Sustainable Development Goals (SDGs) 2030: A myth to reality

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Abstract

The Sustainable Development Goals (SDGs) 2015-30 aims at ending poverty, eliminating hunger, achieving food security, providing quality life for all the people on the planet earth by providing health and education to all. The agenda includes achieving these goals while sustaining the resources of the planet. Increased food production using sustainable Agriculture is at the heart of fulfilling the 17 SDGs.

The author has been involved in undertaking research and development projects in the field of agriculture in India and Africa (Ethiopia), the two regions contributing to 579 million of 805 million hungry people in the world. Our findings have been that the farmers in these countries are mostly uneducated and have little knowledge of the modern tools and technology for enhancing their yield. The governments, administrators, and even agriculture educationalists have so far failed to define a clear plan for implementation of SDGs.

The new mantra being adopted by developing countries is to increase the minimum support price (MSP) which does not contribute to the enhanced yield to meet the need for present and additional food requirements of 59% to 98% by 2050 due to increase in population. The author is of the firm opinion that the farmers need extensive education to resort to a knowledge agriculture of precision farming using tools such as Auto-steering and controlled traffic farming (CTF), Video cloud-based intervention, internet of things (IoT), Greenhouse technology, artificial intelligence (AI), decision support system (DSS) etc.

Keywords: Sustainable development goals; SDGs; Poverty; Hunger; Agriculture; Developing countries; Knowledge agriculture; Precision farming; Education

Abbreviations: AI: Artificial Intelligence; DSS: Decision Support System; MOOC: Massive Open Online Course; UAV: Unmanned Aerial Vehicle; UECS: Ubiquitous Environment Control System; SaaS- Software As A Service

Introduction

The sustainability development Goals is being planned as a panacea to eliminate hunger, poverty, illness, diseases, and address environmental issues and all other problems plaguing the earth. This is a well-meaning plan on the lines of utopian concept mentioned in the verses of bible, "With joy you will draw water from the wells of salvation" (Isaiah 12:3, Bible) or "Sarve Bhavantu Sukhina- Auspiciousness be unto all" (Brahadaranyaka Upanishad). The planet earth has at present 7 billion population out of which 4.5 billion people live in Asia and Africa which are also the home of about 936 million people living in extreme poverty; hungry, stented and deprived.

The world population and the resultant food requirement is estimated to increase by 50-90% [1-6]. Agriculture is the key to attaining the SDGs. The population of farming community in the world is about one billion. 95 million farmers live in Asia and Africa [7]. Agriculture productivity in these continents are extremely low due to absence of use of modern tools and technology by farmers. To site an example the productivity in India per worker is 2% as compared to the productivity in USA [8]. Political compulsions have forced to take easy route of subsidies, loan waiver, regulating MSP to please the farmers rather providing training, skill and attitude to increase productivity. Under the scenario and looking at achievements of last three years, SDGs need herculean efforts by the nations.

We undertook a survey of methodology being used by farmers in Bihar State of India. We find that the farmers had no access to good seeds, fertilizers, access to banks and markets and lacked skill and knowledge to use modern tools and technology [9]. However, they were willing to get educated and experiment with modern techniques if made accessible. There was lot of improvement in yield per acre after sustained education and training [10]. SDG aims at increasing the food production sustaining the planet resources and environment. This may be possible by adopting the precision farming which focusses on optimal use of resources. The modern technology comes to help in this. In advanced countries, Sensors and instruments are used to capture data regarding heat, light, moisture, humidity and the health of the plant using satellite or other broadband services from a remote location. The data is analyzed using DSS and Predictive software to determine the optimal needs.

Devices such as UAV, auto steering and controlled traffic (CTF) tools are used to treat specific plant or area needing attention. Big data and AI software is being used in Arizona to increase the yield of tomato by 20%, using the software to recognize problems such as insect manifestation or poor growth in plant [11]. Radiowave-controlled robots (drones) have become the new honeybee for artificial pollination [12]. Greenhouse using diffused light, pretreated air, artificial fog with remote monitoring of parameters such as soil moisture, humidity etc. has been set up in Finland to get fresh vegetables in harsh winter season. The technology known as UECS and SaaS developed by Japan has been used [13,14]. IoT is used for smart farming to capture data from UAVs, vehicles, livestock to monitor and control [15]. These applications of advanced technology amply prove that the new age agriculture shall be a knowledge agriculture and the traditional means of farming is no longer able to sustain the growing needs of food.

The need is of educating the one billion farmers to the new knowledge agriculture. They should not only get the skill but be motivated to adopt the new technology. This is a formidable challenge especially in view that there are not enough institutions and teachers with the skill. The technology has also to be used to create enough institutes, course materials, MOOCs and make it accessible at a reasonable cost. Lack of motivation at all levels, the State, institutions and farmers is biggest hindrance. If a farmer by staging protest and the politician by giving in to win the election is taken as solution, the SDG shall come out as a myth only.

Conclusion

Use of technology for enhanced yield to meet the needs of 936 million hungry people at present and growing needs of projected population of 8.5 billion from the present 7.3 billion in 2030 is essential to achieve the SDGs 2030. This is to be achieved sustaining the resources of planet and without harming the environment. This requires stopping excessive use of resources such as water, fertilizer, seeds. This is a stupendous task especially in view of the present skill and methods used by 95 million farmers in Asia and Africa. The task of training and motivating them is phenomenal. Governments need to understand that bank loan waiver or increasing MSP for procurement of farm produce or insuring the crop is no solution to the problem. The efforts are to be focused to increase the yield and productivity. The SDGs are remarkable proposition but the progress, as observed in developing countries, makes its realization vacillate.

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