**Preface**

**Pandit Jawahar Lal Nehru,the first Prime Minister of India made the much quoted advice to his well known members of the First Planning Commission of India-Dr P C Mahalanobis and Dr C R Rao-“Every thing can wait but not Agriculture”.His worthy daughter Smt Indira Gandi started the GREEN REVOLUTION and made India a proud nation ,self sufficient in food.”Jai Jawan and Jai Kissan” –the slogan coined by Late Lal Bahadur Shastry gave much encouragement to farmers to produce more and called up on agricultural scientists to strengthen farmers with location and crop specific technologies.Science led agriculture under the leadership of Prof,M S Swaminathan further embellished and guided by Norman Ernest Borlaug transformed the policies of the political leadership to self sufficiency in food production.Academic and research Institutions like UPAU,Pantnagar(Present GBPUAT,Pantnagar),PAU Ludhiana(expanded to CCSHAU,Hissar,HPAU Palampur and PAU Ludiana),BCKV Kalyani,ICAR IARI New Delhi and ICAR CRRI Cuttack dis notable contributions to transfer technologies to farms and farmers.The public distribution system came into existence and the present Targetted Public Distribution System(TPDS) made food grains available at the door step of farmers.A landmark legislation “National Food Security Bill-2013” was passed and the “NFSA-2013” is now implemented in majority of states.India followed Brazil in making availability and access to food a right to citizens.Availability and access to safe drinking water is vital to absorption of nutrients in the food consumed.The concept of zero hunger was was introduced by the then President of Brazil,Lula da Silva, who took steps to address ,in an integrated manner,the three major dimensions of food insecurity,namely availability, access and absorption in the body(2014).Ban Ki Moon,Former Secretary General,U.N. reported to the 68th session of General Assembly the progress made towards Millenium Development Goal with the objective of “Dignity for All”.Arvind Subramaniam(2016) pleaded for transforming Indian Agriculture by “loving some agriculture Less and the Rest More”.While addressing the Indian Horticulture Congress in 2016,Ramesh Chand pleaded for “market liberalization for horticulture revolution at small farms”.The National Academy of Agricultural Sciences,New Delhi organized consultation on “mismatch between policies and development priorities in Agriculture” and came out with a policy paper.”Doubling Farmers Income’ by 2022 when India celebrates 75 years of Independence is a national policy of the Government.This involves all gamut of activities with farmer at central statge-production,productivity,soil health,water for irrigation,”waste as wealth”,value addition and product development,MSP and MIP,trade-national and international;finance and WTO obligations.**

**Chapter I “Zero Hunger India:The challenge” by R.B.Singh elaborates the state of global hunger , its economic, social and political consequences.Over 98% of the hungry have their homes in the developing world,790 million of the worlds 805 million in 202-14.The sub-saharan Africa had added 48 million additional hungry people to its already high number of 176 million in 1990-92.Binoo P.Bonney *et al* (2018) made an economical analysis on hunger and food security in India.Thomas Malthus (1806) was the first to address food security in his seminal work “An Essay on the Principles of Population” and he challenged the sufficiency of the global food supply to feed the human population with his idea of exponential population growth against the arithmetic progression in food production.Ever since Malthus ,there have been continuing debates on the dynamics between demography,food production and agriculture.The production of grains, fruits and vegetables in India in 2018 showed the limits of Malthusian theory in Indian Agriculture. Praveen Kumar Jain in chapter III questions the linkage between food security and hunger in India.Eradication of hunger is a monumental task in India.”Population stabilization policies are a must for sustainable food,health and livelihood security in many developing countries.If population policies go wrong nothing else will have chance to succeed” the words of M.S.Swaminathan become relevant.A.T Francis(Chapter IV) elaborates knowledge management perspective of zero hunger challenge programme in India.Being a Librarian,he exposes readers to literature on zero hunger in Global and Indian perspective.Indira Devi and Judy Thomas(2018)(Chapter V) write on economics of gender initiatives for hunger free India.In fact agriculture is feminine and women started the art and science of agriculture while men went hunting.Conservarion of genetic biodiversity was always the prerogative of women.Biodiversity plays a major role in nutri-pharmacological rich plants both exploited and underexploited.Todays underexploited plants become tomorrows cultivated crops.Genes against biotic and abiotic stresses and nutri-richness are in underutilized and underexploited crops.Jayasree Krishnankutty and Peter(2018)(Chapter VI) deal with nutritional security and women empowerment.Despite progress made in human resource development including education and health women and children are disadvantaged and many anti-poverty programmes have not reached them.Women being now considered as head of family at least in Family Ration Card is a significant relief.Prema Ramachandran(2018)(Chapter VII) elucidates ever green revolution :key to improving dietary diversity and nutritional status of Indians.Prevalence of micro-nutrient deficiencies continues to be very high due to lack of dietary diversity and poor access to and consumption of fruits and vegetables.Madhavan Nair and Mahtab Bamji(2018) make a critical analysis on “The challenge of hidden hunger-Micronutrient deficiencies” in India.Thirteen vitamins and 13 minerals are recognized as important micronutrients for health-iron,iodine,zinc and vitamins A,C,folic acid,B12 and C.-.Narayan Hegde(2018) pleads for promotion of horticulture-fruits,vegetables,tubers-for nutritional security.Malnutrition ,low agricultural production and rural poverty are closely linked in India.Brahma Singh(2018) elaborated use of new age herbals-seabuckthorn,noni,Artemisia,Indian Hawthorn,Micro-greens,edible fungi,medicinal cater pillar and mushrooms-as possible high value nutra-pharmacological bio-sources.(Chapter X).Mitra and Rajendran(2018) reviewed role of fruits to manage hidden hunger.Setting up of integrated farming units of fruits and vegetables and high density model orchards which utilize every inch of available cultivable land will help us to meet hidden hunger due to deficiency of minerals and vitamins in the diets taken(Chapter XI).Minor fruits like rambutan, longan, durian,litchi and mangosteen are carriers of essential minerals and vitamins(Tripathi,2018).Among plantation crops,cashew has manifold products-nuts and apple-.Cashew apple is the raw material for juice both fermented and unfermented,candy,syrup and paste with high content of nutrients(Sobhana,2018).Coconut is another plantation crop yielding nuts,inflorescences and saps providing livelihood security to millions in South East Asian Countries and India.Vegetables are the reservoirs of fibres,antioxydants,minerals,vitamins and lipids and pigments.They are alkaline on digestion and provide much needed fibres for intestinal micro-organisms(Hari Har Ram,2018).Peter,*et al* (2018) discuss mitigation of food and nutritional insecurity of the masses through vegetables in this millennium.Navya and Desai (2018) reveal microgreens grown both in homesteads and under protected cultivations.Micro greens are reservoirs of fibres and nutrients from leafy vegetables like lettuce,mint,amaranth,pulses and cole crops.Janakiram and Prasad(2018) open up opportunities in floriculture to provide livelihood opportunities.Ayyappan(2018) calls for “fish for food and nutritional security”.Aquatic resources contribute to global food basket and fish alone provides over 20% of the dietary protein.Vincent (2018) compliments and calls for pisciculture for nutritional security.Fish is one of the most traded food commodities on the global market.Pandian(2018) calls for a review by the Government on the ban on research and trade of sea cucumbers and ornamental fishes. Sea urchins,sea grasses and mussels can provide livelihood security to fishermen community otherwise marginalized and economically backward.Safety of fish consumed is a matter of concern with the emergence of freezer technologies and unawareness about food safety standards.Satyen Kumar Panda and Ravishankar(2018) discuss safety of aquacultured products and emerging issues and challenges(Chapter XXII).Biotechnology has emerged as an effective tool in several phases of crop improvement-cell and tissue culture,cryopreservation,transgenics, genomics,proteomics and genetically modified plants.Biofortification of grains, pulses, oil seeds,fruits and vegetables have become realities.Designer plants,resistance to biotic and abiotic stresses and crop forcing technologies are transforming agriculture into an industry(Soniya *et al*,2018).Climate change leading to rise in temperature,rise in sea water level,melting of glaciers etc are affecting agriculture world over.Rao(2018) elaborates climate change and agriculture.Among inputs for production water is the most critical.With unscientific use of irrigation water,water levels have gone down and availability scarce.”More crop per drop:towards food and nutrition security” by Joseph (2018) opens up possibilities for scientific water use and minimum water loss.”One drop one crop” is the ultimate goal.Prasad(2018) calls for better linkage between scientists and farmers for effective transfer of science and technologies.”Farmer first and Farmer last” was the slogan which needs refinement in view of globalization of agriculture,change in lifestyle,change in Government policies especially aftermath of joining WTO by India.**

**The book “Zero hunger India:Policies and Perspectives” assembles views and experiences of established experts in agriculture,horticulture-fruits ,vegetables and floriculture-,fisheries and extension experts to make an India of Gandhiji’s dream.**