



IMPORTANCE OF DAMS AND CANNALS AS A PART OF EARTH AND WATER MANAGEMENT IN KAUTILYA'S "ARTHASHASTRA."

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Human life has achieved a continuous growth, with the help of different managerial processes, since ancient times. In fact to succeed in any chosen field of activity and to achieve happiness, wealth and stability, the sciences of management are always useful. Even before different sciences of management were recognized by the world, our learned forefathers were already practicing basic principles of the management sciences, during ancient times, with an objective of developing societies.

Around 332 B. C. Arya Chanakya was the Prime Minister of Maurya Dynasty. Even today he is considered as the father of Indian management sciences. Arya Chanakya has written a famous treatise called, "Kautilya Arthashastram." This book is a commentary and shows how then the human life had shaped with the help of managerial processes. The book reveals a deep study of natural resources such as land, cultivable land, river and mountains, that was undertaken by Arya Chanakya. Subsequently the study was used for the welfare of human society by developing different management sciences like Earth, Water and Human resources Management. He thoughtfully developed the sciences of Economic Management as well as Business Management. Here Dams & Cannels as parts of Water management are considered. Chanakya is the earliest known Management Guru, who developed this science with the help of logical intellect which can be termed as a flawless. He was an intellectual giant of his times.





In the beginning of this treatise(Grantha) following is stated:

प्रुथिव्या लाभे पालने च यावंत्यर्थशास्त्राणि पूर्वाचार्यैः प्रस्थापितानि प्रायशस्तानि
संहृत्यैकमिदमर्थशास्त्रं कृतम् II – १.१

Meaning: It means that all those sciences which were developed for the betterment of the societal financial aspect, by the Acharyas(Think tanks of the subject) of an earlier era, all those were collectively built and presented in a systematic manner in the book, “Arthashastra.”

From this we can easily establish that Kautilya’s Arthashastra is a book/treatise which deals extensively with Earth Management.

सुखग्रहणविज्ञेयं तत्त्वार्थपदनिश्चितम् I

कौटिल्येन कृतं शास्त्रं विमुक्तग्रन्थविस्तरम् II १.१९

Meaning:Central theme of the Kautilya’s doctrine was “ Protection and Happiness of the people at large.” Keeping this in view he examined all the previously established related sciences on the then established scientific norms. Only after doing this work, he presented, “ An Administrative Model Setup.” This model was inclusive of the subjects like land, land cultivation, business, water etc. There were many ayurvedas available then on these subjects, along with which he also included the principles pronounced by Sankhya, Yoga.

कृषिपाल्ये वाणिज्या च वार्ता, धान्यपशुहिव्यकुप्यविष्टि प्रदानदीपकारिकी I १.२

Meaning: Farming, cattle breeding businesses are known as businesses coming through the knowledge of communication. This knowledge helps in production of crops, the cattle produce, the forest based produces. These produces are very helpful to the workers and hence to the society.

The borders of a country is encompassing the huge landmass. This basically is the definition of a country. So country is identified





by its landmass limited by boundaries. The country needs security/protection to be provided to its people. For this proper effective administration is required. For prosperity, a country needs the administration to provide security to its agriculture, business by having law & order in place.

उपलब्ध लाभार्था लब्धपरिरक्षणी, रक्षितविवर्धनीवृद्धस्य नीयै प्रतिपादिनी च I १.४ कौ.अ

Administration should be in place well supported commerce policy which helps to- a) Acquire unavailable produce. b) Provides security to the acquired products. c) Helps in achieving growth of secured products. d) helps in making allocation for future planning. All these are basic ingredients of a well thought policy of economic planning.

Knowledge based communication knowhow always helps agriculture & agro-based businesses like cattle breeding. This in turn helps the government administration to collect revenue as well as gets the workers which are required to run government machinery. One can say that the countries of the world are functioning smoothly, based on these principles.

Water is the base of human life. Life without water becomes lifeless. Water is the indispensable constituent of Earth and hence it needs conservation of the water bodies available. Chanakya vehemently advocates conservation & effective optimum usage of the water.

Kautilya says following in 15th Adhikaran:

मनुष्याणां वृत्तिरर्थः मनुष्यवती भूमिरित्यर्थः I

तस्याः पृथिव्या लाभपालनोपायः शास्त्रमर्थशास्त्रम् इति II^{११} १-२

Chanakya states in his Arthashastra that man's livelihood comes by earning money. Man resides on the land that land provides a way for earning money. Such a land needs to be raised in proper way by providing maintenance & care. Similarly it states that be it





agriculture, land, rivers or mountains they are all helpful natural resources for earning for man and he needs to conserve & protect these. To earn prosperity

Chanakya states the planning construction and administration of Dams & canals. He states that for these to be undertaken, one has relook into the available land area, cultivable land available, land for grazing, forest cover, the location of industries & mines, available water roots. After considering all these the dams & canals should be constructed in a suitable area. This is the way in which a king should run his financial matters with an effective implementation of economic policies and make people happy.

Adhikaran:२-१

Growth of agriculture & agro-based businesses help in achieving prosperity for king for his people. Since Kautilya our economy is predominantly agriculture oriented. So growth of agriculture is the main emphasis of our economy. The boost to agriculture comes from the construction of dams & canals. Good rain harvest ensures equally good distribution of water for agriculture with the help of dams & canals, throughout the year. This was essentially realized during Kautilya's times. Same becomes clear by the following Shloka:

सेतुबन्धः सस्यानां योनिः I

नित्यानुषक्तो हिं वर्षगुणलाभः सेतुवापेषु II

Apart from these in **जनपदविशेष(२.१)**, **वास्तुकम्(३.९-१०)**, **सोमध्यक्ष(२-२४)** all these carry information regarding dams & canals.

Financially land irrigation fetches better financial gains as compared to rain water harvest. Irrigation with the help of dams & water canal system in river basins to give maximum crop yield.

७-११





Land cultivation for all sorts of crops gives better yield with the help of Dams & canals.

Land irrigated with the help of dams & canals system, is not the same as that of rain water harvest. Both are different. ६.१.८

Where a dam should be constructed? Which dam construction can be termed as good? Kautilya has given instructions in this matter. While comparing two dams says the dam to which water needs to be transferred regularly, is not as good as the dam in which water is retained all along the year. He means that construct a dam on such river which has water in all the seasons of the year. This is possible only when river bed has eternal live springs. He says don't construct a dam on a rainy season river, which remains dry for the remaining eight months of the year.

How the dams should be constructed?

Kautilya says that dams should be constructed with soil & rocks or by constructing a hollow double wall of rocks & the hollow space between the two walls should be filled with soil. Bulls & workers should be used in dam construction. There are historical references of these kind of constructions.

२.१.२२, ३३.

In the 2nd century A.D. it is mentioned that this type of dams were constructed in South India. (P – 119).

Kautilya describes two types of canal systems. These are as follows:

सेतुबन्धयोरप्याहार्योदकात्सहोदकः श्रेयान् I
सहोदकयोरपि प्रभूतवापस्थानः श्रेयान् II

Adhikaran: ७.१२.४, ५. कौ. अ





1. In this type the dam needs the water to be transferred regularly.
2. In the second type the main canal will have sub-canals & is a complex type of canal system. Such a system is developed on a river which has life springs & is a all seasons river. Koyna Dam, Gosikhurd Dam on river Waingangā are of this type.

In the first system the rain water which otherwise would have wasted was flown through a canal system to the water tanks constructed for the storage.

The second system had a very large catchment area. Land irrigation of a large area becomes possible and effective. These type of dams & canals were constructed in India even before Christ(B.C.).

अग्निर्ग्रामर्धग्रामं वा दहति उदकवेगस्तु ग्रामशतप्रवाहोनि ।

८.४.२, ४

In 8th Adhikaran Kautilya says the destruction caused by fires was much lesser than the one caused because floods. While fire may destroy half of village or town, the floods can destroy hundreds of villages or towns.

To control floods & to minimize the destruction caused by the floods Kautilya vehemently propagated the land irrigation with the help of Dams and canals system.

REFERENCE:

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जज्ञे । १२३४५६७८९०

