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Economic Life of Mauryan India: As Reflected in Indica of Megasthenes

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Abstract:

There are numerous factors has been highlighted in Indica of Megasthenes while tracing the roots of Mauryan economic life. Megasthenes tried to touch the economic relationship with the trade, revenue system, mines, and agricultural pattern of Mauryan India. On the eyes of Megasthenes, Mauryan economy was mainly based on continued existence of agricultural progress. Megasthenes made the economic picture of whole India through his single statement. This statement seems controversial as it describes the uniformity of economic condition in all over India and hence stands the scrutiny numerous historians, aboriginal and foreigner.

With the intention of understanding the various factors of economic life of the Mauryan era, we have to highlight some basic features of that time including geographical relation with economy, natural resources, agricultural system, flora and fauna, crops and other basic factors.

Key Words: Indica, Flora, Fauna, Arthasāstra, Vārtā, Krishi, Famine, Metal.

To explore India and its past, the foreigner travelers have played a significant role. Among one of these travelers was Megasthenes, who was a Greek citizen. He was as an ambassador in the court of Chandragupta Maurya, the founder of the Mauryan dynasty (321 B.C.E). Megasthenes has depicted social, political and cultural life of people of the Mauryan times in his work *Indica*. But, scholars and historians of ancient Indian history considered his account as a doubtful document for the study of Mauryan India. But we observed that *Indica* provides us valuable historical information about economic life of that time and thus it cannot be negated and regarded as historical text. This treatise enclosed the first observer descriptive document of the ancient Indian *Gangetic* plain by a diplomatic envoy at the court of Chandragupta Maurya.

Economy as a definite system of production, distribution, trade and consumption has had varied forms since the advent of economic thought in ancient India. Not only did economy reflect the socio-economic conditions prevailing at contemporary times but also paved the

way for further growth in the civil society. There are numerous factors to be taken into consideration while tracing the roots of economy pertaining to Mauryan State in particular and whole ancient India in general. Economy has a relationship with the trade, surplus of production and agricultural activities in a particular region. In Indian context, Mauryan economy was mainly based on continued existence of agricultural progress.

The use of Iron revolutionized the process of agriculture resulting in surplus production which in turn transformed small markets to big markets. We notice that the Mauryan state took keen interest in solving the economic problems of the subjects. G.M. Bongard-Levin argues that in the Mauryan period, copper and bronze was being used to a much smaller extent and served only for making personal ornaments and household utensils. These discoveries were made to utilize vast sources for the benefits of the state and state employed officials to run the large administrative system.

The *Arthasāstra* of Kautilya indicates the importance of *Vārtā* with special reference to the growth and development of the state which directly depends on the agricultural and commercial activities. Kautilya says that *Vārtā* plays a very significant role in the development and growth of world economy. The Mauryan kings expanded their kingdom in Indian subcontinent for the enhancement of their economy. During this period, agricultural activities became the base of economy and people's daily life. In this way, the fertility of the soil made it possible for people to grow mainly two crops in a year. Besides, Megasthenes rightly states that the peasants were producing two crops in a year which reflects the good fertility of land in early India.² Kautilya suggests the importance of agriculture and the use of bullocks. However, we cannot contemplate whole Mauryan Empire occupying a single system for economic development. Every region had special features adopted for agricultural expansion.

On the contrary, Megasthenes depicts mainly the area of Pataliputra which is why his statements are still the matter of criticism among the historians. He mentioned the special class of farmers to cultivate the agricultural lands, which were large in numbers and formed the majority during the time of Mauryans. Kautilya admits the farmers to settle on the vast lands to cultivate for the benefits of the state. Inscription of Aśoka RE XIII mentions that people were settled in the countryside; they were used for the advantage of the state. Megasthenes made the economic picture of whole India through his single statement. This statement seems controversial as it describes the uniformity of economic condition in all over India and hence stands the scrutiny numerous historians, aboriginal and foreigner. With the intention of understanding the various factors of economic life of the Mauryan era, we have to highlight some basic features of that time including geographical relation with economy, natural resources, agricultural system, flora and fauna, crops and other basic factors.

Agriculture: The art of practice of farming is known as agriculture. Agriculture was the backbone of survival and sustenance of ancient Indian people. Agriculture and the ownership of land are juxtaposed because these are dependent on each other. In order to usher in a new phase of growth and development as regards agriculture, state needed to

extend and expand far beyond the prefixed boundaries. State needed new lands so as to effect surplus production which would be sufficient to sustain life in the hours of emergency.

G.C. Chauhan asserts that the primitive people were not aware of the art of agriculture. They wandered from place to place in search of food and water. He perhaps refers to the hunter and gatherers society of ancient times who survived on meager food collected and hunted by them. Element of uncertainty in this mode of survival was always high and it might have forced them to think of some other alternate method to find two square meal. But the transition from a wandering life to a settled agricultural life was a long and eventful process.¹ Furthermore, Indian economic system was dependent on the agricultural production where the surplus production provided further possibility to grow new industrial activities.

In this direction, Mauryan kings held and occupied a vast territory and promoted agriculture. Kautilya tries to paint a picture of contemporary Mauryan agriculture. He refers to the whole state being populated and dependent on agriculture. The unoccupied lands undisputedly belonged to the king. This land was given to those who could afford land taxes of the state. There was special provision that, if the grantees fail to till the fields, these may be taken away from them and given to others.² It is clear that farmers were the paying guest on the state land.

V.S. Agarwal is of the opinion that ploughing, planting wild plants and harvesting a large type of crop varieties were the features of this age. Panini refers to agriculture as *Krishi*, derived from the root *Krish* to plough. Although the term was not restricted to mere ploughing, it generally came to be comprehended in that sense. V.S. Agarwal adds that Katyayana and Patanjali have an interesting discussion; *Krishi* denotes not merely ploughing but includes collectively all other operations of agriculture, such as the supply of seeds, implements, animals and human labor.³

Irrigation System: Water is indispensable for the crops and gentry of India. Much of India's irrigation has depended on rainfall. Seeing the uncertainty of rain people had to arrange for alternate means and methods to deal with the problem of paucity of water. Rainfall too was unevenly distributed. India was mainly dependent on agrarian economy so water needs were almost vital. Needless to say how important it was for the sustenance of life. Megasthenes makes mention of rivers which served the dual purpose of transport, navigation and irrigation. He makes description of 58 rivers out of which Indus, Ganges and Silas are given exclusive attention. In addition he says that all the rivers were navigable.⁴ Megasthenes notices that Indian soils were productive and fertile and yielded crops twice a year. This he attributed to extensive channel of canal irrigation. It is quite fascinating to notice that even in the times of Mauryans, irrigation had largely developed. Land was irrigated by rivers Indus, Ganges and their tributaries all over. This also accounts for the various foreign invasions in India. *Arthasāstra* denotes that liberal supply of rainfall is

certain to prove advantageous if the crops are cultivated in the fields located below irrigational works.⁵

Megasthenes states that large-scale, expensive irrigation work requiring much labor was normally carried out by the state. All free members of village communities also took part in building irrigation works. The Hathigumpha inscription of *Kharavela* reports the building of canal by a king of Nanda dynasty. And he adds that the system of artificial irrigation in the Mauryan time has been traced out from ancient writings, epigraphy and narrative sources. Megasthenes also mentions that when he stayed in India there was a special group of state officials who inspected the sluices by which water was let out from the main canals into their branches so that everyone might have an equal supply of it.⁶

Dharmaśāstras refer to the construction of irrigation works by the rulers and the people with an allurements of divine rewards and favors. Such irrigation facilities were source of incentive to the cultivators to improve upon the quality of crops, increase the productivity and reclaim the waste lands making them cultivable.⁷

Different modes of irrigation along with river water harness were in practice in lower Gangetic regions and peninsular India which to great extent contributed to the prosperity of people. Strabo refers to embarked canal from which water was distributed into different channels. A. L. Basham also makes mention of river being harnessed to fulfill the water needs of people. He says that, 'In the flat plains, land was cut by canals running from great rivers and dotted with artificial reservoirs.'⁸

RE and PE of Asoka refer to digging of wells on the highway at the interval of every half *Krosa*. Whether the purpose was to make availability of potable water to travelers or water was to be used for irrigation is still obscure.

Strabo quotes an official *nadipala* from *Arthaśāstra* who supervised the function of river and canal irrigation. On the contrary Kautilya holds *Sītādhyaksha*, the superintendent of agriculture, responsible for general control of state owned irrigation works.

It is now evident that agriculture in India did not solely rely upon the certainty of perennial rainfall but developed a system of comprehensive irrigation in various modes and methods. Megasthenes gives full credit to irrigation for the ever flourishing harvests of India.

Famine: Famine is a condition of severity where scarcity of food leads to the starvation of people and the risk of spreading disease and epidemic multiplies geometrically. Famines in ancient India were due to various reasons such as droughts, floods, crop failure, epidemic and earthquakes. Non-uniformity in distribution of rainfall can be held responsible for famines in India. *Sohgaura* copper plate inscription refers to the provision of two store houses with amenities which would probably serve in distress.⁹

The statement of Megasthenes that famine never visited India seems highly antithetical. It also attracts our attention to the fact that how ignorant might he have been of actual happenings in India at that time. There is factor of possibility that famine might not have visited India when Megasthenes visited India. Or in order to save grace of royal dignity, the

actual conditions prevailing might have been concealed from him by the state officials and confidants. Also if famine however occurred, it was far from the reaches of Megasthenes as he enjoyed the privileges of royal service and did not while away in the country side to deepen his findings.

Other than this, the nature of famine varied from place to place and time to time. Somewhere it was due to the disastrous floods and at other places it was caused by wars. Also crop failure caused distress and so did the shortage of rainfall. But the quantum of public distress could not be felt in the chambers of royal fortress. N. N. Kher has elaborated various causes of famines in his book *Agrarian and Fiscal Economy*, Motilal Banarasidass Delhi, 1973. Kautilya fully understands famine as a natural calamity and makes state responsible for arranging provisions of relief. Megasthenes takes agricultural prosperity of India for granted. He is illusioned much to accept that famine might never have visited India.

But our prior description bear testimony to the fact that presence of famines in India cannot be negated altogether. Economic and social distress has persisted through with the stages of human growth and development. There has never been prosperity consistently given the uncertainty of time and tide. So, how could India have escaped brunt of adversity? Famines visited India time and again and devastated the life of people. But the arrangement made by the state might be exemplary so as to escape the attention of a diplomat who resided in Court in the want of noting down nitty-gritty of the state.

Land Rights: The ownership of land during the Mauryan India is still the matter of debate. Different arguments have been promulgated for and against the state ownership of land in Mauryan India. This is complicated problem among the scholars who have been researching on 4th century B.C.E. Especially on Mauryan Indian history; there is not a single line or unity among the researchers to conclude this issue. It is also for the reason that literary and epigraphic records are not only puzzling but also contradictory. These references might have been understood through various researchers to suit their own personal arguments.

The pattern of ownership of land had different shapes in every stage of Indian History but to highlight the whole theme of ownership and land rights concerning ancient India is none of our concern. We are focusing only on the Mauryan ownership of land to inquire so as to what types of land had been carried by the state or the people at that time.

Now that we are thorough about the land functions, question arises that who was the actual owner of the land in Mauryan India? If we study the *Indica* of Megasthenes where he made it very clear that only the king was the real owner of land and further indicates that no individual was allowed to become the owner of land during the Mauryan times, against this assertion or statement, there is abundance of references regarding the private land rights in the *Arthasāstra* of Kautilya and *Manu Smṛti*.

Leaning towards the theory of the *Arthasāstra* of Kautilya, the king was concerned with the ownership of all types of land. It is argued that the plains, grazing land and forests were directly under the state control and ownership rights were not granted to any individual to

hold it as a property. Offenders were to be prosecuted. There was special provision for receiving the fine by the king if anyone damaged the crops of any farmer.

The state officials received the revenue from the *sītā* land. This land covered a large area of the state. Kautilya mentions indirect way of state ownership of land on larger part. Thus, Megasthenes concluded that the whole land was under the state control. However, it is not clear picture of land ownership portrayed by Megasthenes, because we have several examples to find out various forms of land ownership of land in *Arthaśāstra* of Kautilya. Greek authors comment that the all property belonged to the crown and no private person was permitted to own land and farmers were cultivating land on the condition of paying $\frac{1}{4}$ of the production.¹⁰ Arrian has given a parallel opinion about the state ownership of land. The Greeks tried to state that all land was directly under the state control.

During the times of Asoka, a source reveals, the revenue of village *Lumbini* was decreased from $\frac{1}{6}$ to $\frac{1}{8}$. Therefore, it is quite clear that the king had the ownership of land during the Mauryan time. Manu also describes a few lawful examples of minimizing property, donations, sale and purchase. He professes that the king was real owner of all land. But this at no time can mean that other kinds of land rights, private and communal, were non-existent.

Land grants played a significant role in shaping the socio-economic history of Ancient India. The state's authoritative power got transferred into feudal economic order to issuing land grants which created ground nobility. It is assumed to have created the political power fragmentation, farmers made into bondage and subjection and finally it generated a background for many foreigners for overpowering of India. But our aim is not to trace these reasons; we are only trying to highlight how land had been given by the state to other persons and types of land associated with grants and what was the significance of those types of land during that time?

Arthaśāstra of Kautilya refers to the land grants of various types being made at that time. *Brahmadeya*, one being made to a Brahmin and *Devdana*, grant made to an institution or temple. Various inscriptions and copper plates stand witness to these grants. There was other type of grant on which the bearer was not liable to pay any taxes or dues to the state, the *Agrahara*. It is indicated that *Brahmadeya* land was granted to Brahmans those who carried out sacrifices and learned the Vedas for the state benefits. At times, grants were made to those Brahmans who performed sacrifices, duty of spiritual guides, priests for general public as well. Those, who were well versed in Vedas were also granted *Brahmadeya* lands yielding sufficient produce and were exempted from taxes and fines.¹¹

It is difficult to trace and relate the sources of any specific parts of Indian agricultural development. The evolution of land regarding Indian concept has been narrowly understood by Megasthenes, his theory having been very complicated relatively to the Indian sources during that time. But in a single way he is only talking about king's land which is known as *sītā* land in *Arthaśāstra* of Kautilya. R.N.Saletore quotes Panini that there were many types

of land and measurements of land. State had the monopoly over the land.¹² If we go to the depths of understanding of the nature of land from a foreigner point of view, we have an account of Megasthenes, who made the remarks on land ownership in Mauryan India. He says that 'the whole of the land was the property the king and husbandmen tilled it, on the condition of receiving 1\4 of the produce.'¹³ If we take the statement of Megasthenes without critics, then in the fourth century we were to witness no existence of private land and all rights regarding property pertain to the state or king. We have to relook into the authenticity of Megasthenes' argument regarding the ownership of land.

Kautilya evidently refers the state land and the private land. He clearly defines *sītā* as crown land and portion of produce payable to the government *bhāga*. After this, these types of land were identified with two types; cultivated and uncultivated land. Holding to cultivated tracts, these were suitable for various agricultural operations and fertile lands were adapted for pasture grounds, manufacture of merchandise and other purposes relevant to merchants.¹⁴ In *Arthaśāstra* of Kautilya, it is suggested that land were given only to tax payers and lands may be confiscated from those who do not cultivate them and give to others; or they may be cultivated by village laborers and traders. If cultivators pay their taxes easily, they may be favorably supplied with grains, cattle and money.¹⁵

Considering the management of crown or royal land, Kautilya states that Superintendent of *Sītā* land had to manage the satisfactorily ploughed lands and for this rationale he employed slaves, laborers and prisoners to plough fields, sow seeds and maintain the harvest.¹⁶ Kautilya clearly states the details of authority of the land ownership of the king which were mostly given on lease for life time to cultivators in the return to regular taxes to the state. These lands were taken up again and given to other cultivators. In this contract, state provided aid of laborers. It is possible that Megasthenes observed that picture and made his statement on the basis of this idea.

That all the lands were not associated to the sole proprietorship of king in the Mauryan times is clear from the imagery of the private land evoked by the *Arthaśāstra* of Kautilya. Kautilya directly refers to the expansion of the private lands that were difficult to cultivate.¹⁷ He further agrees with purchasing the land from kinsmen, rich persons and neighbors who can hold true for purchased land. A good family of forty members and some purchasers stand witness to the accurate boundaries of fields, gardens, buildings of any kind. Above information might be attested by the elders and neighbors of the village. No opposition was offered, the purchaser could proceed to purchase the holding in question. If no real owner came forth, even after the expiry of seven nights, the bidder was authorized to take possession of the property.¹⁸ From above regulations and directions, it is clear that there is no doubt regarding the private land possessions in fourth century B.C.E. Lands were sold by one person to another and those who had their own rights on the land, they could transfer them to another man. There are so many examples to highlight various kinds of land which could be sold or purchased.

The king had only resumed ownership rights on the state land. Sale, purchase and ownership of land were not only attested by the state law but even finance was legalized. In addition, tax payers sold and mortgaged their land to taxpayers alone. Brāhmanas had the right to sell or mortgage their *Brahmadeya* or gifted lands only to those who endowed with such lands otherwise they could be punished with the first amercement for such descend.¹⁹ In this way we can assume that in the Mauryan period state and private land had existed but if anyone could not claim his property, that portion went to the state. Besides, gifted or garmented lands also were sold or purchased on one condition to pay regular taxes to the state otherwise that land might be withdrawn by the state.

It is argued that state was highly focused on agriculture and taxes for state revenue. That is why state promoted private lands for the benefits of the state, side by side people were also improving their economic status. Private ownership was also attested by the state but their disputes were also provisioned through the state. If we turn to Megasthenes' statement he says that Indians had no suits about pledges or deposits, nor did they require either seals or witness, but made their deposits and confided in each other.²⁰

R.N. Saletore quotes Manu as regards the ownership of land; if any dispute regarding the village settlement or any type of land marking occurred, the king had to play the leading role to solve out the problems among both groups and he created a peaceful environment. Manu also clearly states that if anyone wanted to transfer land to other person, he had to make an agreement. Furthermore he argues that there were no disputes if the property belonged to the state. This statement of Manu is self-contradicting and highly paradoxical in nature. On one hand Manu goes on explaining that King was the sole owner and proprietor of the land and that all that belonged to him, time and again and on the other, it seems that Manu supports two types of land rights; state land rights as well as private land rights in early India.

Bongard-Levin classified the Mauryan land into three categories; crown land, state land and communal land. In contrast, Romila Thapar comments that Mauryan land ownership was divided into five layers; the state, the king, large scale land owners, communal ownership and cultivators.²¹ Levin and Thapar basically remark on the land ownership of Mauryan era. Thapar assumes that lands were divided into social divisions but social division was not clear in her mind. She is not clear about the King's own land and State land. She just assumes the land ownership and then made hypothesis. Levin also proposes similar type of argument. Certainly it is not clear in their mind that what was the prominent relevance of the Mauryan land rights?

Megasthenes made this statement only on oral basis because all disputes were solved by the state or the neighbors of the respective villages and regions. According to Megasthenes in the Mauryan times were no agreement about the land but his observation might not be clear that state had its own land rights and state gave the people private land rights for the promotion of agricultural development. Megasthenes observed only crown land (*sītā*), he could not justify the state land or the private ownership of land during his stay at

Pataliputra. He picked up the idea only which he was taught by royal Brāhmanas. The royal authority did not made the clear picture of variation of land rights at that time.

Creating New Settlements: In a time where expansion into vast lands to fund the various economic purposes of a large state had become compulsion, creating new settlements was undoubtedly most important task and it would certainly boost the productivity of the state.

Arthaśāstra suggested to king that he should cause new settlements of the country, which had been settled before or which had not be settled before, by bringing the people from foreign lands or by shifting the overflow (of population) from his own country. He should cause village to be settled consisting mostly of *Śudra* agriculturist, with a minimum of one hundred families and a maximum of five hundred families, with boundaries extended over one *krosa* or two *krosas*, and affording mutual protection. He should fix the boundary lines, a river, a mountain, a forest, a stretch of pebbles, sand, a cavern, an embankment, a *Sami* tree, a *Salmali* tree or a milk tree. (like *Asvatha*, *Nyagrodha*).

He should establish a *sthaniya* in the middle of eight hundred villages, a *dronamukha* in the middle of four hundred villages, *karvatika* in the middle of two hundred villages, and a *samgrahana* in a group of ten villages.

On the frontiers, he should erect the fortresses of frontier chiefs as the gates of the country under the command of frontier chiefs. Trappers *Sabaras*, *Pulindas*, *Candalas*, and the forest dwellers should guard the intervening regions between them. Kautilya mentions that the king should grant lands to priest, preceptors, chaplains and Brāhmins learned in the Vedas as gifts, and exempt from fines and taxes, with inheritance passing on to corresponding heirs and to heads of the departments, accountants and others and to the *gopas*, *sthanikas*, elephant trainers, physicians, horse trainers and couriers lands without the right to sale or mortgage. He should allot to tax payers arable fields for life time. Non-arable fields should not be taken from those who are making them arable. He should take away fields from those who do not till then and give them to others. Or, village servants and traders should till them. Those who do not till would make considerable the loss (to the treasury). Hence this problem should be carefully tackled by either taking away fields or giving it to one with ability to till it.

Arthaśāstra informs us that king should set work in mines, factories, produce-forests, elephant-forests, cattle-herds and trade-routes and (establish) water-routes, and routes, and ports. Furthermore, king should cause irrigation works to be built with the natural water sources or with water to be brought in them from elsewhere. Or, to others who are building (these), he should render aid with land, road, trees and implements, and (also render aid) to the building of holy places and parks. If one walks out of the joint building of an irrigation work, his laborers and bullocks should (be made to) do (his share of) the work. He should be made to offer a share in the expense and yet should receive no portion (of the benefits derived) the ownership of the fish; ducks and green vegetables in the irrigation works should go to the king.

The king should enforce discipline in slaves, persons kept as pledges and kinsmen who do not obey their masters.²² Saletore says that in the times of the *RgVeda*, the king was evidently only a kind of guardian expected to protect his subjects and for this protection the king was entitled to a payment called *bāli*, which king could claim from them. If king on the other hand, had undisputed right over all the land of his subjects so the question of his receiving or claiming any *bāli* from those, whom the king protected, could hardly have arisen. This position appears to have continued down to the *Athrava Veda* wherein it appears for a share grantee in the villages, to the king. If the king had every right over all the land, the necessity for such a prayer was neither necessary nor relevant.²³ Saletore further adds, the king's private ownership of land was recognized, that joint property in a family was also admitted, that transfer of such rights or property was looked down upon and that it could be implemented by the ruler with the consent all the people concerned. Had all these conditions been implemented, the king could never have possessed all the land his supreme authority.²⁴

About the *Bāli* in later times Saletore says that the due *Bāli* appears to have undergone some change in course of time. In the *Śatapatha Brāhmanas*' oblation portion, *Bāli* is circling around the worshippers. It is quite apparent from above statement that *Bāli* by 7th century BCE had taken the shape of religious offering and it had lost its political and economic importance in the form of a tax.²⁵

Author concludes that development and establishment of the concept of possession, ownership, title and proprietary right are the landmarks in the Indian economic history, proving beyond all reasonable doubt that all land certainly never belonged entirely to the state, had this been really the case, these concepts would hardly have come into existence.²⁶ Irrigation was looked upon as a state activity, privately owned irrigation tanks are also thought of. There is for example, the rule that the ownership of a tank is lost if it not used for five years, except in times of distress, another that a person is free to sell or mortgage his tank. At the time of new settlements it is recommended, cooperative effort should be encouraged to get new water works built, forcing members, if necessary to contribute their share of labor and expenses.²⁷

Though, Megasthenes denotes the fertility of land in early India and further state farmers use to produce two crops in a year. Eratosthenes writes to the same effect, for he speaks of a winter and a summer sowing, which both have rain, for a year, he says is never found to be without rain at both those seasons, when a great abundance ensues since the soil is always productive. Much fruits are produced by trees and roots of plants, particularly of tall reeds are sweet both by nature and by coction, since the moisture by which they are nourished is heated by the rays of the sun, whether it has fallen from the clouds or been drawn from the rivers. Eratosthenes uses here a peculiar expression what is called by others the ripening of fruits and plants of juice is called among the Indians, coction, which is as effective in producing a good flavor as the coction by fire itself.

Strabo quotes Megasthenes, from the *vapours* arising from such vast rivers and from the Etesian winds, India is watered by the summer rains and the plains are overflowed. During these rains, accordingly, flax is sown and millet, also *sesamum*, rice and *bosmorum* and in the winter time wheat, barley pulse and other esculent fruits unknown to us.²⁸

Metal and Mines: Megasthenes tells about few Mauryan metals but the study of *Arthaśāstra* suggested that there were multiple metals which were used in good technical industries. But some thinkers referring to Megasthenes work argue that there were no more metals which India was familiar with other than description of Megasthenes. But the thing is that Megasthenes only highlighted Mauryan metals at a macro level.

Arthaśāstra tells us that all mines were directly under the control of state or in other words state owned all mines. No private proprietorship of mine could be given recognition by Mauryan state. Albeit not all of them were to be worked directly by the state, still they lay within the periphery of Mauryan state control. In fact, it is stated that a mine costly in its working should be leased out for a fixed share of the output, *bhāga*, or for a fixed rent, *prakraya*, and that only a light mine should be worked by the state directly. So far as salt mines are concerned, these seem to be all intended to be leased out for a share or on hire. It is supposed that workers might be belonging to the same category of those who worked on the crown land.²⁹

Megasthenes gives absurd and incredible description information about gold and gold *digging ants*; among the *Derdai*, a great tribe of Indians, who inhabit the mountains on the eastern borders, there is an elevated plateau about 3000 stadia in circuit. Beneath the surface there are mines of gold, and here accordingly are found the ants which dig for the metal. They are not inferior in size to wild foxes. They run with amazing speed, and live by the produce of the chase. The time when they dig is winter. They throw up heaps of earth, as moles do, at the mouth of the mines. The gold dust has to subject to a little boiling. The people of the neighborhoods, coming secretly with beasts of burden, carry this off. If they came openly the ants would attack them, and pursue them if they fled, and would destroy both them and their cattle. So, to effect the robbery without being observed, they lay down in several different places pieces of the flesh of wild beasts, and when the ants are by this device dispersed they carry of the gold dust. This they sell to any trader they meet with, while it is still in the state of ore, for the art of fusing metals is unknown to them.³⁰

If we take into consideration the envoy policies of the Mauryan state, there was a definite system laid out for the conduct with a foreigner envoy and for that being sent to foreign lands. Kautilya refers to envoy that he should be kept under vigil eye by state envoys, spies and system of espionage.³¹ Such distorted information served to a foreigner is clearly proof of the state's consciousness towards its security from foreign invasion. India had become the land of frequent incursions and expeditions. In order to keep the information from leaking out, state had to plan accordingly.

Many historians discuss about the digging ants but no anyone has ever found its reality and its depth. Megasthenes is saying about gold mines and tries to trace the mine's location,

he states the mines are around the radius of 3000 stadia and they are near the plateau or mountain and he also says gold digging is held in winter season. Gold is found in the form of the gold dust in the Maryann Empire. This is the very authentic information which has been given to the Megasthenes at that time.

Arthaśāstra of Kautilya recommends the appointment of superintendent of Gold mines and its furnishing. In order to manufacture gold and silver jewellery, each being kept apart, the superintendent of gold shall have a goldsmiths office (*akshasāla*) consisting of four rooms and one door. In the center of the high road a trained, skillful goldsmith of high birth and of reliable character shall be appointed to hold his shop. *Jāmbūnada*, that which is the product of the river, *Jambu*; *Sātakumbha*, that which is extracted from the mountain of *Satakumba*; *Hātaka*, that which is extracted from the mines known as *Hātaka*; *Vainava*, that which is the product of the mountain, *Vēnu*; and *Sringasūktija*, that which is extracted from *sringasūkti* are the varieties of gold. Gold may be obtained either pure or amalgamated with mercury or silver or alloyed with other impurities as mine gold (*ākarōdgata*). Gold which is of the colour of the petals of a lotus, ductile, glossy, incapable of making any continuous sound (*anādi*), and glittering is the best; that which is reddish yellow (*raktapīta*) is of middle quality, and that which is red is of low quality. Impure gold is of whitish colour. It shall be fused with lead of four times the quantity of the impurity. When gold is rendered brittle owing to its contamination with lead, it shall be heated with dry cowdung (*sushkapatala*). When it splits into pieces owing to hardness, it shall be drenched (after heating) into oil mixed with cowdung (*tailagomaye*). Mine gold which is brittle owing to its contamination with lead shall be heated wound round with cloth (*pākapatrānikritvā*); and hammered on a wooden anvil. Or it may be drenched in the mixture made of mushroom and *vajrakhanda* (*Antiquorum*). *Tutthodgata*, what which is extracted from the mountain, *Tuttha*; *gaudika*, that which is the product of the country known as *Gauda*; *kāmbuka*, that which is extracted from the mountain, *Kambu*; and *chākravālika*, that which is extracted from the mountain *Chakravāla* are the varieties of silver. Silver which is white, glossy, and ductile is the best; and that which is of the reverse quality is bad. Impure silver shall be heated with lead of one-fourth the quantity of the impurity. That which becomes full of globules, white, glowing, and of the colour of curd is pure. When the streak of pure gold (made on touch-stone) is of the colour of turmeric, it is termed *suvarna*. When from one to sixteen *kākanis* of gold in a *suvarna* (of sixteen *māshakas*) are replaced by from one to sixteen *kākanis* of copper, so that the copper is inseparably alloyed with the whole mass of the remaining quantity of the gold, the sixteen varieties (carats) of the standard of the purity of gold (*shodasavarnakāh*) will be obtained.³²

Bongaurd Levin speaks of metals like copper and bronze being used in small proportions for making personal ornaments and household utensils. It is clear that the use of these metals was restricted. But Iron was used extensively for making weapons, agricultural implements, craftsmen's tools and household utensils. At Taxila, as in some other settlements, iron arrowheads, axes, adzes, chisels, hoes, anvils, have been found. Records of the wide use of iron in the middle of the first millennium B.C.E. have been also preserved

by classical writers. Levin also quoted Herodotus, who mentions the iron arrowheads used by the Indians in the battle with Xerxes. Ctesias writes about the two steel swords of Indian origin given to Artaxerxes Mnemon. Iron gradually spread southwards from North India. No more than two decades ago, most archaeologists dated the appearance of iron in the south from the 300 B.C.E. linking it with the so called Megalithic culture.³³

Trading Activities: Trade is an integral part of any economy. In Mauryan times too, the trade was main element of the state business and state appointed a vast number of officials to hold the trade. Panini uses a variety of terms connected with trade; currency and barter (nimana) traders (vanija), trade routes (patha), sale and purchase (kraya-vikraya), shops (apana), saleable commodities (panya), taxes on trade (sulka) and banking and loans *rina*.³⁴ Panini states that India was well connected with a network of trade routes and roads. There was no dearth of terrestrial passages associated with various general and commercial activities. Katyayana mentions different kinds of trade routes, leading through forests, jungle-thickets, on land, and in water. The goods gathered and transported along these routes were called after the routes.³⁵

Provision of routes for trade purpose is another important state activity. All trade was to be regulated, controlled and supervised by the state with the *pānyadhyaksa*, appointed as the superintendent or trade in charge. He had to fix the price of the various commodities after taking into consideration factors such as investment of capital, interest charges, duties road and rent. A profit of five percent on indigenous good and ten percent on foreign good was to be allowed. If the limit of profits elevated to the level more than prefixed by the state, offender was to be punished under the given criminal provisions.

Fixing the price of commodities above the prices prescribed by state authority attracted heavy fine of one thousand *pānas*. When there was abundance of any commodities, the *panyadhyaksa* was to intervene and centralize the sale carried out through the agency of the state with the fixed price. In is construed that there has been an attempt to strike a reasonable balance between the interests of the state, traders and the customers. Interests of customers were regarded as supreme. There is reference of another officer, the *samsthadhyaksa*, the superintendent of markets, whose duty was to look after the customers, their interest and see that the trader or artisans did not cheat them by fraud in weighing and measuring or by supplying inferior quality or different make of goods. It is also his duty of the officials to see that secondhand goods, *puranabhandas*, sold in the market, are not stolen property.³⁶

Weights and measures used in trade are to be manufactured by the *pautavadhyaksa*, responsible for their standardization. Apparently, the private manufacture of these is not to be allowed. Details about the different weights and measures and weighing machines are given. A large number of balances called *tula* are described. From the description it appears that these are not the usual pairs of scales, but are rather balances of the steelyard type, with two unequal arms, one marked with figures from zero to one hundred to indicate the weight the in *pana* of the article suspended from the other end. The text in *Arthaśāstra* also

mentions the prices at which the weight and measures are to be sold to traders. Weights and measure are to be inspected every four months. An inspection fee is prescribed at the rate of one *kakani* or 1/60 fourth part of a *pana* per day, which comes to about two *panas* for the four month period.³⁷

There were superintendent of harbours and a superintendent of navigation, who were in-charge of the control of sea routes, navigation in the estuaries and transportation across lakes they also levied tolls from ships coming into harbors.

Kautilya enlists promoting domestic and foreign trade, helping merchants, taking care of the commercial routes and improving and protecting them as the duty of the state. The state took keen interest in bringing whole system of trade under strict control and in supervising the entire system of trade transaction.³⁸

Literature and Excavation data shows that various types of coins during this period, the more recent coins bear images. In a hoard of the 4th century B.C., from Taxila, bent-bar coins were found, mostly made of silver, whereas no such coins were found in a hoard of the 3rd century B.C. he again says, in the 4th to 3rd centuries B.C. punch marked coins became widespread. Various symbols were punched on these coins which were generally made of silver and copper and were of different shapes, weights and sizes. As a rule, archaeologists find hoards of silver coins because they were hoarded as valuable objects. Levin says that the evidence that we have used, by no means covers all the sources available, but they seem sufficient for a general outline and analysis of the main features of the economic development of India in the Magadha-Mauryan epoch.³⁹

Corporate activity was the main economic feature of this period. People followed diversified vocations and professions irrespective of their belonging to a same caste. They found systematic commercial organizations called *Shrenis* which resembled commercial guilds of medieval Europe. Megasthenes claims that Indians got the main idea of Architecture, Numismatics, and science from Greek society and argued that Indians in their turn learned several things from the Greeks. In the numismatics art the Greeks excelled to Indian, and the fine silver coins of the Indian king *Saubhuti* betray very clear Greek influence. Another thing in which the Indians were influenced by Greeks was the art of sculpture, and the *Gandhara* sculpture bears witness to this influence.⁴⁰

The outflow of money from Mauryan treasury was mainly in the form of high salaries being paid to high profile bureaucratic officers apart from maintaining a huge army of the state. The relevance cost of a domestic slave was approximately the same as the salary of an artisan working for the state, which was quite low as compared to that of a public official. The *Arthaśāstra* recommends that senior officers receive forty-eight times the salary of a clerk, and ministers double of that.

Romila Thapar expresses the inability to find out the actual data pertaining to salaries of Mauryan state but even notionally the payment of all kinds of salaries would have been a huge burden on the treasury. She qualifies that the upper classes lived well is evident from

the representation of rich donors at Buddhist sites of the second century B.C.E. Salaries were computed in coins whereas revenue collected in kind was more likely to have been paid locally. Since all manner of human activities were taxed, including magicians and prostitutes, tax collection required not only control by the administration but co-ordination as well.⁴¹ The Mauryan economy extended the use of money, beyond the obvious trade routes, judging by the widespread finds of punch-marked coins in the subcontinent.

Land Routes: Saletore speaks of two types of the land routes, the land routes, no less important than the sea-ways, may be considered from two aspects, the inland and overland. The inland routes were those leading from one important trade centre to another within the country, not only in the east and west coasts but also in the northern, central and southern parts of the entire sub-continent. The overland routes were, after all, only the exterior so far distant as ancient *Babylonia, Greece, Persia, Parthia, Seleucia, Egypt* and *Bactria* in the west while in the east there were routes through *Turkistan, Central Asia, Bactriana* and China. The Indo-Chinese pilgrim routes, the Indo-Tibetan China route were in one way or other connected with these routes.

We shall consider the questions of public safety on such roads and the modes of transport, though not in great detail. Saletore adds; the merits and demerits of land-routes like those of the sea appear to have been realized as earlier as 4th century BCE by Kautilya and his preceptor between whom, in many cases, there were differences of opinion. The question of the land routes was no exception in this respect. His preceptor held that land-routes, in comparison with sea-routes, were more expensive and less productive in realizing.⁴²

Saletore further says that there appears to have been a net-work of roads, the precise nature of which of course cannot be determined for lack of reliable evidence, not only between regions but also between cities. Banaras in the kingdom of Kasi could be reached not only from the Himalayan regions but also from Ujjain, Sravasti, Rajagriha, Sotthivati and Kausambi. From Indraprastha one could proceed to Dantapura in Kalinga and to Kalacampa in the Kingdom of Anga, which was also accessible from the Himalayan traces. From Dantapura one could travel by road to Campa in Anga, Jetuttara in the Sibi country (in the Kuru-ksetra region) and also seems to have been connected the *SuttaNipata* by a northern-south-western road one could journey to Ujjain, Mahissati, which would imply the existence of a road through these places. From Banaras one could go to Kosala and from Kosala to Taxila in the west and either to Magadha or to Anga in the east. He also described that in the Daksinapatha one could go from Dantapura in Kalinga to Indapatta (Indraprastha) from where, as noted earlier, there seems to have existed a road to Taxila, Banaras or Sagala. From Kalinga one could also move to the Assaka country through which ran the river Godavari on whose banks stood its capital, Potali, probably the Potana of the *DighaNikaya*. So we may presume that from Potali to Dantapura there must have been road communication.⁴³ During the Mauryan period, Pataliputra, as the centre of the land communications radiating in the north into the Himalayan region up to Nepal, in the west to Kambhoja celebrated for its horses, in the east to Anga and in the Daksinapatha to Ceylon.⁴⁴

Trade routes led from Varanasi to Ujjayini, Videha, Sravasti, Taxila, Kapilavastu, Kusinara, Mathura, Mithila, from Rajagrhya to Sravasti and Puskalavati, from Sravasti to Kausambi and Pratisthana, and from Saketa to Pataliputra. Despite the care taken by the authorities, roads in ancient India were in an extremely poor condition. It took merchants and travelers a great deal of effort and inventiveness to get to many of the regions. Besides, roads usually connected only the larger cities, mostly in the northern part of the country. Fa-hien, who visited India at the beginning of the 5th century B.C.E. described the roads in the south, as very dangerous and difficult.⁴⁵

The great highway may even be considered to have passed beyond the confines of India through Kambhoja, whose products were well-known to Kautilya, and Kapisa up to Alexandria of the Areias (Herat), so far as the western highway was concerned. In regard to the eastern arms of this Great highway it must have passed through the regions of Gauda, Anga and Vanga up to what has been called the mouth of the Ganges which may be taken to indicate the place where later the celebration of Tamralipti (tamluk) came into existence. In the west it must have coursed through Mathura, Vaisali, Sravasti, and Puskalavati and first through Bahlavya (Bactria) up to Kapisa through Kafiristan and right up to Alexandria of the Areias (Herat).⁴⁶

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