

## ON HUNGER AND SEEDS

The 21<sup>st</sup> century is turning into the century of crises. As we face challenges on every level of human, social and ecological reality, the more we try to find answers, the more we find ourselves out of depth in understanding the complex interwoven web of which we are significant but only one part. Food or the lack of it, has become one of these many complicated challenges. 1 out of 7 people in this world are starving or undernourished. And despite our growing economies and technologies, the world hunger is also growing.<sup>[1]</sup> Surprisingly, 1 in every 7 people is also obese. So, while the world hunger is growing every year, deaths attributed to obesity are also on the rise.<sup>[2]</sup>

Since after the Second World War, our agriculture paradigm has shifted dramatically to keep pace with the evolving industrial and economic paradigms. The culture of mono-cropping has grown on some ill-found assumptions and hard realities of the changing social structures in farming communities. As much as monoculture is believed to be the only way to produce high-yields, as a sole solution to feeding the world, it is also easier for farmers who have no option than to resort to mechanization due to lack of hands working on the fields. The farmers who lack the resources to buy machines or employ family members on the farm suffer the most. However, despite the success of turning large acres of land into monocrop systems, the inequity in food distribution couldn't have been higher than ever.

As per studies done in recent times, collectively we grow food already for about 10 billion people (calorie equivalence) but over a third of this food is wasted while harvesting, storing, shipping and so forth.<sup>[3]</sup> Interestingly, over 70% of the food that we end up eating, still comes from small-farms (25 acres or less) managed by communities and families for subsistence, and not from large mechanized monocrop systems as we are made to believe. Also small farms have been found to be 4-5 times more productive than large farms because of their intensive diverse cropping integrated with animal rearing.<sup>[4]</sup> & [5]

It is not a bold conclusion to say that hunger is not dependent on availability or lack of food. While some people grow up in scarcity, some others grow up in toxic abundance. This lopsided global food distribution is the root cause of our failing health either due to the lack of food or because of too much of it. We do have enough food to feed the planet and almost three quarters of it comes from small farms. So where does large scale industrial agriculture fit in this story and how can it help if production is not really the primary challenge? The industrialization of agriculture has led to large scale disempowerment of small farmers, degraded rural lands and culture and polluted our soil, water and air and the poor stays hungry no matter how much more food is produced on this planet.

Our emphatic stress on strategies and policies to feed the world are focused only on producing more food. But we forget that this also means more food of a certain quality. As the world wakes up to appreciate the subtle nuances of relationships of humans with nature, other humans and themselves, the subtle qualities of food and their relationship with human health must also be considered. Cheap food does not mean good food and as a global collective, feeding the world population is rather an insufficient objective. That all on this planet should have access to clean and wholesome food is an idea

worth living and fighting for, and large scale industrial agriculture alone has very little to offer in this regard.

The solution of lack of access could lie in decentralization and localization of production and distribution. But the road ahead is difficult especially for small farmers. Changing climatic patterns and a demand from consumers of non-seasonal, non-local produce due to changes in diet preferences, loss of knowledge of using traditional and local foods along with loss of traditional seed varieties due to lack of skill and subsidies on hybrid seeds has led to a loss in agricultural biodiversity and a degradation of local food systems. As a result farmers have had to grow food based on the lopsided market demands and economic incentives.

This trend is, of course, changing slowly and research and experimentation in rediscovering a balance of natural farming in the current ecological and social paradigms is emerging both on the fields and within the new food distribution enterprises.

## **EVOLUTION OF AGRO-BIODIVERSITY**

One of the markers of evolution, its extent and its function is diversity of life, which we also call biodiversity. From all accounts of science, religion and metaphysics, life has been multiplying not just in number but also in form and expression. This growing multiplicity allows life to enhance its function and extend its relationships within a network of energy, creating impetus for further creations. While the pattern of evolution drives the processes of biodiversity, it is life itself that directs the forms and shapes in which this process is manifested. Forces of nature, microbes, plants and animals, all participate in this grand unfolding. Since human impact has surpassed that of all others, we have been shaping this process even more, consciously and unconsciously.

Our very existence has a definite impact and our role in the ecosystem implores us to walk, work, eat and modify our environment for survival. Yet, in the last few centuries or even since agriculture began thousands of years ago, our impact on our environment has been steadily increasing as we slowly seem to be losing track of what is important and are moving from modification to exploitation.

Communities based on land and in forests have evolved with their ecosystems since millennia. They have been a part of their biodiversity. Not only have the humans evolved within the ecosystems, they have also contributed in protecting and furthering the evolution of these systems. The Amazon forests, which are now being referred to as the oldest food forests, are the perfect example of how human culture can support and enhance biodiversity and create a synthesis of wild and humanized ecosystems.<sup>[6] & [7]</sup> It is only sensible that the conservation movement recognizes the human potential in participating and accelerating the healing processes of life. By creating systems that integrate the health of ecosystems, individuals and communities, we will avoid the need for special conservation programs, delineating indigenous peoples from their habitats and cultures, which have already been found to be ineffective and unsustainable.

This work for humans to participate in betterment of life, not just human life, but social and ecological life, must become the central focus of education in cities and rural areas alike. The farmer is a bridge between these realms of human and nature, selecting carefully the food (and plants of other use) for today and preserving intelligently the seeds for tomorrow. The farmer has the responsibility of deciding the extent of modification of the environment for human needs of food, shelter, clothing etc. , assessing the impact of this modification on the environment and other beings and possibly offsetting this impact by positively enhancing the environment through this change. The awe inspiring diversity we can see in our food crops across the world is a result of careful and unintentional selection by farmers over thousands of years and reticulate evolution within the crop species. <sup>[8]</sup> & <sup>[9]</sup>

The green revolution practices since 1960s have tried to direct this evolutionary mechanism solely based on human consumption without considering long term ecological and social impacts.

With the pretext of creating “desired” varieties of crops, we have abandoned the natural varieties that have evolved since thousands of years with the practices of farming in different parts of the world. These hybrid and now the genetically engineered seeds not only influence the agricultural practices but also dictate what kind of food will be available and consumed. They put the control of the culture of food in the hands of a few *specialists* who decide what can be grown and how based solely on economics devoid of nutritional and cultural considerations and make the farmers dependent on buying these seeds every season rather than using their own traditional varieties. Along with the loss of wild biodiversity, the world is facing a massive loss of agriculture biodiversity, which links directly to the future of food for human species. The culture of hybrid seeds and industrial production of standardised varieties has also reduced farming to a product based activity (as opposed to a process based lifestyle). Other factors that have contributed to this genetic erosion of food crops globally are the gradual depletion of skills of saving seeds and cooking which changes food preferences and how a community values local foods.

Seeds are the currency of the farmer and loss of seed sovereignty is loss economic and cultural independence. Besides being better adapted to local conditions of soil, water and weather, traditional varieties have a natural genetic diversity which makes them capable of evolving with the changing climate. Seeds saved by a farmer or a community are living heritage of a culture and promise of good food for its future generations.

## **GLOBALISATION OF FOOD**

Food crops have travelled across the world through natural and human agents since millennia. Since the advent of international human trade, this exchange has accelerated with more and more intentional introduction of foreign plant species in ecosystems for food, timber, aesthetics etc. In some cases, this has resulted in increased biodiversity of an ecosystem and in some cases, the foreign species have invaded aggressively dominating and eventually suppressing the native plant species. Nicolai Vavilov, a maverick Russian plant geneticist, was among the pioneers in launching expeditions in the early 1900s to

different continents to discover the origins of the crops of the world and find their wild varieties in an attempt to build a diverse crop system for Russia. His work of course went beyond Russia and inspired many people around the world to pay attention to genetic development of plants and their origins. But some would question the work of Vavilov and others in bringing foreign plant species into an ecosystem. The debate on invasion biology is more ethical than technical.

In my view, globalization of food is an inevitable reality and will happen, whether humans contribute to it or not. Humans can consciously participate in this process while valuing both new and the old, the possible and the traditional. It is in the spirit of human unity, another inevitable reality that the food and food crops continue to diversify across the world. Introduction of the new varieties and species could only be meaningful if it is to enhance an ecosystem function and not replace a traditionally native variety or specie. Thus, diversity of seeds and the role of farmer in maintaining and augmenting this diversity are the cornerstones of food security for a village, town and the world.

This globalization of food and food crops must not be confused with the current globalization of food production and distribution system where something produced in India is exported to Europe for better prices while people in India suffer from hunger. Food production and distribution can only be sustainable at a scale which is local and small with these small scale systems connected to each other to share surplus and knowledge. Only in such a local system, both the farmer and the consumer will have a voice on what kind of food they would like to grow and consume, and both will have the information on the sources and processes involved in the production and propagation of seeds and food.

The 21<sup>st</sup> century, the century of crises also presents us with the opportunity of making it the century of transition, a transition which goes beyond the physical and involves the invisible, a transition to scales that human beings can understand and work with, a transition into finally recognizing our power as a species and our responsibility as stewards while manifesting our individual and collective aspiration for truth and beauty.

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