

## Ancient Indian Agriculture & Domestication: A Model of Sustainability. [From Stone to Script]

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### Abstract

This research paper expresses the sustainable agricultural practices in ancient India, contrasting them with modern agriculture's reliance on harmful pesticides and fertilizers. Despite limited resources, ancient agriculture was better than today's agriculture filled with harmful pesticides, and fertilizers.

Ancient Literature such as Vedic *Samhitas*, *Arthashastra*, *Nitisar*, *Vriksh-Yajurveda*, etc mentioned a great knowledge about their Agriculture, fully depended on Natural resources, and had eco-friendly agricultural resources. over time, they chose artificial resources as well but those resources were also eco-friendly. Domestication was a part of ancient human lives. ancient literature, inscriptions, and ancient coins tell us about their knowledge of animals as well. We can say that there is a gradual development of ancient agriculture and domestication.

This paper evaluates the process of agriculture and domestication in ancient India, with the help of ancient literature, archaeology, inscriptions, and numismatics to create complete details of these agricultural practices and their impact on our society.

**Keywords:** Sustainable Agriculture, Script, Epigraphy, Numismatics, Domestication, Ancient Indian Farming, Agronomy, Ancient Indian Agriculture.

### Introduction

Ancient humans had a nomadic lifestyle, along over time, they developed agricultural practices, and domesticated plants and animals. these early agricultural practices often appear to reflect good ecological sustainability. The excavation of Lahuradeva provides the oldest evidence of rice cultivation (*Oryza sativa*) in India, which is also evidence of the oldest rice cultivation globally, with its dating going back to the 7th millennium BCE<sup>1</sup>, while the evidence of wild rice (*Oryza nivara*) comes from Chopani-Mando in the Mesolithic Period in India.<sup>2</sup> Ancient literature such as the Vedas, *Kautilya's Arthashastra*, *Kamandaka's Nitisara*,<sup>3</sup> and the works of Charaka and Sushruta provide extensive knowledge of these practices, which often surpass contemporary agricultural methods in terms of sustainability. In Vedic literature, agriculture is mentioned as the most honorable activity.

*Maity* mentions in his book, *Economic Life of Northern India in the Gupta Period*, that in the early stages of Aryan civilization, cattle were the primary property of the people. At that time, agriculture was not properly known.<sup>4</sup> but ancient people already gained a great knowledge of seed protection, grain storage, manure management, and irrigation systems. They developed various tools for agricultural purposes, as evidenced by archaeological findings. While they lacked modern vehicles like tractors, they had a deep understanding of their fields and employed oxen for plowing. There is evidence of the use of oxen, which count can be 24, for agriculture in *Athravaveda* and *Kathak Sanhita* as well. Their knowledge encompassed climatology, crop

rotation, seasonal cultivation, and the effective use of manure. *Kathak Sanhita* mentions the term *sita* for plowshare. (*Kathak Sanhita* 20/13)

*Athrvaveda* and *Chandogya Upanishad* mention about a group of grasshoppers that demonstrate the crops. *Chandogya Upanishad* mention a famine that had the same cause.

Ancient humans had a great ecosystem for their irrigation as well. Humans used Natural and Artificial both types of irrigation methods, but they used the natural ones primarily. They used Rivers, Canals, Wells, *Arghatta*, or *Persian wheel* to irrigate their fields. *Athrvaveda*, *Kautilya Arthashastra*, etc texts mentioned this system clearly. *Athrvaveda* mentions the process of making a canal.<sup>5</sup>

There are various verses in our oldest text *Rigveda* about their River system. Some of them are presenting here -

य ऋक्षादंहसो मुचद्यो वार्यात्सप्त सिन्धुषु । वर्धासस्य तुविनृम्ण नीनमः ॥  
य ऋक्षादंहसो मुचद्यो वार्यात्सप्त सिन्धुषु । वर्धासस्य तुविनृम्ण नीनमः ॥ ऋग्वेद ८.२४.२७

अम्बितमे नदीतमे देवितमे सरस्वति । अप्रशस्ता इव स्मसि प्रशस्तिमम्ब नस्कृधि ॥  
अम्बितमे नदीतमे देवितमे सरस्वति । अप्रशस्ता इव स्मसि प्रशस्तिमम्ब नस्कृधि ॥ ऋग्वेद २.४१.१६

आ यत्साकं युशसो वावशानाः सरस्वती सुप्रथी सिन्धुमाता ।  
याः सुष्वयन्त सुदुघाः सुधारा अभि स्वेन पर्यसा पीप्यानाः ऋग्वेद ७.३६.६

There are many other verses in *Rigveda* to show about their irrigation system. such as:

इष्कृताहावमव्रतं सुवरत्रं सुषेचनम् । उद्विणं सिञ्चे अक्षितम् ॥ ऋग्वेद १०.१०१.६

(We irrigate water from well-irrigated, water-filled, dry pits with leather ropes.)

Ancient people had great knowledge of weather as well, there are many verses in our oldest texts such as the *Vedas*. The text, *Athrvaveda* mentions their monsoonal knowledge of agriculture. A prayer for rain is mentioned in this text. Which is:

परि धामिव सूयाऽर्हीनां जनिमागम् ।  
रात्री जगदिवान्यद्रं सात् तेना ते बारये विषम् ॥  
अनयाहमोषहया सर्वाः कृत्या अददुषम् ।  
यां क्षेत्रे चक्रुयां गोषु यां वां ते पुरुषेषु ॥ -अथर्ववेद ६.४.१५

The other prayer which shows their knowledge about weather is:

मद्राहं नो मध्यन्दिने सायमस्तु नः ।  
मद्राहं नो अहां प्रातः रात्री भ्रदाहमस्तु नः ॥ -अथर्ववेद ६.८८.२

### Agriculture in Inscriptions:

In epigraphy, the oldest evidence of ancient agriculture can be seen in *Sohgaura Copper Inscription*, situated in the *Gorakhpur* district. There is a mention in *Brahmi* script of a grain storage room that can be used during

famine and several pictures in this inscription, which suggest their worship of agricultural products. These pictures included- A Tree, A Lotus, A Sun-Moon picture, and A two-floor storage room probably.<sup>6</sup>



Figure 1: Sohgaora Copper Inscription.

Source- Barua BM. *The Sohgaora Copper-Plate Inscription. Annals of the Bhandarkar Oriental Research Institute. 1930;11(1):32–48. Retrieved: 05/10/2024*

Another inscription is the Mahasthan inscription, currently situated in Bangladesh. This inscription is also in Brahmi script, Prakrit Language. There is a mention of giving mole to a Buddhist group. Another mention is the same as the Sohgaora Copper Inscription of a grain storage room that can be used during any pandemic or emergency.<sup>7</sup>



Figure 2 : Mahasthan Inscription

source- Mahasthan Brahmi Inscription – Banglapedia,  
[https://en.banglapedia.org/index.php/Mahasthan\\_Brahmi\\_Inscription](https://en.banglapedia.org/index.php/Mahasthan_Brahmi_Inscription)

The Major Rock Edict I of Great King Ashoka states that he urged his people to cease the slaughter of animals. He mentioned that before this edict, millions of animals were killed for consumption. However, he decreed that this practice should be discontinued. Since this moral script was written, two peacocks and a deer have been dying repeatedly, and even in the future, these animals not cease to die. The Major Rock Edict II (Girnar Edition) mentions that he ordered to medical treatment of humans and animals, the planting of fruits, and medical herbs, and the digging of wells as well. This proves that there is no shortage of grain or crops.<sup>10</sup>

The Junagadh inscription of Rudradaman mentions a lake called Sudarshana situated in Saurashtra, which Pushyagupta, a governor under the Maurya king Chandragupta Maurya, constructed. Tushaspha, a provincial ruler under Ashoka, later made canals from this lake for agricultural purposes. The inscription also mentions

that the lake's dam was breached to a length of 74 *hands* during the reign of King *Rudradaman*, and he undertook its repair without imposing any taxes on the people.<sup>8</sup>



Figure 3 : Junagadh inscription of Rudradaman<sup>8</sup>

**Hathigumpha Inscription** of **Kharvela** mentioned a great irrigation system, it shows that Kharvela, A chedi king extended a canal in his 5<sup>th</sup> regional year, up to his capital, originally made by Nanda ruler Mahapadmnda.<sup>9</sup>

#### Agriculture in Ancient Coins:



Figure 4 : Agathocles square silver coin- Balaram with plow, reverse, Source: Retrieved-04/10/2024

Figure 5 : Hippostratous cornucopia, Source: <https://coinindia.com/index-greek.html>, Retrieved-04/10/2024

Figure 6 : Menander II palm, Source: <https://coinindia.com/index-greek.html>, Retrieved-04/10/2024

Figure 7 : Kanishka- cornucopia, Source: <https://coinindia.com/index-greek.html>, Retrieved-04/10/2024

#### Domestication-

There is a gradual development of agriculture and animal husbandry.<sup>4</sup> Animal Husbandry had an essential role in that time. The oldest evidence of domestication in India comes from the Mesolithic period. The major sites are *Bagor* and *Tilwara* from *Rajasthan*, *Langhnaj* from *Gujrat*, *Adamgadh* and *Bhimbetika* from *Madhya*

*Pradesh, Sarai-Nahar-Rai, Chopani-Mando and Mahadaha from Ganga-Belan valleys.* There is a rich collection of animal bones in these sites except *Bhimbetka*. This shows us that they used to domesticate animals from this age as well. As we know, the use of animals is still shown in agricultural areas for plowing, transportation, food, or some other areas also, probably they also used the animals for agricultural purposes. We can say, all the animals were used by them for agricultural purposes eventually. The species of animals included Antelope cervicapra, Boselaphus tragocamelus, Lepus sp., etc.<sup>11</sup> mainly animals were cattle such as Buffalo, Goats, Sheep, Cows, rams, ass, dogs, cats, and Camel etc, which are found at the excavation sites.

In the time of the Vedic age, domestication was the subject of social wealth also. *Atharvaveda* mentions domestication, there are several prayers to increase the number of Animals. The evidence of the horse is presented in ancient texts which were also used for *Ashvamedha yagya, and Rajsooya yagya*.

### **Horse in ancient coins-**



Figure 8 : Philoxenus silver tetradrachm, the reverse-helmeted king mounted on a horse,

Figure 9 : Nicias bronze quadruple king mounted on horse.

Figure 10: Nicias silver drachm horse riding

Figure 11 : Hippostratos silver tetra drachm horse riding, Reverse- Tyche (The goddess of fortune, chance, luck, and prosperity) holding cornucopia

Figure 12 : Diomedes tetra drachm coin, Reverse- Dioscuri riding horse,

Figure 13 : Azes-1<sup>st</sup> Horse silver tetra drachm coin, horse riding

Source- <https://coinindia.com/index-greek.html>, Retrieved: 04/10/2024.

The cow was the holy animal in Rigved. It is mentioned as *Aghanya* (the animal which should not be murdered). Eventually, in the *Sanchi* copper inscription of *Chandragupta 2<sup>nd</sup>*, it is also mentioned that the slaughter of a cow is as sinful as the murder of any *Brahman* to murder any cow.<sup>4</sup>

Texts like *Narad Smriti* (11.30.34), *Brihaspati* (15.14.16), and *Arthashastra* mention about herdsmen and the pastoral field. *Narad* mentions that any herdsmen must save animals like cows, buffalo, sheep, etc. although *Arthashastra* mentions the taxation system which was applied in the pastoral land.

*Amarsanhita* (9.62, p.213, 9.70.p.215) mentions that a physically fit bull should have the liberty to breed so that the calf will also fit. In the *MatsyaPurana* (chapter 207, pp.445-47) the qualities of a good Brahmanical bull are mentioned.

**Bull in ancient coins-**

Figure 14: Azes copper  
Appolodotus



Figure 15: Artimidoros humped bull



Figure 16:

Animals were used for agricultural areas, food, and transportation as well as their bones and cow dung were used for manuring purposes after their death.<sup>12</sup>

**Conclusion-**

Ancient Indian agriculture stands as a testament to the ingenuity and sustainability of early civilizations. Despite extremely scarce resources, ancient Indians developed innovative and surprisingly environmentally friendly agricultural values. Unlike modern agriculture, which relies heavily on fertilizers and pesticides, ancient Indian farmers used natural methods such as manure and crop rotation to improve soil fertility.

Domestic animals played an important role in agriculture in ancient India: they were used for transport, cultivation, providing food, and producing manure as fertilizer. They were also used for irrigation, an important aspect of agricultural productivity.

Ancient Indian primary literature, such as the Vedas, *Arthashastra* (Kautilya), *Nitisara*(Kamandak), *Ramayana*, *Mahabharata*, *Sushruta Samhita*, and *Charaka Samhita*, etc provides a deep understanding of agricultural principles and their environmental impact. These texts highlight the importance of environmental preservation and sustainable practices. which shows that ancient Indians gained a holistic and environment-friendly approach to agriculture.

In Epigraphy, primary inscriptions are Major Rock Edict-1<sup>st</sup> and 2<sup>nd</sup> of Great Ashoka, *Sohgaura* copper plate inscription, *Mahasthan* inscription, *Junagadh* inscription of *Rudradaman*, and *Hathigumpha* inscription of *Kharvela*, etc clearly indicate their sustainable eco-friendly agriculture and domestication in ancient India. These records provide valuable details of ancient irrigation techniques, domestication, and the value of environmentally friendly agriculture as well.

Ancient Indians may not have had the advanced tools of modern agriculture like tractors etc, but their knowledge and practices were incredibly great. They had a deep understanding of weather, soil conditions, and ecological balance which allowed them to cultivate crops sustainably.

Ancient Indian Agriculture Practices provide a great example of environment-friendly agriculture. Today humans should learn from our past. They know the importance of environmental sustainability so they started to respect & worship nature.

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