Vision 2050

India

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.

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. This growing set of farmers are 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.

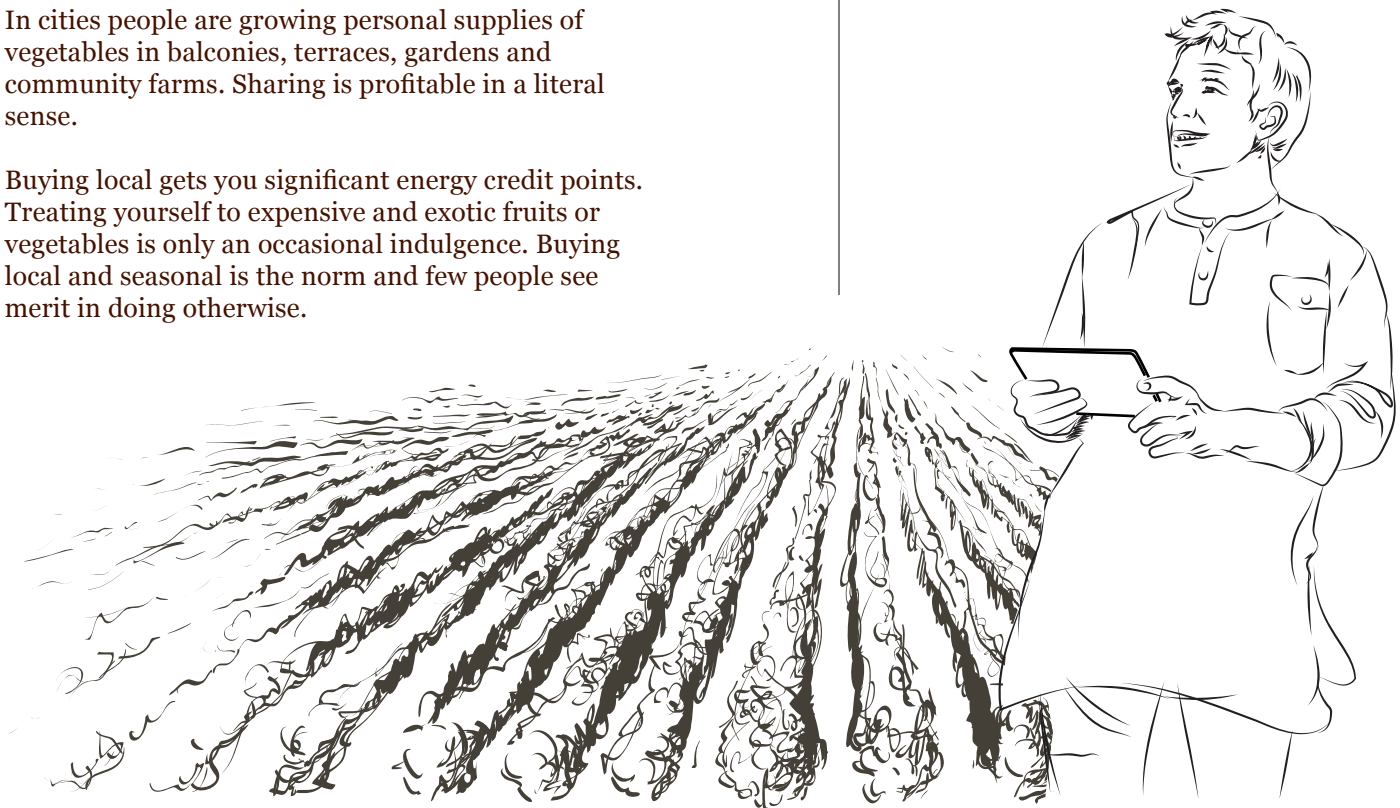
Government halted excess urbanization a decade back. Now nature has a rightful claim to large parts of any city, town or village. Many native species of trees have been revived. And along with several species of birds, insects and animals have made a come back. There is robust activism in preserving natural forests and ecosystems.

In cities people are growing personal supplies of vegetables in balconies, terraces, gardens and community farms. Sharing is profitable in a literal sense.

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.

How do we get to this vision of food secure, healthy and sustainable India? We took a **Design Thinking** approach to answer 3 questions - ***What is? What if? What works? & What Wows?***

We spoke to various stakeholders and partners - urban farmers, nutritionists, food experts, international agencies, design thinkers, the government and the civil society. Here's what we visioned together - a future that's possible, sustainable, and harmonious - just as Nature intended!



What is?

Population

India's population is projected to be around 1.64 billion by 2050, one sixth of the world's population.

Malnutrition

Quarter of children and adolescents in the country are stunted; more than 50% of women of reproductive age group and children are anaemic; overweight and obesity has doubled over the last decade in both rural and urban areas. Further, one in ten school-age children and adolescents are pre-diabetic. The country faces huge economic loss due to food borne diseases (FBD) – going up to 0.5% of GDP. It is estimated that in a business as usual scenario, number of cases of FBDs in India would increase from 100 million (in 2011) to about 150-177 million (in 2030) with children under-5 being most vulnerable.

Poor Diet

The Indian diet is predominantly cereal based (rice and wheat), protein-deficient, lacking in fruits and vegetables and rising consumption of fats and sugars. Per capita per day consumption of calories is still lower than the global recommendations (2500 kcal/day) and is unequally distributed across regions, gender and age-groups. Simple carbs contribute majorly to these calories while proportion of protein, fats and vegetables is minimal. Consumption of refines oils and sweeteners is disproportionate. Low ratio of price/100 kcal of cereals as compared to milk and meat is a major reason for Indians eating a cereal centric diet.

Food Waste

An average of 20 percent of food being wasted in the country. Lack of warehousing, processing and cold storage facilities are the key reasons for food wastage. Fruits and vegetables (40%), milk (40%) and meat (20%) are the ones wasted the most in the sector. Given the high nutritional deficiency in India, reducing this waste needs to be addressed on priority.

Safety & Hygiene

Microbial contamination especially of milk, meat and F&V, improper temperature control and adulteration are key issues.

Environmental Degradation

Food sector is the biggest contributor of plastics in the country. High use of pesticides and chemicals in farming, mono-cropping patterns (rice and sugarcane) contribute to depleting water tables and burning of rice stubbles as source of air pollution have already become a serious challenges for the country.

Livelihood and Employment

Food sector directly and indirectly employs about 2/3rd of all Indians. Much of this workforce are migrants who have been quit farming to move to urban centres.

A mass reverse migration due to COVID-19, effecting nearly 10 million migrant workers, may throw up unique challenges.

What if?

The 'Eat Right Movement ' transforms India's food environment?

Eat Right India has an ambitious vision of transforming India's food environment. It adopts a judicious mix of regulatory, capacity building, collaborative and empowerment tools and combines supportive actions to its primary regulatory mandate. It adopts a 'food systems approach' to address the issues in a holistic manner.

To achieve this vision, these things need to happen:

Robust food regulatory system that includes setting science-based, globally-benchmarked standards, credible food testing, surveillance, and enforcement activities. Setting standards on use of excess salt, sugar and fat; use of recyclable plastics and tougher implementation of safety and health standards.

Finest hygiene and sanitation standards across the value chain through a graded approach. Capacity building through training and certification for all businesses including unorganized micro food vendors, hygiene ratings for medium and small businesses, and organizing vendors in clean clusters and hubs.

Conscious consumption by changing food environments by taking a settings-based approach and targeting people at home, school, workplace and outside through training and capacity building and generating awareness.

Mass mobilization and behavioural shifts to nudge citizens to eat right and waste less. To initiate a people's movement to create demand side push for safe food, healthier and suitable diets is needed.

What if?

Produce enough without destroying the environment

What if our primary farm production were to be driven by small-scale farmers, connected through agri-food value chains, benefiting from economies of scale? Integration of traditional knowledge with new technologies and robust logistics would provide eco-friendly solutions. A community-driven approach could create self-sufficient local food ecosystems reducing storage and transport costs and post-harvest losses. ***What if*** the majority of farmers in India were to be engaged in organic farming using a wide variety of alternatives to chemical fertilizers to enrich soil? Drip irrigation and water harvesting could be mainstreamed and help India to achieve zero-water wastage. The production of crops could shift to millets, traditional food crops and regional grains as per local needs. The food industry would need to transform to accommodate small scale production units resulting in self-sustaining local economies with minimal environment consequences.

Ensure food security for all

Policies would need to be in place ensure availability and accessibility of food equitably to all Indians. Food-based schemes for the vulnerable already caters to around 230 million people covered under the National Food Security Act. However, how long would such schemes scale to feed an ever increasing population? ***What if*** people became self-sufficient and had access to nutritious and affordable food without increasing burden on the government?

Provide adequate and proper nutrition

What if we could scale production of large variety of healthy foods that are also affordable? That would reduce the need for food fortification and artificial additives. ***What if*** we could shift consumption behaviors toward low salt, low refined sugar with elimination of trans fats?

A shift towards personalized diets can be anticipated due to increase in purchasing power and technology-led platforms. Consumption of regional, local and seasonal produce could be the norm. A rejuvenation of traditional culture emerging from Ayurveda can be expected. A food culture of traditional, indigenous and aligned with India's ancient wisdom of Ayurveda can be mainstreamed through small-scale local entrepreneurs.

Smart packaging and labeling systems could not only deliver fresh and healthy food, it could educate people on amount of refined salt, sugar and oils. Moreover, subsidies and tax-cuts for healthier food options, particularly plant-based, local, regional and seasonable whole-foods could be provided. Unhealthy and processed food could be taxed to extinction!

Adopted sustainable diets and conscious consumption

What if our food was good both for the people and the planet, to maintain a resilient food system in the future? Its key components could include production and consumption of local and seasonal foods that not only help in reducing greenhouse gases but also encourages regional trade practices.

What if?

What if our production policies ensured judicious land and water use for agricultural production, prescribing crops by region for maximum productivity, allowing only organic farming and biological solutions to control of pesticides? Furthermore, policies could limit food loss along the food value chain. Community-level practices could great reduce waste and promote recycling and reuse. Policies to encourage regional trade practices could be effective. ***What if*** we taxed distance traveled by produce? ***What if*** we produced only for our need and not our greed?

Sustainable economic costs and pricing models

What if we could improve wages thereby improving purchasing power and reducing rural distress? With more rural money, growth of local economies that are majorly driven by female workforce, could result in community level development, bridge the gender gap and promote equitable economic growth. Additionally, with efficient agricultural operations and with the use of technology, a substantial section of the labour force could move up the ladder and be employed in allied activities, logistics, supply chain and food processing.

What if we could re-imagine Money itself? What if we could move away from private wealth and ownerships to community ownerships, wherever most useful?

Eliminated Food Borne Diseases

What if stringent laws and robust recall mechanisms and consumer awareness eliminate FBD? This could reduce an economic burden of more than 0.1% of the GDP.

Technology made possible

What if clever technologies like big data, Internet of Things, block-chain, agricultural biotechnology, and artificial intelligence & Machine Learning became mainstream and affordable?

What if data gathered from farms and food distribution networks enabled better traceability of food, quantification of the impact on the ecosystem and helped eliminate food wastage and over-production? Such technology could be used by resource-poor small and marginal producers. A rental market for farm machinery with women's self- help groups (SHGs) jointly owning and leasing out machines. Additionally, more organizations like Gold Farm would be set up that use Farming as a Service (FaaS) model where farm equipment can be hired through cell phones or call centers.

Smartphones and body wearable devices could provide personalized information to monitor diet-linked health parameters.

Micro-irrigation technologies and Community irrigation facilities such as water user groups for farmers could help judicious use of water resources.

To enable the current workforce to effectively transition to the envisioned technological changes in the future food system we'd need an enabling environment for entrepreneurial ventures and create data repositories on all aspects food, encompassing traditional recipes, taste/flavour, nutrition, and health.

What if Big Data networks were used to build Dynamic Pricing Models. Rich algorithms that allow equitable 'Return on Investment' on any crop. This would greatly encourage all kinds of farmers (big/small) in growing diverse crops and crop species.

What if?

'Whole of the Government' to 'whole of society approach'

Government policies are critical to creating an enabling environment to ensure safe, healthy and sustainable diets. Currently, the Food Safety and Standards Authority of India (FSSAI) is India's apex food body with mandate to ensure safe and wholesome food to all citizens at all times. Its mandate is gradually being expanded for improved multi-sectoral and multi-issue coordination. This could be renamed as the 'Food Authority of India' and take not only 'whole of the Government', but 'whole of society approach' in dealing with issue of food in a holistic and integrative manner for inclusive, equitable and sustainable food system to achieve the Sustainable Development Goals (SDGs).

Built strong networks and partnerships

Eat Right India movement is one such programme that requires convergent action in order to overcome all the barriers to improve health of the citizens.

It's numerous platforms could scale to engage a larger diversity of stakeholders and benefit from their technical expertise. It must continue to grow its various platforms like network of professionals in food and nutrition **(NetProFaN)** to leverage the expertise of professionals in reaching out to consumers with scientifically sound messages; its network of scientific organizations **(NetScOFaN)** to participate in standard-setting processes; and a consumer organization network **(NetCOFaN)** to communicate consumers' concerns to the food authority and vice versa

What works?

Here are 2 short case studies to show how our Systems Approach has worked in the real world.

Eat Right India follows a graded approach to working with industry that focuses on promoting a culture of self-regulation among businesses, working with the informal food sector, and developing and harnessing a private sector food ecosystem. Along with this, large-scale capacity building through private players is an effective strategy to improve the quality of food served by these businesses.

'Kalpavriksha' programme was launched by Marico Industries with a focus on enhancing farm productivity of Coconut Farmers. It resulted in 13% increase in yields. Training & Awareness programmes propagating scientific farm practices were conducted with on field support provisions. This program also promoted water conservation practices in farms.

Mondelez India's Cocoa Life program covers a wide spectrum of activities starting from supporting Cocoa agriculture research at Universities in South India, producing quality planting materials, offering free technical advice to farmers through a massive farmer-outreach program, farm-gate procurement of Cocoa beans from the farmers eliminating middlemen, promoting drip irrigation and undertaking community programs like women training, school support and tribal farmers support. Program has successfully enrolled over 3000 marginalized tribal farmers into cocoa planting creating livelihood opportunities for them. Over 5500 children in the remote cocoa communities are benefited through schooling infrastructure.

'Eat Right Indian is very innovative and inclusive concept initiated by FSSAI which is gaining attention worldwide. Our convergence with administrative authorities is the only way to get things really moving'

Dr. Jagemeet Madan, President
Indian Dietetic Association

'Eating Right can make a significant change to the destiny of our nation. Eat Right India focusses on simple messages, power of symbols and large scale engagements'

Mr. Harish Bhat, Brand custodian
TATA Sons

Eat Right India is very promising initiative with a self-sustaining approach.

Vivian Hoffman
IFPRI, Kenya -

'Eat right movement is a revolution in terms of partnerships, professionalism and people's movement.'

Dr. Chandrakant S. Pandav, Regional Coordinator,
Iodine Global Network

What wows?

VISION INDIA 2050

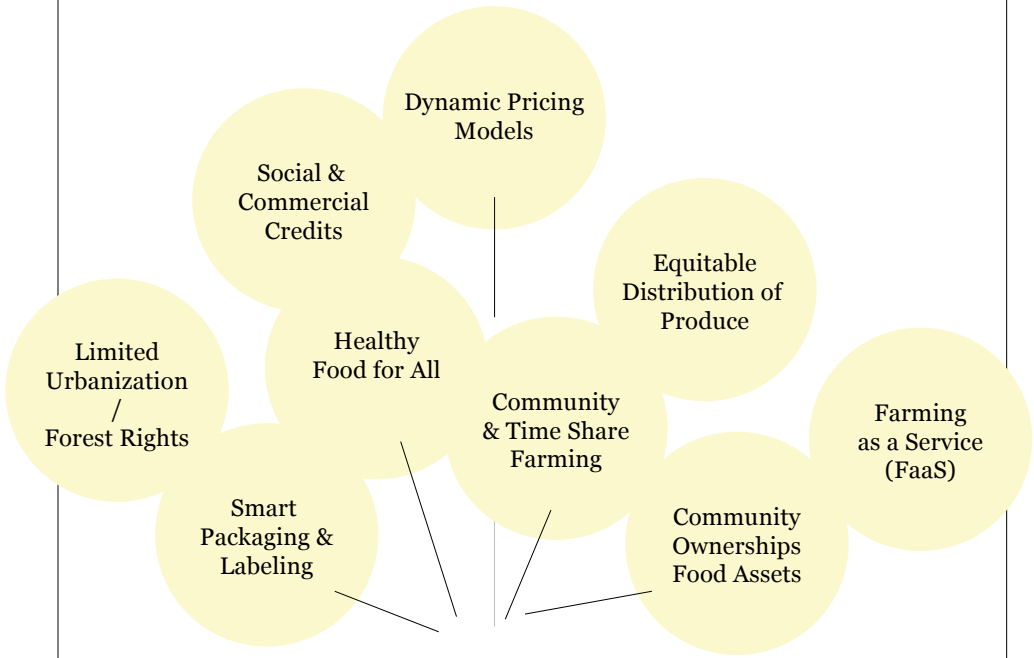
Instead of a dystopian outcome, of food being fed out of tubes in premixed nutritional format, we have moved to far more natural, flavoursome, safe and healthy food for all. Closer to nature, as nature intended.

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

We have 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.



Key Concepts, 2050

What wows?

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 volunteering 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.