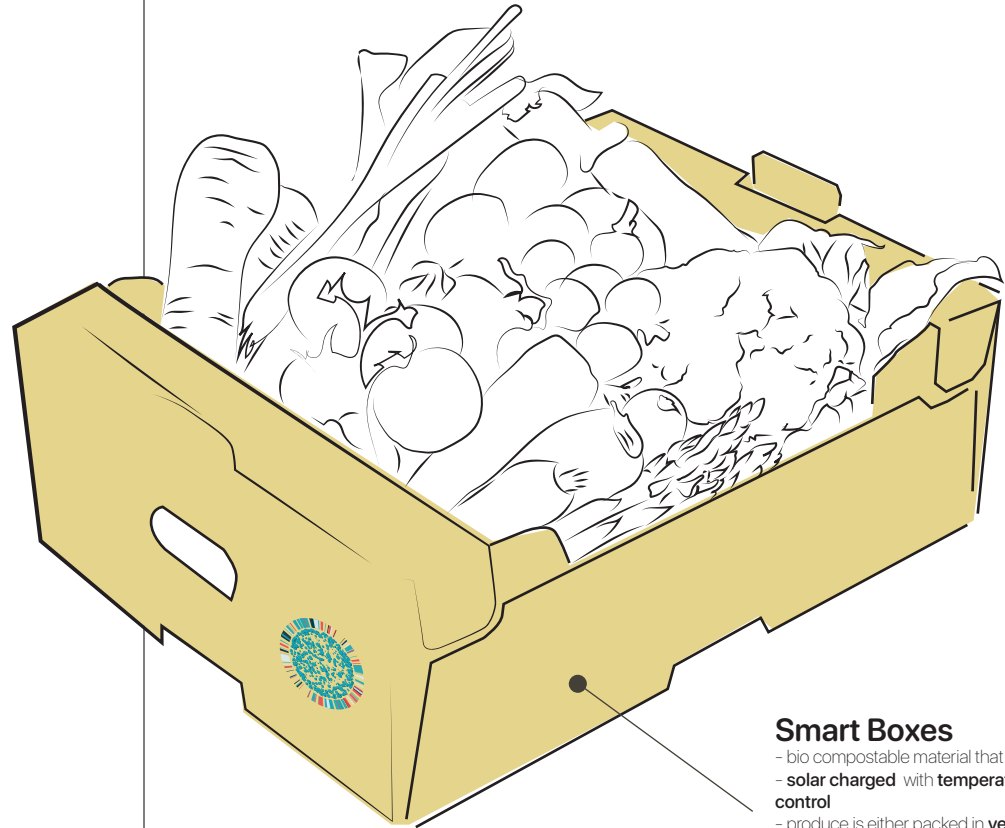
Most interesting part is the pricing. Pricing model is community controlled but validated by the Government. Algorithms calculate the price so that growing any variety gives similar Return on Investment to the farming community. This has helped revival of local communities tremendously. Further the produce travels, more energy credits to be paid.

**Smart Stickers (Print):**

Shows relative product freshness and distance travelled (analog)

Sticker Stickers (Scan):

Price (calculated as per freshness and energy credits)
Freshness (via probes)
 Exact **distance travelled** from source & **energy credits** consumed
Nutritional info

**Smart Boxes**

- bio compostable material that is **anti-microbial**
- **solar charged** with **temperature** and **humidity** control
- produce is either packed in **very light, reusable soil** or is covered in a **Water Soluble Micro Packaging** i.e. thin nano film (which is like soil that can be washed off)

After Noon - Evening
Saturday, May 19, 2050

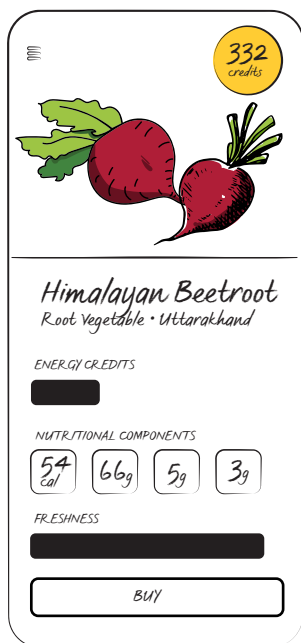
3:30 pm

It's the siesta time. Ayurveda recommends a short nap in the afternoon to recharge your body and aid digestion.

4:15 pm

The whistle from the pot works like an alarm. I pull myself off the couch.

There is still couple of hours of day light left. I wanted to visit the local Litchi orchard and Fresh Greens farms. We need to plan our shipments - helping the local communities with data and analysis is part of my day job too. We call in Neeti, our neighbour's teenage daughter to baby sit.



4:15 pm

Fresh Greens (farm) is unique as it is completely managed by women, especially rural and tribal women. The produce looks wonderful and they look all set to make some good profits for the community and the state too. There has been significant use of technology in managing the health of produce without use of any artificial chemicals or pesticides. Bio-fortification and GMO were banned 10 years back. Moreover, they farm quantities as per projected local and national demand, reducing excess production and waste.

5:30 pm

Litchi orchard: In another 10 days' time the blushing fruits on the trees will turn completely crimson. It is a co-owned "time sharing" farm, where 10 families have adopted tress and are committed to buying this delicious native fruit of Dehradun with a distinct GI.

The credits per parcel will of course vary as per distance traveled – some will use more credits just to sample something unique. Others will do something more interesting. They will visit us to "harvest" their fruits – to feel the place, the surroundings and to connect where their fruits come from. Most importantly, to learn the incredible diversity of what a litchi looks like in its natural environment.

Government policy now mandates minimum 50% women in decision making roles in all food and agriculture related companies and institutions. This extends to local self-help groups and community farms. This has made a huge impact on how consciously we produce and consume our food.



Evening

Saturday, May 19, 2050

6:00 pm

We sit down at the Orchard Cafe. We order some cool drinks - many of course are Litchi flavoured. This is where we meet some visitors from Gujarat (a state on the western coast of India). I know Gujaratis love their savouries and the sweets. Here they all seemed incredibly excited with a whole assortment of Litchi-themed desserts.

When we grow our own food we get a better idea of what it naturally looks like. It doesn't have to be perfect to be good. In the past we looked for perfect fruits and vegetables in urban shops – rejecting “ugly food”, a source of massive wastage in food industry.

Our visitors instead of judging some of the odd shapes of their fruit, embrace whatever their tree offers. Such visits over the years have blessed us with amazing connections with professionals from diverse fields, adding to the richness and variety of our social life.

6:30 pm

I get a mail requesting an online meeting with local rice farmers. They need some data on crop distribution for the upcoming monsoons. I have the numbers on me - I agree to a 30 minute chat at 7:30 pm.

Asha and I decide to walk home. The valley looks resplendent in the orange hues of the setting sun. Srishti must be up by now, wondering if we had abandoned her again!

7:30 pm

Online meetup for the world famous Dehradun Basmati rice farming. New techniques. Effort to revive old varieties. The past use of pesticides in these remote Himalayan valleys had caused environmental damage and contributed to the emergence of chemical-resistant pests.

Now with technical assistance by Navdanya, we are attempting to cultivate it without pesticides - with help of plants traditionally used for pest control in paddies, as well as natural anti-parasitic substances such as ash and cow urine. The rice is cultivated in rotation with peas, pulses, millets and wheat, or with mustard and wheat grain.

8:05 pm

Just as I am getting over with my online meeting, Shruti (elder daughter) calls up. It's an end to an exhausting day for her too. But she's excited and full of stories- after all, this is her first out-of-state study tour. She talks about their sessions with the visiting exchange students from Wageningen University, Netherlands and Kansas University, USA. They are here to learn about our indigenous farming practices, exchange knowledge on their practices.



Farming and growing food are an essential life skill now and it is mandatory for all teenagers to spend at least 4 weeks in a farm. It is here where they learn the basics of agriculture, crop seasons, plant nutrition and more.

Evening - Late Evening
Saturday, May 19, 2050

9:00 pm

Asha has quickly roasted some farm veggies that arrived today and blended some roasted tomatoes soup for a light dinner. She served it with some millet bread I had baked last evening.

9:30 pm

I plan out my courses and revise some recipes for the party tomorrow. I mentally go over all the ingredients we have. I want to wake up early and get started on my breads. Asha wants to churn some fresh fruit ice creams and do a traditional curry. I have reserved at least 2 whole trouts to show-off my newly acquired baking skills.

10:30 pm

Before hitting the pillow, I review the dashboard of a popular website called 'Eat Right India' which hosts an exhaustive library on traditional Indian food. Built in collaboration with the government it hosts knowledge on processing, preservation techniques and dietary guidelines on traditional & indigenous Indian foods.

11:00 pm or so...

Srishti has finally dozed off. Asha's on her late night social calls. I've had a full day and the bones are feeling it. I have just begun my descent into sleep, a very delicious sleep.

Am I dreaming of food again?

Epilogue

Instead of a dystopian outcome, of food being fed out of tubes in premixed nutritional format, we have moved to far more natural, flavoursome, safe and healthy food for all. Closer to nature, as nature intended.

There is food security for all. It's a fundamental right. We have managed to beat hunger and malnutrition for ever.

It is local self governance with community ownerships - central and state governments help with larger logistics, health, policies, training and certification, and other facilitation like exports. Government labs also help with Data and Analytics, crop distributions, crop health and diversity, acquiring Geographical Indicators (GIs) and adjusting Pricing Models.

Private ownerships have become very limited. Workplaces have changed significantly.

All of us typically have 2 jobs - primary and secondary. Unless you work for critical services like Health or Public Utilities - you need to earn part of credits from your secondary role that must contribute to your local communities.

I prefer working with food - in growing, in logistics and most of all, in cooking it!

Epilogue

Financial models have been re-imagined and reinvented. Instead of 'money' we have credits. All work obligatory or voluntary gives you credits. Complex algorithms help define credits of the work done based on many factors. Some types of work like in the Specialty restaurants need certifications - you can't work in the chef's line without certification of skill and experience. However, you can acquire these by taking weekend classes and by doing voluntary work at smaller kitchens.

Pricing is effected by how far produce travels from its origin. There is no more any incentive to grow only a certain variety of a crop - special algorithms calculate credit pricing so that local varieties are as profitable as any other.

Government suggests a percentage of the produce/crop that we can use for local needs, a certain percentage that can be shipped to nearby or needy states, and another percentage that can be exported or stored or processed for emergency use. There is also a percentage that is left for the birds and other animals.

We are encouraged to travel to enjoy local flavours rather than import them. Imported food cost more as energy miles are added on every item shipped.

With the advent of high bandwidths, modern transportations - people have moved on from cities. In fact the whole concept of a city has changed - it is more about history and historical artifacts rather than business. Biggest impact has been on agriculture - specific areas have been mapped out for production of community managed small farms and other natural forested areas. The idea is that every citizen has connection and responsibility for whatever he consumes.

Food packaging and transport have slowly become more natural, reusable and trackable. Transport modules (of varying sizes) are powered by solar and other renewable energy sources. They maintain natural humidity and temperature of the produce. Number of miles traveled are constantly updated and tracked. Government collates all this data and shares them with all communities. Regulators keep a strict watch on diversity and amount of food produced. Only a limited amount of excess is allowed as emergency supplies.

The world has moved away from a producer-consumer paradigm. Now everyone has a relationship (direct or indirect) with how food is grown, distributed and partaken.