

INTERNATIONAL JOURNAL OF LEGAL SCIENCE AND INNOVATION

[ISSN 2581-9453]

Volume 3 | Issue 3

2020

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Right to Food and Role of Technology in Food Security

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ABSTRACT

The access for food should be physical as well as economical to every human being. Every country has the duty to provide their citizen with safe and nutritious food. The access of food should have any barriers and quality should be accepted by the mass. This paper critically analyses and evaluates the legislations related to Right of Food in India International law and the directive principle of the Constitution of India guarantees adequate housing as a human right. In many cases the Supreme Court has held that it is a very important part of right to life, but majority of Indian population in urban as well as in rural areas live in a very inadequate and insecure condition. Where they are not provided with basic amenities such as water, shelter and proper food.

The inclusion of technology in the agricultural sector is making the lives of the farmers convenient but on the other hand the excessive use of chemicals are degrading the health of human lives. This paper is an effort to find out insights on the provisions available with relation to the Right to food and evaluate the interrelation of science and technology with food security. It is important to understand the Human rights aspect in food security and how technologies are in favor or adversely affecting the Human rights.

Keywords: Technology, Food Security, Right to food, Agricultural, Constitution

I. INTRODUCTION

The food chain start from the initial step which includes the selection of seed and harvesting to the final step when it reaches to the consumers. In countries like India with diverse population, many people suffer with health issues related to unhealthy and insufficient access to nutritious food. Diarrhea is one of such diseases which is increasing day by day.

Food insecurity is state where people are unable to access or intake of food due to various reasons such as financial, access problem or other resources related issues. There is need approve the agricultural sector due to increase of food insecurity in our country. The demands of the people are growing rapidly as the population is increasing. Hence, technology should

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be used to increase the food production in our country. According to the UNCAD -The role of science, technology and innovation in ensuring food security by 2030³. Across countries, people residing in rural areas are most susceptible to food insecurity due to restricted availability of food and financial services, with 50% of them being the smallholder farmers producing on marginal lands that are especially vulnerable to the negative effects of severe weather conditions, such as famine or floods. The remaining 20 percent live in developing nations on the urban outskirts. Hunger demographics are closely linked poverty. Where about 70 per cent of the population is poor. Global poverty is represented by rural areas' poverty. Smallholder farmers, are dependent on agriculture. It is also true of famine and undernourishment, which are widespread in rural areas.

Food is known to be as one of the Millennium Development Goals by the United Nations. The agricultural depart is interrelated with hunger and poverty in a particular society. Food is one the most basic need of every individual to fill their stomachs and lead a healthy lifestyle. In 1996 The world food summit defined the term Food Security It is the state when every individual have stuffiest access , safe and notorious food which can help them to lead healthy lifestyle.

II. FOOD SECURITY AND RIGHT TO FOOD

Before we establish a link between food security and right to food let us see what exactly is food security. *“Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”*⁴ The concept of food security in the olden generation was not well established but from the past few decades it has evolved quite a lot. Due to which various aspects have come in to light such as nutrition, sustainability, etc. Food security established four pillar, namely, stability, availability, utilisation and access. Food security is based on what the people want and need and involves policies . On the other hand, right to food is a legal concept in the sense that it is a fundamental right and it is the obligation of the government to provide the right to food to everyone.

The national food security Act 2013, was introduced to promote right to food and provide food security. This was done by assuring that people had access to adequate amount of food of good quality at a reasonable price. This Act was very important as more than 10 crore people in India live under the poverty line and do not get even one meal for days. So, this Act

³ https://unctad.org/system/files/official-document/dtlstict2017d5_en.pdf

⁴ World Food Summit, 1996.

helps provide these people with food to increase their nutritional level.

Salient Features of the Act

1. Targeted Public Distribution System (TPDS)- This system covers 75% of the rural population and 50% of the urban population and provides 5kg of rice per person per month. The poorest of the poor still receive 35kgs of rice per household per month under the Antyodaya Anna Yojana (AAY). The price charged is Rs. 3/2/1 per kg for rice and wheat.
2. The Public Distribution System also provides nutritious meals free of cost to pregnant women and lactating mothers and children up to 6 years of age. Maternity benefits of Rs. 6000 is given to pregnant woman and lactating mothers.
3. For the purpose of issuing ration cards, the eldest woman of the household who is 18 years or above is the head of the household which leads to women empowerment.
4. Grievance Redressal Mechanism has been made available at the District and State levels.
5. The expenditure of the State in transporting of food grains within the state and its handling will be devised and the Central Government will assist the states to meet the expenditure.
6. To ensure transparency and accountability provisions have been made to disclose records relating to the Public Distribution System. Vigilance Committees have also been setup.
7. If there is no supply of the entitled food grains and meals then there is a provision for food security allowance to the entitled beneficiaries.
8. If a public servant or authority fails to comply with the recommendation of the District Grievance Redressal Officer then a penalty will be issued by the State Food Commission according to the provision of the Act.

Analysis

1. Technology and scientific developments is very important for food security as it helps companies and farmers by reducing the burden and warning them before a calamity so that they can be prepared for it.
2. Internationally UDHR and the UN are playing a vital role in ensuring that food is being provided to people and countries who need it desperately. It has made sure that countries develop in their own national laws a part which provides free and equal opportunities to people who are below poverty line.

3. Nationally, Indian Constitution says that right to food is a fundamental right which cannot be taken away even by the government. National Food Security Act, 2013, was established so that there is a regulation and the government can make sure food is supplied adequately to the needy.
4. This act also introduced fair price shops which had digital and cashless payment options. It even constructed more godowns which increased the total storage capacity.
5. Women Empowerment under this Act has been mentioned but proper implementation of the same cannot be seen as still in many families the male adults make all the decisions.
6. States like Tamil Nadu have a better model to eradicate poverty than this Act. Tamil Nadu has eradicated 60% of their poverty and have also succeeded in food security due to an efficient Public Distribution System.
7. 'One nation, One ration card' is a good system but it is very tough for its complete implication. For example in this present pandemic the production of food grains has decreased and many people are not getting even one meal a day. States cannot fulfil the basic food needs of their own particular state so if a person who comes from a different state and asks for ration then the State would not be able to help, hence, disregarding 'one nation, one ration card'.
8. Even though the Public Distribution System has helped, there is 40% of leakage of ration to the open market. Steps have to be taken to monitor the Public Distribution System efficiently.

III. HUMAN RIGHTS ASPECT IN FOOD SECURITY

Human rights are the fundamental rights of every human being, to which every human being is inherently alienated. Human rights are same for every human being (universal). The Human Rights can be divided into legal rights or natural rights. All human rights are inter-related and Universal concept. They cover all kinds of rights such as cultural, social, economic or political, which are guaranteed by conventions or treaties. With the introduction of the constitution, human rights which can also be known as fundamental rights have been jotted down and are followed by the people. They are considered to be the most influential law made by the legislature. It is considered a duty of every citizen to protect the rights of other human being. From the constitution itself, one can interpret the right of women in the society.

Coming on India now, India has various laws and regulations India has a large population but it hasn't achieved a sustainable growth rate and promise to provide basic human rights to

each and every citizen is not fulfilled.

According to the Utilitarian theory which is also known to be the most influential theory. Which talks about that it is essential for the law makers of the country to ensure happiness throughout the community by providing them four fundamental rights. The four fundamental rights are subsistence, abundance, security and equality for every citizen. Therefore, it is the fundamental duty of the state to frame legislations according to the fundamental principle which also includes right to food.

Roscoe Pound was the founder of the sociological school which lays emphasis on how law plays a very important role protecting the social interest of the citizens. The main objective of framing legislation is to provide ultimate satisfaction of the individuals. Hence, this theory also promotes the nation to provide proper access to food .

The theory of legitimate expectations is a doctrine in which the society is obliged to fulfill the legitimate expectation of their citizens, Therefore, food is a very basic need to every individual and the government has the duty to meet the expectations of their citizens, It is the duty of the government to ensure eradication of hunger and malnutrition from the society.

The Constitution of India does not expressly mentions the right to food as a fundamental right. However, there are various other provisions and enactments under the Indian constitution which provide the citizens with nutritious and healthy food to everyone.

The preamble of the Indian Constitution talks about socialism. The word socialism means that everyone including the section of individuals belonging to the below poverty line category should be provided with quality food.

Article 21 is one of the most important provisions under the constitution of India, which provides the right of basic human rights to each and every citizen. That is no person shall be deprived from personal liberty, integrity, dignity and to live freely. Violation against women can also be considered as a violation of fundamental right. That is article 21 of hampering the dignity integrity and self-respect of women. Article 20 provide a facility for the accused women, that no person including a woman shall be convicted, prosecuted or punished for the same offence more than once. Since the need for food is one the basic need to live a life with dignity it falls under Article 21 i.e. Right to life.

The public distribution system came into existence in 1939 in India. This was an effort taken by the Indian government to protect the consumers of rural and urban India for the unpredictable grain prices. The PDS system had brought a change in the access of food by the citizens of India. It is one the major steps taken to achieve food security. This was an initiative taken by

the Ministry of consumer affairs and public distribution which was managed by the state government. The main aim of objective of PDS system in India is to ensure food security and eradicating poverty by providing basic and all essential commodities to each and every citizens of India. It is essential that every citizen has access to food at an affordable and uniform cost.

Technology has also played an important role is maintaining transparency and accountability in the system. Computerization of the entire supply chain of the PDS system in India can be a very effective if implemented properly. This can help in managing the challenges of food insecurity. It helps in proper and effective management of crops in the agricultural sector.

IV. ROLE OF TECHNOLOGY IN FOOD SECURITY

Technology plays a very important role in this modern and growing world. When the United Nations Sustainable Development Goals were adopted it set a target or a motive to eradicate global hunger by 2030. During the initial years the number of hungry or malnutrition people reduced significantly but since the past few years the number of hungry people started to rise again. This is due to floods, droughts and mainly due to lack of technology. Technology helps develop gadgets or advanced weather systems which would help farmers to prepare for a disaster if it strikes. Due to lack of technology farms are getting hit by severe weather more often destroying the crops which would feed many families. So, many farmers have given up farming which leads to less availability of food. These farmers then leave their homes in search of opportunities to a place already well populated which in turn leads to less distribution of food and causes malnutrition. So to end global hunger it is very important that the farmers should be well supported which can be done through technology. . Let us discuss few technologies which have helped in food security.

1. In countries like Egypt, Sudan and Ethiopia a new type of technology is developed which provides information and advice regarding the weather to farmers who require it. This helps farmers to make informed decisions which helps their land. Information to these farmers are provided through and SMS service in their local language. The farmers can also through a simple text notify the timing and amount of irrigation. Online data portals allows the advisors to monitor all individual fields and report any unusual activity to the relevant farmer. This is done through high resolution satellite imagery.⁵

⁵ Gijs Simons, Governance and Policy, <https://wle.cgiar.org/thrive/2014/03/10/new-sms-service-connects-farmers-weather-and-water-information>. (Accessed on 29/10/2020)

2. Genetically Modified Organisms (GMO) is used in farms and is a biotechnology that has been genetically engineered to have traits like herb resistance, pest resistance and increased nutritional value. This technology was first used by USA on a tomato in 1994 and was soon available in the market after it was approved by the Food and Drug Administration (FDA). After this by 1999, millions of acres of farms used genetically modified seeds. Europe soon followed in using genetically modified seeds. In 1997 it hit the market and GMO labels were made mandatory. Transgenic modification is done through unrelated genetic organisms that cannot be crossed by natural means. These types of crops benefits the farmers by making the crops more resistant to pests and insects, requires less water and has more nutritional value. So even if a area has water scarcity or a drought this technology can help increase the productivity of crops in that particular area. A well known example of genetically modified crop is BT cotton in India which produces in an insecticide to combat bollworm.

3. Internet of Things is very important to food technology. This technology helps farmers and others to interact with each other by transferring data which is done by sensors already embedded in farms. Sensors give data, for example, when crops require water the authority is made known and water is provided to that particular farm. Internet of Things help improve food safety and makes sure that the crops are not damaged and that there is less food scarcity even though the it affects the privacy of farmers and companies.

4. Early Warning System- Eighty per cent of the estimated 1.4 billion hectares of global cropland is rain fed, accounting for approximately 60 per cent of worldwide agricultural output.⁶ If early warning systems are advanced with good technology then the farmers would know when there is going to be rainfall and hence, they can capitalise on it.

5. Drones are a part of precision farming and are very important. With the helps of robotics and GPS tracking systems farmers can monitor soil levels, crop yields and also the weather patterns which helps in increasing the efficiency on the farm. This is done majorly with the help of drones. They hover around fields and help identify a damaged crop so that it can be tended with immediately to avoid the crop from dying. With the increase in the volume of products required drones can help produce more goods at a faster rate.

Green Revolution is one the most important step taken during the 20th Century which brought a huge positive change in the agricultural industry. It was an initiative which was supported by the Rockefeller Foundation and the Mexican Government also played an

⁶ http://securingwaterforfood.org/wp-content/uploads/2016/03/2015-SWFF-Annual-Report_Press_Print-Version.pdf.

important role in uplifting the Revolution all over the world. The World Bank also backed upon the Green Revolution which help the revolution reach people around the globe. The technological developments are used to enhance the quality of decision making concerning the human rights factors. One of the reasons for the birth of human rights was the Industrial Revolution, which brought different models of development into existence. The state of growth in the society has provided opportunities to the individuals and given a chance to democratic participation of the citizens. The increase in the use of automation and artificial intelligence has impacted the right of individuals to fair and decent work. The technological revolution is changing the way of living, interaction and work behavior human beings. The technology empowers the people with the right to use opportunities such as building networks, share ideas and tell stories. For example, the internet today provides a broad scope to work, study, and easy access to other necessities, while creating awareness among the individuals about their legal and human rights.

TECHNOLOGICAL ADVANCEMENTS IN THE PROCESS AND DISTRIBUTION OF FOOD THE AGRICULTURAL INDUSTRY

Biotechnology

The systematic utilization of microorganism or components produced by those microorganisms in the process of agriculture to increase the yields is known as Biotechnology. There are various use of biotechnology in the agricultural fields such as protection of plants, preservation or in the process of transforming the raw products in the edible items for the consumption of human being. The Biotechnological advancements are used in different sectors of the agricultural industry.

The application of bio technology is used for various purposes such as to produce genetically modified plants or crops agricultural processed food, bioremediation, therapeutics diagnostics, waste treatment and production of energy. This technology is helping various countries to combat food security and fulfilling the basic need of the individuals.

Bio fortification is the process of breeding crops with a crop with high vitamins, proteins, fats and other minerals. This further helps in increasing the nutritious value of the food product. The Indian agricultural Research Institute, New Delhi has come out with new variants of many vegetables such as spinach which is enriched in vitamins.

Plant breeding foe disease resistance crops is also an example of us of biotechnology in the agricultural industry. In the tropical climate the plants suffer with an attack of wide range of fungal, viral and bacterial pathogens which adversely effects the cultivation and production

of crops. Sometimes almost 30% to 40% of crops gets damaged. Hence, disease resistance crops are developed do reduces the damages suffered by the farmers. This also helps the dependency of crops on the chemical fertilizers and pesticides which is not food foe human health. Resistance of the host plant has the ability to prot6ect the pathogen from causing any problems to the crop.

Nanotechnology

The subset of science which is dealing with the nanoparticles that are particles which are very small and cannot be seen with naked eyes is known as Nanotechnology. This technology helps in understanding the plants at a microscopic and molecular level. The technology is helpful in increasing the efficiency of the agricultural industry and can be essential for the whole process of food protection. It also helps in protecting the environment from further degradation, which is increasing due to the rapid use of technology. It is also helping the farmers in storage of food products and ensures safe distribution of the items.

Information technology

Information technology is in a way empowering the farmers by increasing the productivity. IT is providing relevant information such as the correct forecast of the weather is helping the farmers in making the right decisions by harvesting and sawing the correct seeds at the correct time.

V. CONCLUSION AND SUGGESTIONS

The application of technology in the agricultural sector. Food security is one of the main concerns nowadays. It is important that the government is able to fill the empty of the people in their country. It is essential that country focus on new innovations which can make the process of food production easy and convenient. The technology should be applicable at each and every step of food production to reduce the pre and post harvesting loss. The new technologies with provide high and quick results, which is not possible with the traditional methods of agriculture. It is one the way by with the country can fight hunger and poverty.

The country should explore and promote new technological advancements, which can help combating the challenges related to food security. Right to food is a Human Right which belongs to every individual.

In the end I would like to conclude by saying that Right to food is one of the most important Fundamental Right and should be protected at all costs. Right to food is a human right as well as a legal right. It protects the right of all human beings to live in dignity, free from hunger,

food insecurity and malnutrition. If the Government of India can implement the Public Distribution System effectively then the Act can be even more successful which would then lead to a sharp decline in the number of starving people.
