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THE ANALYSIS OF AGRICULTURE IN ARTHASASTHRA

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In the globalised era of culture the greatest agony in the mind of the fourth estate will be that of agricultural shock. The major source of livelihood of people in the world is agriculture itself. It has the prime role in converting prehistoric man to the modern one. But the intensive conditions of the technology and modern economics actually tries to degrade and consider outdated the immense knowledge that have been acquired by the people from the time immemorial. The desire of them is o ignore the immense knowledge of the past about agriculture. The Multinational corporate aiming competitive market continuously bows criticism against the diversity in agriculture. As the early pre-historic culture supports and produces multiple crops, the modern counterparts encourages single cropping pattern. The agricultural globalization receive incentives from the conversion of multiple crop to single cropping pattern and the resulting industrial agriculture. This has indulged as the most horrific situation towards the farm productivity of the agriculturists and the bio diversity of the nature. The damage to the agricultural diversity leads to environmental degradation and the economic depletion of the farm population. It has been realized also that the ideas of green revolution introduced instead of the food scarcity does not consider the nature and the actual cultivators.

Kautilya's Arthasasthra can be quoted at the top to counter this tendency of making the agricultural knowledge based on natural bio diversity into either disappeared or nullified. It is in the midst of continuous argument that bio agriculture predicts poverty, that Arthasasthra stands as the treasure of knowledge pertaining to the concept that how to use agriculture towards the food security and economic prosperity.

The analysis of Indian agriculture is made in the twenty fourth chapter of 'Arthasasthra'. This chapter include in the second adhikaranam and fourty first prakaranam of Arthasasthra. According to Kautilya, the sole authority of agriculture is 'Sitadhyakshan'(Chief Superintendent of Agriculture). It is his responsibility to develop an economically secured agricultural society.

Arthasasthra advocates that the superindent must have the knowledge about marketing aspects of agriculture. The chief superindent of agriculture have acquired immense knowledge about 'bhoomisirajhanam'(technique of sensing the availability of groundwater), the ayurveda of trees which comprises the scientific technology of sowing and preservation of plants and trees.(2010:308,Suthra- 1). Kautilya envisages this itself as the qualification of him.

1. The Science of Rain

For Indians, agriculture is a cultural activity. That is why agriculture is also a spontaneous work. A farmer engage in the act of agriculture with the knowledge from experiences and by recognizing the favour of nature. The future and the fate of agriculture is determined by the availability of water. By analyzing the same, Kautilya depends monsoon for the best crops. Eventhough D.D. Kosambi argues that the ancient India didn't mainly depend upon monsoon, commencement point of agricultural activity was itself rain. Lakes, rivers, wells and ponds which are natural and man made resources of water were also used for the strength of agriculture.

In regions where cultivation is mainly dependant on the rain, land is classified into two. Water deficient places (Jhangalas) and water sufficient places (Anoopam). Jhangalas are the dryland which get sixteen dronas of rain can provide better output. The agricultural wetlands called Aanoop lands can provide the same when there is only half rain of the former. Thirteen and half of dronas for asmakas, twenty three dronas in Avanti. Kautilya judges that the local places of Himalayas and south Indian regions called Konkanam receive water in all seasons.

In the early periods of agriculture itself, the arrangement was based on weather. Depending upon the variations in climate, the varying agricultural thoughts of the folk was followed also by economists. Though the modern weather forecasting exist today, the antique calculations and related preparations also have more importance. These old believes also influences the science of time in economics. Kautilya also trusts that rain is crops. The way of determining the distribution of annual rainfall can be seen in economics. It also provide the information about which season is better. As we all know, the rain is get twice in a year with two monsoon. That is, North-East and South-West. Kautilya predicts that if we get half of the one-third of the required rainfall in July-August and the remaining in the months of October-November, it will give better South West monsoon. The remaining two portions become advantageous in the months of August-September and September-October. This is about North-East monsoon.

2. Agriculture and astronomy

The rain in different times affect agriculture differently. The superindendent must act according to the volume of water especially rainfall and the wetness of the soil while seeding plants and to get best fruitful results. Proficient in the science of agriculture dealing with the cultivation of bushes and trees the superindendent of agriculture shall in time collect the seeds

of all kinds of grains, flowers, fruits, vegetables, bulbous roots, other roots, vegetables produced by creepers, fibre-producing plants and cotton. Apart from these, Kautilya opines that the cropping pattern can be designed according to the respective weather conditions of the areas.

The sprouting of the seeds can be inferred by the position of the sun, from the position of Jupiter the formation of grains can be inferred, and from the movements of Venus and rainfall can be inferred. The 'njattuvela' concept of us is an example of this. The name of 'njattuvela' was determined according to which star is residing nearby sun. Science actually could not improve above the thoughts of people's knowledge. Kautilya points out that a good rainfall can be forecasted by observing the 'garbhadanam' (pregnancy -vibration to earth with wind and thunder), position, movement and cloudliness of Jupiter, from the rise setting and movement of Venus and from changes in the appearance of Sun (2010:310 Suthra-7). This indicates the relationship of agriculture with astronomy. He strongly recommend the concept of agriculture based on weather. It can be wisely concluded that Kautilaya's practical agriculture knowledge and its thrust has been influenced by the pragmatic weather forecasting and thought for agriculture and the related treasure of folk knowledge. It is always forgotten by us about the inherent forecasting techniques in these folk knowledge in the midst of modern weather forecasting techniques and its discussions.

3. Division of Earth

Efficient utilization of water and best irrigation are the indispensable factors of agriculture. In spite of these, we must consider the geographical features and the importance of natural resources. Kautilya believes that all land is not suitable for cultivation, and therefore Kautilya divide land in different ways- 'pheneghata land', 'Parivahantha lands', 'Koovaparyantha lands', 'Harinivaryantha lands' and earth stratus. (2010: 312, Suthra-19). The banks of rivers are meant in the first category. They are suitable for creeping plants, regions prone to flooding for pepper, grapes and sugarcane, the vicinity of wells for vegetation and edible roots, lakes, tanks and canal beds for green crops and furrows between rows of other crops for perfumery plants, medicinal Resorts etc. According to Kautilya, paddy lands and dry lands can be used for other medicinal plants. This indicates that in his times a multiple cropping pattern was followed. It is clear also that Kautilya has approved the biodiversity of nature.

4. Knowledge of seeds and Bio- fertilization method

Like any other stages of agriculture, the preparation of seeds and making it ready to sow is very important. Kautilya also given more concentration and importance to this. The knowledge from Arthasasthra is very important in the modern array of exploitation of cultivators through introduction of budding and newer methods of conservation of seeds in order to develop an agricultural marketing system. By using traditional seeds and conservation methods Kautilya could led a success in agriculture. In order to get high productivity and

protect from the attack of pests and insects, the seeds must be procured and conservated in right manner. It is the responsibility of superintend to procure and conserve the seeds rightly. The popular and orthodox method was to procure high quality seeds from each of previous harvest. The quality of seeds was recognized from past experience by farmers. Kautilya also uses these knowledge.

The high quality seeds are the cape of life which holds the treasure of prosperity. The way people sprout seeds differ according to the country and time. The scientific method approves the orthodox way of exposing seeds of grains to mist and heat. It is proved by scientific studies that this way of procurement will increase productivity. Kautilya tried to prove this fact scientifically. The seeds of grains (paddy and wheat) to be exposed to mist and heat. Alternatively, the fat of hogs and cow dung; the seeds of bulbous roots to be pasted with honey and clarified butter ; cotton seeds with cow dung and the water pits at the roots of tree to be burnt and manured with the bones and cow dung on proper occasion. (2010 : 313 Suthra-20). The length of this procedure is not specified here. In such a situation, the early method of keeping 3-5 days can be adopted.

The animal secretions are believed to be the best for agriculture in the olden days. Even through cow dung and urine has been popularized as low quality, the same has been proved suitable for agriculture. Kautilya recommended only these types of fertilizers. If the seeds began to sprout, utmost care must be provided. As the crops grows and become productive, pesticides can be used with fertilizers. Once the sprouts of seeds are grown, manuring may be done with a fresh hall of tiny fishes and irrigated with the milk of snuhi where there is a smoke produced by burning the essence of cotton seeds and the slough of a snake, there snake no longer will stay.

Agriculture was considered as an auspicious ceremony. The best day and contemporary way were chosen to sprout and harvests. On the occasion of the first sowing of all seeds, it was the custom to plead regrets before the godess of earth. On the occasion of the first sowing of all kinds of seeds a handful of the same bathed in water with a piece of gold shall be sown (2010 :14, Suthra-24)

5. Economic Analysis

In Arthasasthra, agriculture is considered as the nuclear of profit and control. Kautilya explained agriculture to be economic foundation of a nation apart from being a source of livelihood. The specification of high yielding and highly profitable crops denotes economic profits and marketing. The classification of High, medium and low quality itself is a part of it (2010: 312, Suthra-18). The high yielding variety seeds such as Sali rice and wheat provide better results with low effort. These crops whose sowing is effortless, productivity also will be low. The sugarcanecultivation is considered as the worst. The process of sowing and

procurement to very difficult. It is susceptible to diseases and threat of attack by rats and insects, also requires much more expenditure, according to kautilya.

6. The Natural flow in agriculture

The agriculture is considered as productive economic activity. It is not at all against nature which gained wide acceptance. The process of agriculture which accept the natural peculiarities and by fully utilizing the natural resources was advocated by kautilya. His agro hypothesis is moving in opposite direction from the modern single crops which deteriorate the bio diversity of nature. His way of agriculture renovates the natural soil and water and also preserves them. Kautilya experimented the method which recognizes the bio diversity as natural law and he followed a pro natural way of food production. This forms so part of the orthodox multiple cropping pattern. That method provide full employment for the agriculturists and also agriculture become a source of permanent source of income. It is the deep sense of nature which creates pro- nature attitude. The existence of agriculture society also depends upon it.

Because of agriculture being a man related matter, it can't be purely natural or purely environmental, in its fuller extend. But it must be nature friendly to an extend. Arthasasthra introduces small eco friendly agricultural lands. It indicates that divide agriculture into multifaces and cultivate. He recognizes and accepts other plants and animals. He advocates the use of fallow lands as meadows for animals to gay. It is very catching that he doesn't follow a method which makes deep wounds to earth. Besides animals, he used plough and related techniques for agriculture. It is in continuity with the concept that the most fertile top layer of the soil is best suited for agriculture. The most pronounced views of Fukuvoka now-a-days reminds about such views. That is, his views of making better production and making revolution without using pesticides, insecticides and fertilizers and also not making deep scratches to the soil is only the old wine in a new bottle, ie, it is the continuity of the traditional pro natural eco friendly concepts. The agricultural India (which was the flourishing land of self sufficiency and self help) of kautilya is a model for the present world which is faced with drought and irregular weather, dismantled environment and inflation. Also, we can strongly believe that the agricultural analysis in Arthasasthra provide new meaning and popularity for the traditional agricultural views and customs.