SECURING FOOD FOR ALL

THE CRITICAL NEED FOR COHERENCE IN POLICIES AND ACTION

for

The Global Conference of the Indian Association for the Club of Rome

New Delhi, 30-31 October 2014

Development Alternatives
New Delhi
www.devalt.org

Summary

Six-and-a-half decades after Independence; a half-century after the Green Revolution liberated India from the spectre of starvation, even official statistics estimate that more than a hundred million of our fellow citizens go to sleep each night hungry and malnourished.

A great number of them are children under 5 years of age. These children will grow into being physically and mentally stunted adults; predestined for no fault in their genes to be not only unproductive, but also to be an economic and social burden on their families, communities and on the more fortunate in society.

Our collective duty to eliminate hunger from India is an unarguable moral issue, as it is an indisputable existential imperative and, moreover, an unquestionable matter of simple self-interest.

This booklet explores the design and functions of the institutions of the State, of business and of civil society that are necessary - even if not entirely sufficient -- to serve the ethical, ecological and societal purpose of speedily eliminating hunger and malnutrition from India.

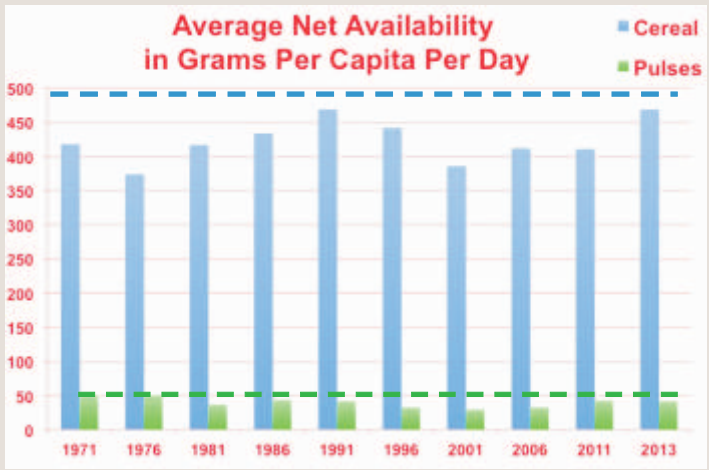
Ashok Khosla
Chairman
Development Alternatives

THE FUNDAMENTAL ISSUES

Among the many important goals that India must now pursue, perhaps none is of higher priority than ensuring secure access to food by every one of its citizens, now and for the future.

If you look at the total food production in India today, together with what the nation can afford to import, is said to be more or less sufficient to give every person – child, woman or man – the minimum calories and protein needed for being reasonably healthy and free from hunger.

Yet, several hundred million people in India remain hungry and malnourished. Estimates vary from around 100 million (GOI) to more than 300 million (FAO, WFP, World Bank, OXFAM, and others). Whatever the precise figure, the loss to the nation of the resulting damage to the physical and mental capabilities of our fellow citizens is, by any standards, astronomical. Our much-vaunted "demographic dividend" becomes complete nonsense – a heavy "demographic liability" – in the light of the legacy we are leaving for the next generation to inherit, of vast numbers of under-proteinised, unskilled and consequently unemployable people.

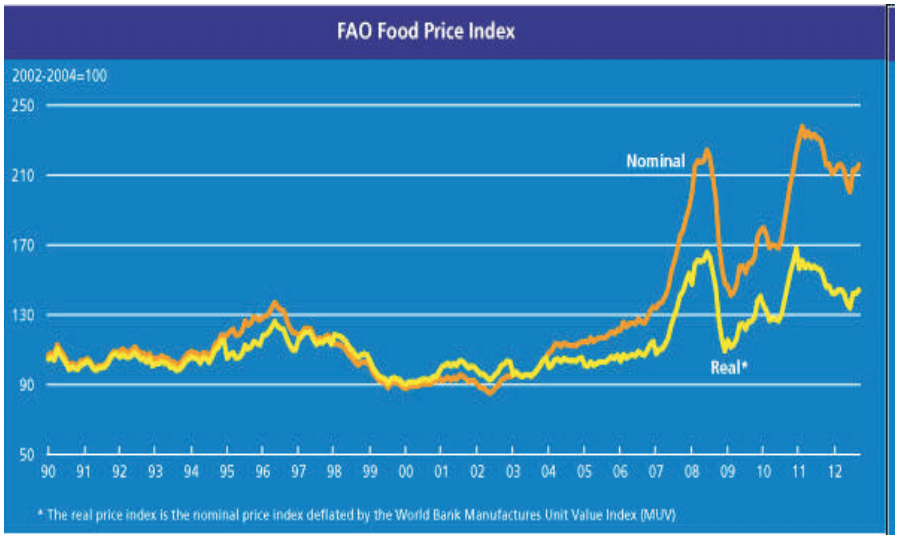


GOI, Economic Survey 2013-14

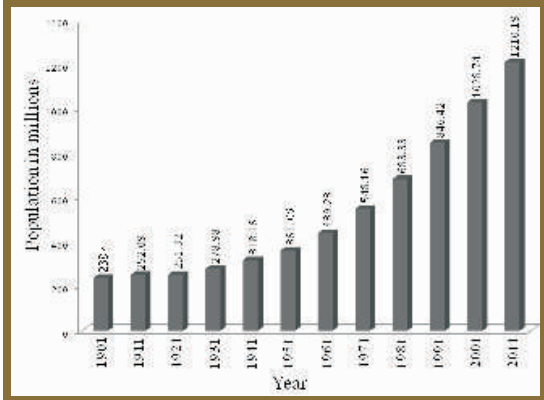
While meat and fish, dairy products, edible oils, vegetables and fruit contribute to the diet and health of those who can afford them, the primary sources of protein and calories, the main nutritional requirements, for a majority of Indians are grains and pulses. According to the 2013-2014 Economic Survey of the Government of India, the average net amount of cereals and pulses available per capita per day has, over the decades, been lower than the minimum acceptable norms. It is obvious that from

the time of India's independence, significant portions of our people have not been able to meet their daily requirements of either protein or calories. At no point, including today, has availability of cereals or pulses nationwide been enough to meet the minimum nutritional need. Since this chart is based on the nationwide average, it is obvious that for the large numbers below that average, the bars shown are much shorter and the gaps much larger. Moreover, the population continues to grow, and the natural resources – our soils, water, energy and the other factors - essential for crop production continue to decline. Given the non-linear nature of both the rapidly rising demand curve (growing populations, changing diets, etc.) and the steeply declining supply curve (diminishing natural and financial capital, etc.), a sudden catastrophic outcome cannot be ruled out, nationally, regionally or even globally. Food prices have already reached heights never seen before, both in India and elsewhere and the past decade has seen more than its share of social turmoil and political upheavals on this count.

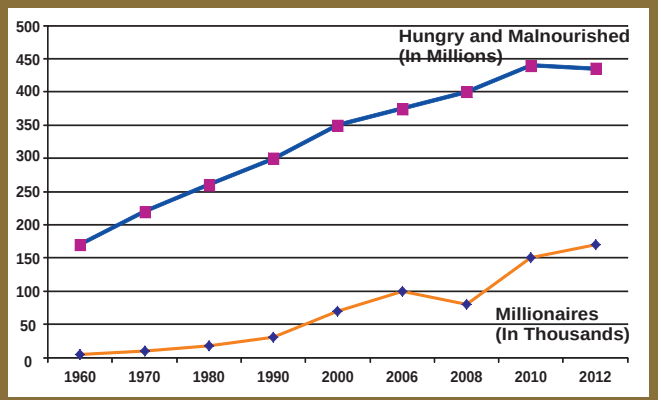
World Food Prices - FAO



For six decades, one-third of our people, a population now larger than that of Europe, have provided living proof of Thomas Robert Malthus' contention that hunger is a natural outcome of unregulated economic and demographic growth. As a nation, we have not been able to outrun Malthus' nightmare, despite the fact that some of us are well fed as anyone, anywhere, at any time. What breed of horse must we now find to jump ahead in the race between food availability and mouths to feed? It is clearly unlikely to be the one we have today, where the bulk of the nation's food and nutrition vehicle is driven by an unholy mix of contradictory and mutually excluding ideologies. Pulling in one direction is crony market capitalism for which the overriding goal is to maximise profits, if necessary with influence, money and shoddy business practices. Pulling in the opposite direction is a simplistic dogma-bound socialism for which the overriding goal is to maximise election votes by promising populist (but not necessarily implementable) 'schemes', easily subverted by inefficiency and corruption. The glue that keeps the opposing interests together is a system of patronage cultivated over the decades that enables the few to benefit hugely at the expense of the many. Examples abound, such as those of tribal lands and protected natural areas being handed over for a pittance to private companies and free power and diesel being given to a large number of farmers and special interest groups.



Census of India

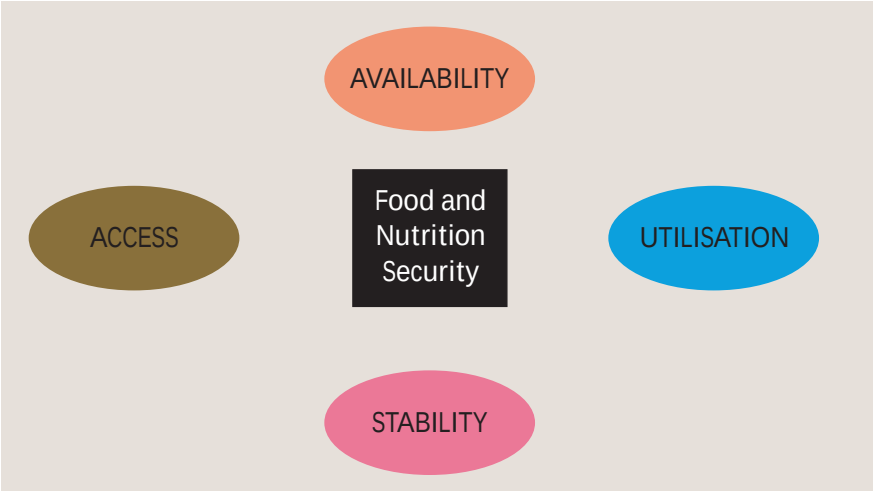


CII, Oxfam

The scores of conferences that regularly take place to discuss India's food security present us with shopping lists of the kinds of change needed – mechanisation of farms, improved seeds, regionally appropriate crops, improved incomes to farmers, particularly the women, etc. Few deal with the underlying barriers to solving the problem at the scale needed.

Given the growing threats of climate change, biodiversity loss and massive desertification, the hunger gap could rapidly get worse in the coming decades unless we change direction on many fronts.

Conventional thinking, as codified by the 2009 World Summit on Food Security, divides the problematique of food and nutrition security into four broad sets of issues:



Even so, what has emerged so far from the clamour for solutions is a prime example of the timeworn "kitchen sink" approach to yesterday's debates mainly focusing of course, on positive measures to enhance food availability, for example by raising agricultural productivity and other means shown as the Silver Bullets in the figure below:

This has only resulted in countless proposals, initiatives and goals that are loosely connected at best, and that are often plagued by internal inconsistencies. The frequent succession of governments, each with different ideologies, has left the state of the Indian Republic's food and nutrition agenda in tatters. The pendulum swings, from the left-wing socialist give-away schemes to the right-wing capital-intensive export-oriented profit-hungry programmes, have left the farm economy in a daze. Rampant corruption continued, of course, through all regimes. Parties at neither extreme of the political spectrum, nor in between, have the answer needed, but some have insights that can help India's citizens and communities to become truly secure in terms of food and nutrition. On the production front, it is clear that the future of India will need a mix of large and small farms, producing a diverse regional food mix and choice of technology that maximises both the productivity of land and water and the earnings of farmers and their labour. On the distribution and consumption front, stable, affordable prices maintained by a judiciously regulated market based on carefully designed policies with inbuilt transparency mechanisms could enable universal access to food in the shortest possible time.

This means that a new, simple and sustainability-oriented approach is needed, which must now become the central subject of debate in our country. Considering that food and nutrition security is one of the most important goals for the future health of the nation, we believe our national debate will require several key changes in our general approach and order of business. Only then can we develop a food security policy framework, which is capable of carrying us up to at least 2050, if not all the way through to the next century.

THE DEBATE NEEDED TODAY
AND ITS UNDERLYING PREMISES FOR TOMORROW

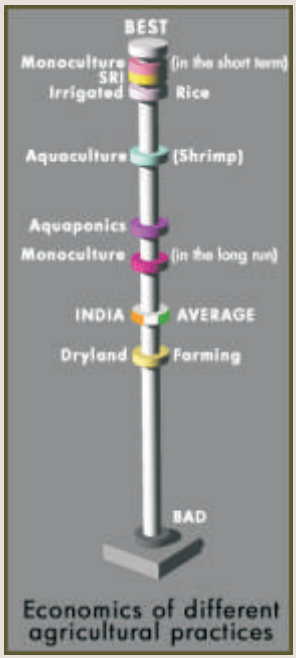
We now need to be more explicit and transparent in prioritising, or ranking, our broad policy objectives. Setting different agendas on multiple platforms – fading Five-Year Plans, sputtering MGNREGA implementation, the new avatar of Swacch Bharat, and countless other crowd-pleasing political initiatives – is a recipe for confusion and potential conflict.

Targets, which smack of the legacy of a state-directed economy – a legacy that runs counter to the current national emphasis on caring for the poor and the "common person", as well as the primary role of markets for economic growth, should in general be downplayed, if not eliminated entirely. Instead of setting production targets that satisfy the needs of policymakers and money-masters, while leaving common people hungry, we should instead focus on policies that target 'Zero Poverty' or 'Zero Hunger', which are easily measurable, visibly verifiable and, as Brazil has shown in the past decade, eminently achievable.

No activity that involves production and consumption can be scaled up to reach everywhere or everyone unless it is economically viable. So, reasonable profits and efficient markets are essential for universal food and nutrition security as they are for all other basic needs. But profit and markets, though necessary, are not sufficient. They alone, do not guarantee food security for all, either today or in the future. For the poor and the marginalised, additional measures are needed to ensure universal and reliable access to nutrition. And for our children and grandchildren tomorrow, the productivity of the environmental resource base has to be protected and enhanced to ensure that they can continue to get the nutrition they will require.

Thus, any sustainable food and nutrition policy and governance must pay attention to ALL THREE dimensions of sustainability, social equity, environmental quality and economic viability:

A. Issues of Economic Viability – The first commitment is to the efficiency, prioritisation and scaling up of food production, which means that the mix of the factors of production – land, labour, capital (and others such as knowledge, technology, infrastructure, market linkages, etc.) – in the agricultural practices has to be optimised for each social, economic, resource and geo-climatic context. This applies also to the mix of crops produced. Given the changes occurring in the climate, ecosystem productivity, resource prices, and transportation costs; the issues of trade and comparative advantage also have to be examined anew.



Economics of different agricultural practices

Apart from concerns such as the nation's strategic imperatives and security of food supplies, which have played some part in food-related decision-making in India and other countries, there are several emerging factors including climate change, spread of plant and animal diseases, extinction of cultivars and genetically important varieties, etc., that need to be considered in the choice of food strategies. Since few sectors have benefited as much from research and innovation as agriculture, the investment choices made can also hugely affect the relative importance of different crops to the economy.

Implication: Since food security depends on the mix of foods in the market and the relative prices, and the choice of technology determines not just what is produced but who gets the income, it is clear that the investments made in infrastructure, irrigation, seed availability, research and innovation for different crops have a large impact on the outcomes.

B. Issues of Social Equity – The second issue is the commitment society must make to universality, fairness and social justice in spatial or class terms—in the here and now. It assumes that adequate food and nourishment is the right of every citizen, urban or rural, rich or poor, powerful or marginalised. Recent political upheavals in different parts of the world, including ours, resulting from food scarcity or

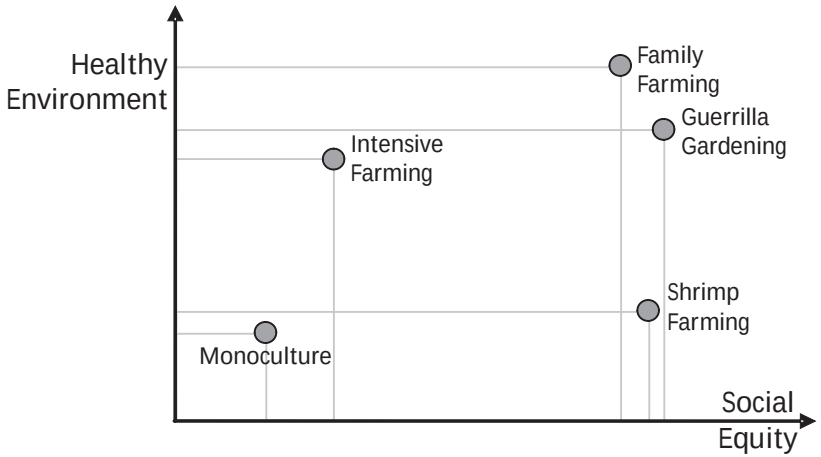
unaffordability demonstrate that equity is a central component not just of liberal, participative democracies but, more importantly, of the very sustainability of these. Equity means that the poor, women, tribal people and other marginalised segments of society have access to adequate food of the type they like. It also means that farmers; marginal, small and large, receive a fair price for their produce and are not misled, nor pressured to produce food crops or use practices that may compromise their land productivity and production decisions in the medium to long term. This issue necessarily focuses on the imperative participatory approach for sustainable policy development, in order to have truly bottom-up decision making processes for designing, developing and implementing coherent policies. We do not have to worry about policy incoherence, if the people are truly involved in deciding their own food and nutrition security.

Implication: It is essential to create strong, viable and resilient communities, which can ensure the health and nourishment of their members by enabling them to access and fulfil their basic needs.

C. Issues of a Healthy Environment – The third commitment is to inter-generational equity and the responsibility we have for our legacy to the future, a factor that requires vastly extending our time horizons. While most past decisions on economic development, including agriculture and food, have been made to deal with immediate problems, on the basis of narrowly-conceived and short-term considerations, we have to recognise the deep and intrinsic trade-offs involved in the technologies and policies we choose, and the impacts these will have on future generations. Recent declines in crop productivity in places such as Punjab and increases in food imports in countries such as China, often within a few decades of introducing high yield cropping, demonstrate that the health of the environment and its resource base is a critical factor in sustainability. Environmental health means that the productivity of the land and soils is maximised and pollution, contamination and erosion are minimised.

Implication: Ensure that the methods of producing food and the institutional frameworks for delivering it do not compromise the productivity of our soils, water or other resources, now or for future generations.

Equity and Environment are closely related, but different methods aiming at food security involve different mixes of these and influence them in different ways. To show this diagrammatically (with subjective estimates for the environmental/equity ratings of each agricultural method, rather than any attempt at numerical precision), various food production approaches are plotted in the chart below:



Each choice has its own requirements of land, water, and ecosystem services and has its own yields of produce per unit land, and especially protein and carbohydrate calories per unit land, people fed per unit land – and these will evolve over time as population dynamics change and resources get depleted.

Policy Coherence and Inter-sectoral Balance

A good balance in investments, say, between the agricultural sector and industry, or between services and natural resource extraction is critical for the economy to grow in an optimal and sustained manner. A balanced economy clearly is a necessary condition for sustainability, and is possible when there is coherence amongst the policies adopted for different sectors.

The “silver bullets” including the various activities that can help bring supply of food into some balance with the demand for it, are necessary and extremely important. The many conferences each year that

reiterate them testify to the broad recognition of how essential these traditional thrust areas are, particularly in the right combinations. But they are not enough. We now need to address the requirements of today and tomorrow and focus on the coherent policies needed to promote new technological innovations, which will enable humanity to leapfrog over yesterday's obstacles that limit growth. New and unfamiliar technical ideas need to be given full support to allow rigorous testing, even when they are viewed with scepticism by the scientific establishment. The time has come to recognise that, much as in nature, breakthroughs can only occur by nurturing emergent ideas and allowing the fittest to survive and grow.

Current examples abound: the astonishing productivity increases made possible by the System of Crop Intensification (SRI) for growing rice, while scoring high on equity and environmental health. Or, similar gains by Organic Farming that rewrite the equations for quantum leaps in naturally enhancing soil regeneration and food quality with lower carbon and water footprints. Or, Aquaponics, which introduces new possibilities for organic, soil-less agriculture and vertical farming, thereby opening up vast new urban and peri-urban spaces for robust urban agriculture.

Urban agriculture is an important policy debate for India, which is lagging far behind many OECD nations that have embraced this concept, keeping in mind that 50% of our population will soon live in urban areas, which are food deserts at present. Without new food policies, the 'Four Pillar' doctrine of FAO and similar conventional approaches imply that massive quantities of food will need to be transported from rural food growing hubs to urban food consumption centres. From the energy policy point of view, this will become quite unsustainable, considering also that:

- One-third of all food produced in India is spoiled and rendered useless before it reaches the table.
- Supply-chain mechanisms lack infrastructure and are impeded by a system of middlemen who delay delivery, force up prices and introduce big frictional losses.
- Conventional agriculture produces about a third of all GHG emissions.

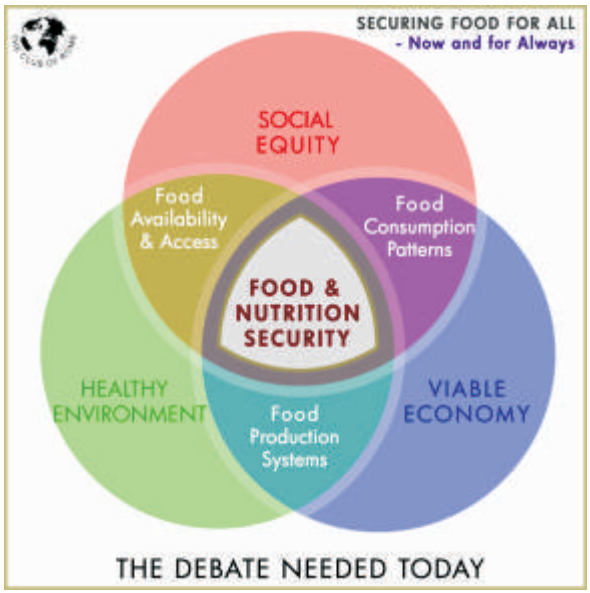
One of the more important needs, now widely recognised is for regenerating the production of pulses and oil seeds. According to the Ministry of Agriculture, India has gone within two decades from being

self-sufficient in these crops t to becoming a net importer of INR 50,000 crores (US$ 8,300 million) worth of produce annually. This will need many initiatives, including improved varieties, seed availability and reviving age-old land-and-water management systems that can provide huge gains in productivity for pulses and oilseeds on dry or degraded lands. The work of many civil society organisations, including Development Alternatives, has demonstrated the enormous potential for growing these crops and much of the knowledge is available to be further built upon.

Thus, one big frontier for improving the food and nutrition situation is clearly, innovation – based on a judicious combination of the latest science and traditional knowledge: innovation that can scale up and become a part of mainstream praxis.

But, again, the Silver Bullets plus these new technologies are not sufficient. Even if all, or most, of these interventions were to be implemented, it is still unlikely that the hunger and malnutrition problem would be fully solved. This is because there are other political, economic and social barriers, not usually dealt with in the current discourse, that undermine the impacts of such well-intentioned policies and actions.

Hence, the debate needed today—is depicted in the following Venn diagram which exemplifies the Club of Rome's commitment to systems-based analysis:

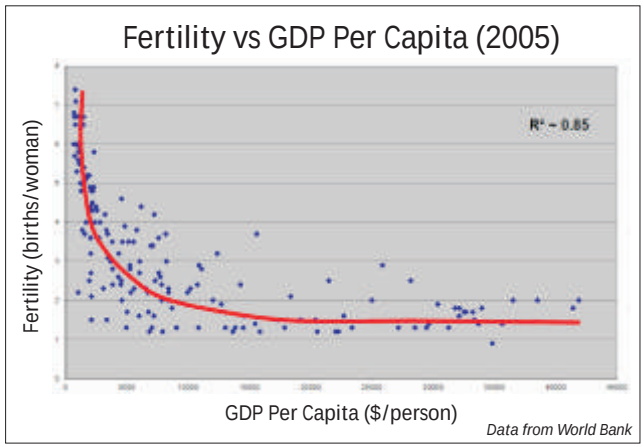


Using these three underlying aggregates—social equity, healthy environment and viable economy—we can proceed to determine how best to identify the object oriented attributes for the following patterns of activities:

- Food availability and access
- Food consumption patterns
- Food production systems

India's achievements since independence are unquestionably remarkable. It has made massive progress not only in industrialisation and infrastructure and information technology and science and

education, but specifically in agriculture – doubling, for example, both grain and milk production in a little over two decades, successes that are quite unprecedented. Yet, we do find a significant portion of our country in the Malthusian trap mentioned above. The normal response is "yes, but we have more people." Which is true, but not a given. Population growth rates are endogenous variables in the development process, not exogenous ones as they have been treated for far too long. We have more people because we have large numbers of people who are poor, hungry and marginalised. History, including our own in various parts of the country, particularly the Southern states, has shown that poor, hungry and marginalised people tend to have high fertility but as soon as their life prospects improve, they start to desire smaller families. In other words, improved per capita nutrition leads to lower population growth, which in turn leads to further improvement in per capita nutrition. It is a self-reinforcing cycle that has been achieved in parts of India but not yet nationally.

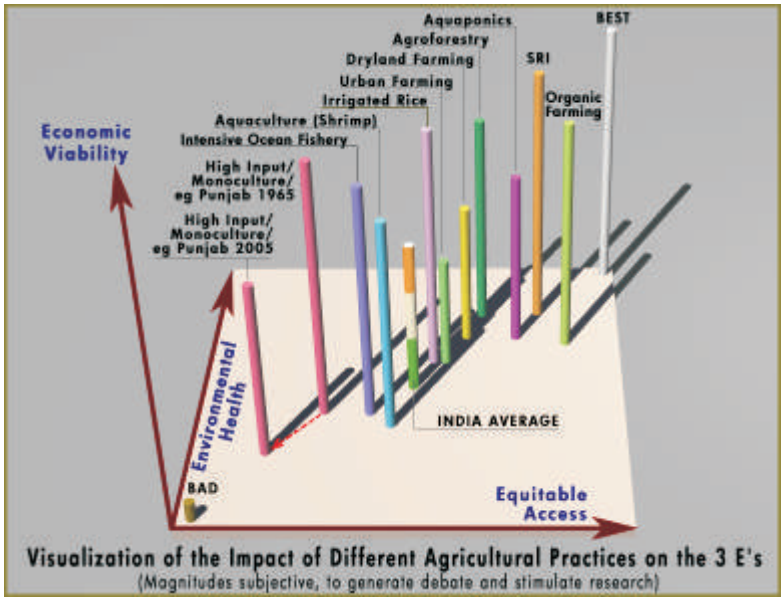


The types of policies needed to jump out of this Malthusian trap now need to be critically designed, to enable the market to deliver adequate nutrition to all citizens efficiently and sustainably. It is unlikely that this will be possible with only incremental changes to existing technologies, institutions and decision systems. Going on tinkering and fine-tuning a set up that has demonstrably not been able to produce or demonstrate the desireable results for six and a half decades is no more saner than Albert Einstein's idea of a madman who does the same thing over and over again, expecting different results. Policy makers have to now recognise that with a new government in charge and with few commitments to past decisions, the time has come to redesign the policy process itself and start with de novo assumptions, a kind of "zero-based policy" approach. This means starting from first principles on issues

such as innovation, technology, economics of agriculture and food and others, continuing of course, with those that are recognised to have worked well.

Central to this must be a firm national commitment to “putting the last first”, or in the Mahatma's words, to “antodaya” – not just as a moral or ethical obligation but as a social, environmental and economic sustainability imperative in the interest of all. Indeed, Gandhi's concepts of sarvodaya and swadeshi are just as important in this light.

When reliable and objective data is available on these patterns of activities, we can develop effective models to make reasonably accurate predictions on the effective mix of activities which will enable us to meet our central goal of providing food and nutrition security for all. For example, a 3D visualisation of a number of typical attributes is indicated in the following image (with imputed values that are indicative and open to discussion and change):

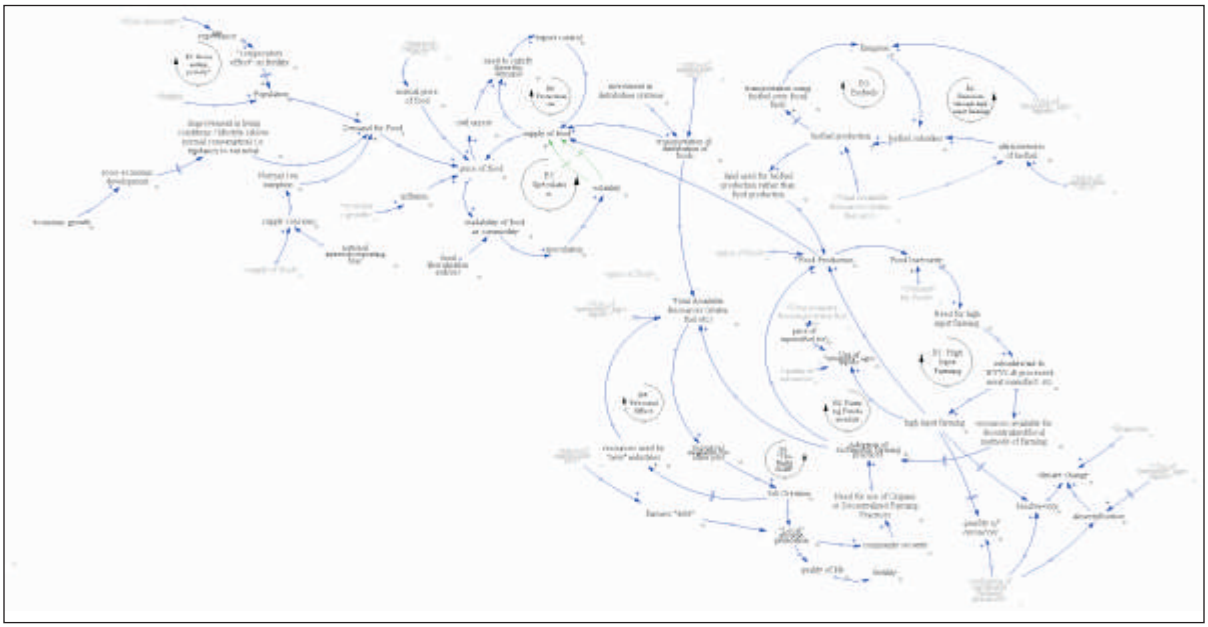


Visualization of the Impact of Different Agricultural Practices on the 3 E's
(Magnitudes subjective, to generate debate and stimulate research)

This visualisation can help decision and policy makers to discern the robust and effective policy initiatives needed to achieve the goal of food and nutrition security for all. It is instructive to note that several of the nascent innovations of SRI, organic farming, dry land regeneration and aquaponics mentioned previously, are placed at the top right corner, signifying high sustainability credentials.

Based on such representations of the attributes of the 'Food & Nutrition Security' debate, we may use various modelling approaches, to simulate the trajectory of food security outcomes in terms of time and space variations. This would enable researchers to get a handle on the sensitivity of food security to various changes in the economic, social or biospheric environment, and provide sensible information for decision and policy makers.

The issues are complex, yet amenable to simple, logical analysis, as the chart below, which describes the linkages between the many factors that affect food security, shows clearly:



There is an urgent need for strengthening the databases and inventories of existing policies that impact food and nutrition security. This will aid in leading to the creation of a matrix of attributes, where each coefficient will map the degree of coherence, or the lack of it, between each policy. This dynamic model will help to quantify the extent of policy and regulatory incoherencies, and provide inputs for institutional policy reform that will lead to coherent practices—a goal that needs the widest possible cooperation. Policies however, are often made with an eye on vote banks and pacifying or benefiting certain constituencies whether the poor masses or the industry – longer term sustainability benefits will need to be linked with or factored in the politics of policy making. This may require identifying the win-wins and how to package them for the greatest impact.

We may conclude that identifying the policy issues related to the three fundamental values of sustainability— equity, environment and economy—whether they are intra-sectoral within the food security nexus domain or extra-sectoral, must be carefully made explicit to enable a meaningful public debate.

While domain experts often have valuable insights (particularly on what has or has not worked in the past), they often tend to have rather conventional, narrow and somewhat restrictive ideas on what should be tried for the future. The need today is for brave and massive innovation – innovation in technologies, institutions, approaches and policies that mutually reinforce each other. And this requires people who can communicate across disciplinary and sectoral borders. We therefore now need widespread consultation with scientists, academics and practitioners, government officials, businesspersons, civil society groups, and the wider public to give advice of value to governments, corporations and other decision makers on:

Policies and actions that grossly distort the pricing of various resources, leading to suboptimal use of these resources and losses to the sector and the national economy include:

- Perverse subsidies – such as for energy, water, fertiliser, transport
- Technology choice – short-term benefits vs. long-term costs

- Inter-state tariff barriers
- Job and income generation schemes
- MGNREGA
- PDS procurement prices
- Land use policies that add to the vulnerability of to minimise risk to crops from to natural disasters
- Land use policies that permit to prevent hijacking of fertile farmlands urban or infrastructure development

Policies that influence, positively or negatively, the willingness, of farmers or businesses to invest in food production and downstream activities such as:

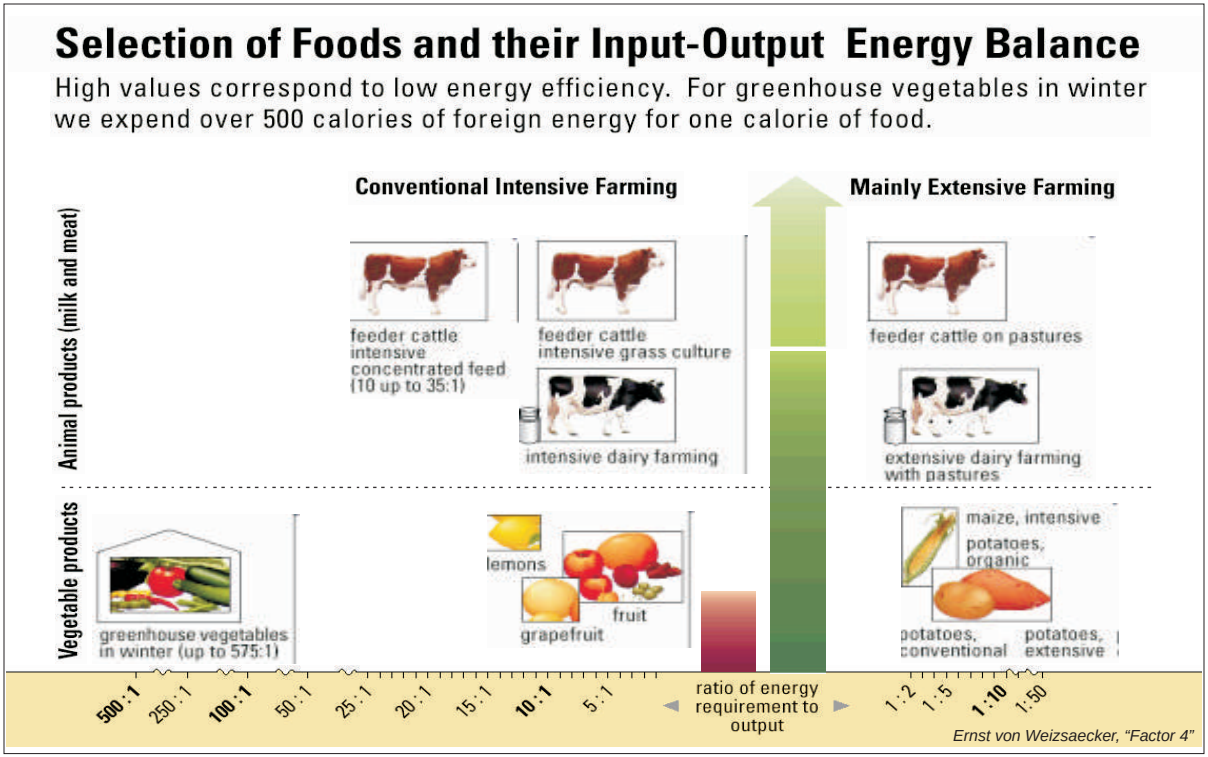
- Security of land ownership and tenure; inheritance laws that promote continual fragmentation of farms
- Improving ecosystem services such as forests, watersheds, coastal zones, mountains and glaciers, grasslands, etc., through appropriate laws and community based institutions
- Incentives and disincentives for cash crops, biofuels, agroforestry and other changes in products and production systems
- Promotion of mechanisation, chemicalisation and financialisation in agriculture and downstream activities
- Market pricing distortions due to hoarding, exports and other administrative, regulatory or legislative failures
- Minimum support prices for crops desired for food and nutrition security, resilience to climate change and reducing risks from extreme events (e.g., financing shifts to new cropping patterns, diversification and flood protection)

Other policies that affect the food security of the population:

- Economic and fiscal policies that maintain or exacerbate economic disparities, and particularly poverty
- Trade policies in all sectors, not just on importing raw materials needed for producing agricultural inputs and for exporting food products (e.g., critical assessment of subsidies for export oriented produce, need for secure access to key foods)
- Energy, environmental and other policies, or the inadequacy thereof, to mitigate or adapt to climate change and its impacts on food security (e.g., biofuels and – or versus – food, extensive agriculture vs. input-intensive agriculture)
- Infrastructure development policies and programmes, especially for irrigation, storage, distribution, etc (e.g, salinisation of soils, spread of diseases)
- Policies and investments in research, especially in areas with clear private benefits such as GMO trials,

In identifying the policy issues that need to be examined and possibly modified, whether they are intra-sectoral within the food security nexus domain or extra-sectoral, their relationships and commitments to the three fundamental values of sustainability – commitment to equity, environment and economy – must be carefully made explicit to enable a meaningful public debate. For example, as the chart below shows, the energy intensity of the chain of agriculture and food from land to table has, over the past six decades, evolved through several orders of magnitude in energy use.

Simply put, the chart shows that the extensive farming practices employed by the grandmother of today's modern farmer (represented by the right side of the chart) produced 50 calories of food energy for every calorie of input. Today's modern farmer, who has drifted to the intensive farming and food processing methods depicted on the left side of the chart, produces 1 calorie of food energy for the several hundred calories of inanimate energy he puts in. Within half a century, the farming practices currently attracting policy support now use three orders of magnitude (one thousand times) as much



energy than the ones that actually produced much healthier foods at the table for millennia. Even if the energy mix that goes into intensive agriculture shifts from fossil fuels to renewables, this form of food production will still make huge demands for scarce resources such as water and phosphorus and pollution causing inputs such as fertilisers and pesticides. This is a rudimentary example of the conflict between national policies purporting to encourage "modern agriculture and food systems" and those that are intended to conserve increasingly scarce resources such as energy, water and land.

Implementation

The concepts outlined above will be meaningless unless they are implemented and lead to results on the ground. Most of these concepts are well known to government officials, businesses and civil society – but the formulation of policies does not seem to be influenced much by this knowledge. Clearly, there exist considerable barriers to rational policy making.

One of these is, of course turf or territorial issues. The silos within which ministries work and the bureaucratic instinct to protect that turf from all new-comers is probably the biggest barrier to rational policy making.

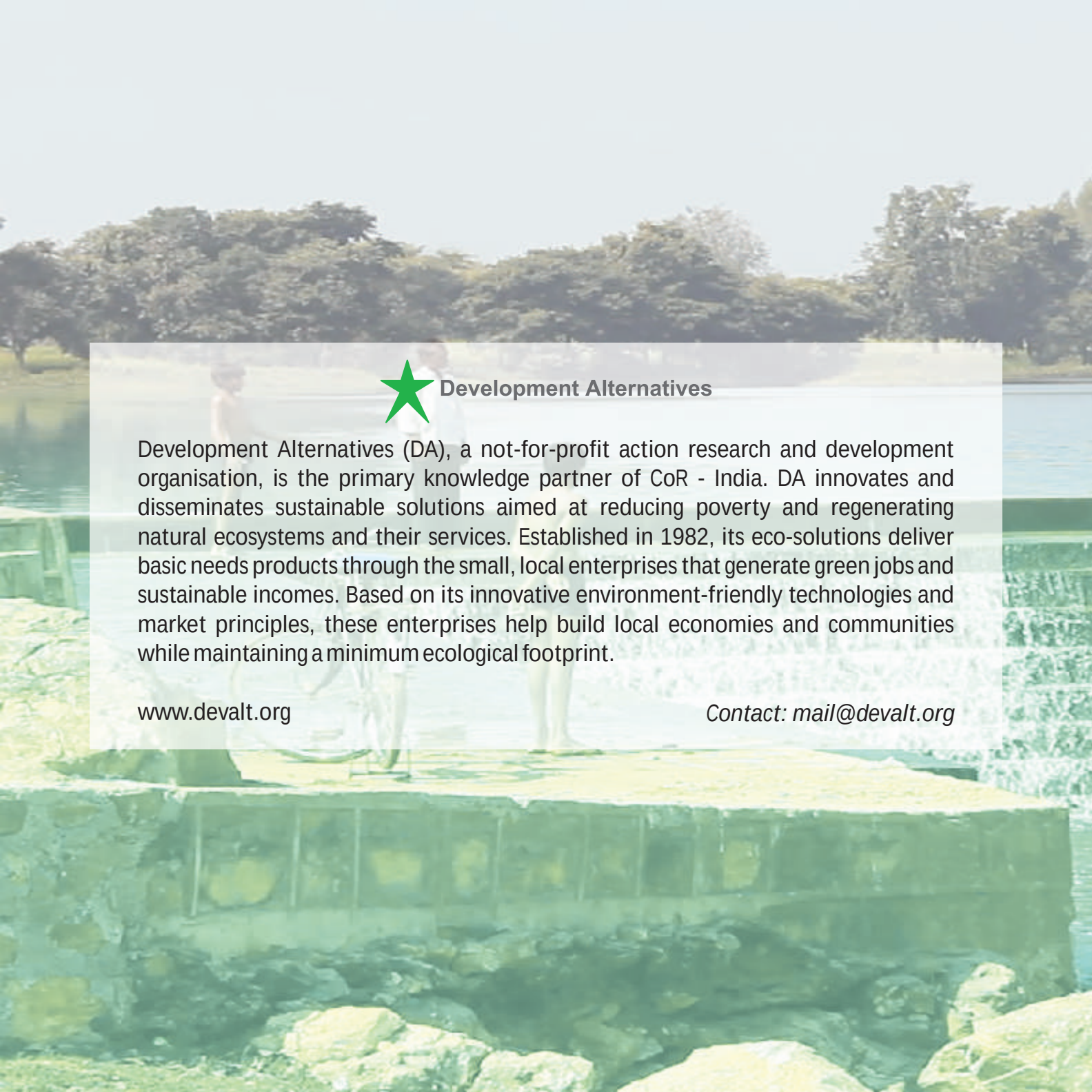
Other barriers include ignorance of the issues, lack of data and attention to research findings, inadequate support to research, lack of respect for the views of others (the "Not Invented Here syndrome"), fear of the unfamiliar, narrowly-defined professional or personal self-interest and the other well-known societal or individual frictional processes such as corruption, inefficiency and lack of concern for the national good.

But such barriers have been overcome in various places and at various times, and given the magnitude of the problem in our nation, India has little choice but to make this the place and time when it happens.

Many conferences take place every year on the subject of "Food and Nutrition Security". The one convened by the Club of Rome - India offers a valuable opportunity to probe the fundamental, root causes across disciplines and sectors, and find solutions that can be translated into policies in officialdom and action on the ground to enable the country to eliminate hunger, malnutrition and indeed all forms of poverty within a very short time.

THE STARK NEED FOR POLICY COHERENCE

The goals of food and nutrition security for all can only be attained if we bring a higher level of rationality and systemic insight into our policy and action frameworks.



Development Alternatives

Development Alternatives (DA), a not-for-profit action research and development organisation, is the primary knowledge partner of CoR - India. DA innovates and disseminates sustainable solutions aimed at reducing poverty and regenerating natural ecosystems and their services. Established in 1982, its eco-solutions deliver basic needs products through the small, local enterprises that generate green jobs and sustainable incomes. Based on its innovative environment-friendly technologies and market principles, these enterprises help build local economies and communities while maintaining a minimum ecological footprint.

www.devalt.org

Contact: mail@devalt.org